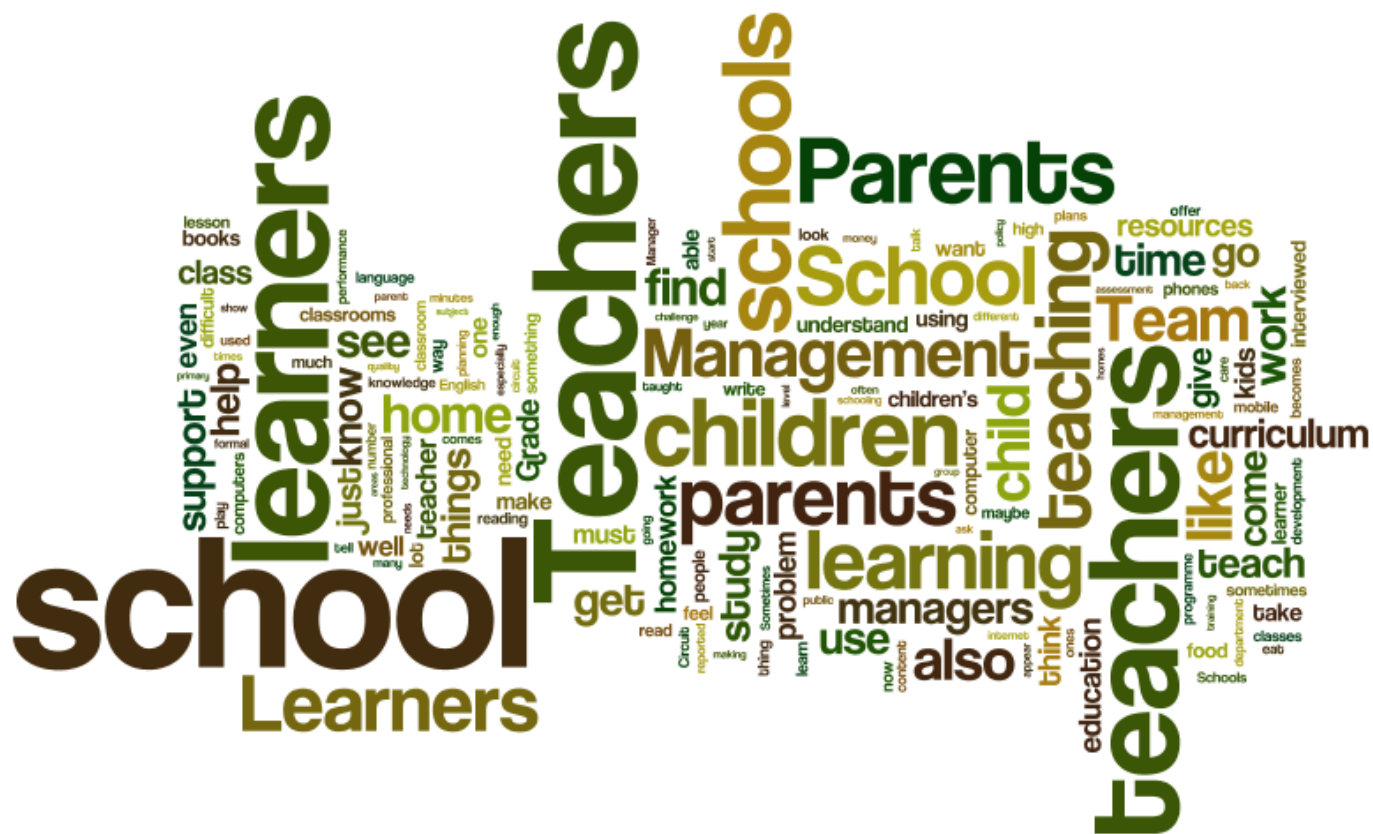


The South African Community Capability Study

The Context of

Public Primary Education



PREFACE

One of the *Centre for Democratising Information's* key projects aims to offer data on community wellbeing and agency using Amartya Sen's Capability Approach. The organisation is currently implementing a large scale quantitative and qualitative Community Capability Study that is exploring nine dimensions of community wellbeing and agency. These are:

- | | |
|---------------------------------|-----------------------------|
| 1. Education | 6. Environment |
| 2. Health, Nutrition and Safety | 7. Media |
| 3. Culture and Tradition | 8. Technology |
| 4. Democracy | 9. Work Life / Unemployment |
| 5. Managing Money | |

The Centre for Democratising Information Public Primary Education Research Project is an extension of the South African Community Capability Study, in that it takes an in-depth look at the education dimension within communities and its relationship to formal schooling in its location. While there is a growing local literature on learning and teaching within schools and on functioning schools, the notion of community agency and its relationship to formal schooling is less explored. The Centre for Democratising Information Public Primary Education Research Project intends to explore this relationship between community perceptions of education and their interaction with the local schools and vice-versa. The study is implemented in phases:

- Phase 1: Understanding the landscape of public primary education in South African using a combination of literature review and interviewing local experts and project stakeholders.
- Phase 2: Understanding the perceptions of communities that experience multiple deprivations (extremely poor communities) with regard to education in general.
- Phase 3: Exploring learning theories and alternative models of education.
- Phase 4: Investigating the state of learning and teaching in public primary schools in the communities sampled in the Community Capability Study with the intention to increase understanding of schooling within the broader context of society.

The following document provides insight into the findings of the Centre for Democratising Information Public Primary Education Research Project, and is presented in six chapters:

- CHAPTER 1: Chapter 1: INTRODUCTION TO THE STUDY AND OVERVIEW
- CHAPTER 2: INTRODUCTION TO THE SOUTH AFRICAN PUBLIC PRIMARY EDUCATION LANDSCAPE
- CHAPTER 3: LEARNING THEORIES AND ALTERNATIVE MODELS OF EDUCATION
- CHAPTER 4: LEARNING AND TEACHING IN SOUTH AFRICAN PUBLIC PRIMARY SCHOOLS
- CHAPTER 5: COMMUNITY PERCEPTIONS OF EDUCATION
- CHAPTER 6: CONCLUSIONS, RECOMMENDATIONS AND POSSIBLE INTERVENTIONS

We trust this report will contribute to the debates on improving the quality and outcomes of public primary schooling in South Africa.

Centre for Democratising Education Research Project Team

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LIST OF ABBREVIATIONS

ANA:	Annual National Assessment
CAPS:	Curriculum Assessment Policy Statements
CDI:	Centre for Democratising Information
DBE:	Department of Basic Education
DBSA:	Development Bank of Southern Africa
GDE:	Gauteng Department of Education
IQMS:	Integrated Quality Management System
LTSM:	Learning and Teaching Support Material
NCS:	National Curriculum Statement
NEIMS:	National Infrastructure Management System
PIRLS:	Progress in International Reading Literacy Study
SACMEQ:	Southern and Eastern Africa Consortium for Monitoring Educational Quality
SMS:	Short Message Service
TIMMS:	Trends in International Mathematics and Science Study
WCED:	Western Cape Education Department
CWP:	Community Work Programme (The Community Work Programme (CWP) is a South African government programme that provides an employment safety net. It aims to supplement existing livelihood strategies by providing a basic level of income security through work. ¹)

¹ <http://www.tips.org.za/community-work-programme>

1. EXECUTIVE SUMMARY

1.1. Aims and Objectives of the Study

The Centre for Democratising Information Public Primary Education Research Project is part of a larger Community Capability Study that explores community well-being and agency. This education project aims to investigate the state of education in public primary schools in South Africa, with particular focus on schools in poor communities. The specific objectives are to explore the:

- i. challenges facing learning and teaching in South African public schools
- ii. dominant classroom practices in schools located in poor communities
- iii. factors contributing to current classroom practices
- iv. learning opportunities in the home
- v. role of digital technology in public primary schooling.

The study was conducted in four phases over 10 months; starting in March 2012 and completing in December 2012. Phase 1 centred on interviewing experts in the field of education and recent local literature on the state of public schools. Phase 2 explored perceptions regarding education in poor communities. Phase 3 concentrated on reviewing the latest literature on the role of new digital technology, especially mobile devices in supporting education delivery. Phase 4 investigated the context of public primary schools in communities that experience multiple deprivations and the kinds of support that is needed to improve the quality of foundation phase education in public primary schools.

1.2. Methodology

The study employed a combination of reviewing local and international literature, in-depth interviews, and focus group discussions. The review of literature focussed on four aspects of school improvement; namely: the state of South African public schooling, learning theories, large-scale interventions, multi-grade classrooms and the use of information and communication technologies specifically mobile technologies in learning and teaching. Primary data was gathered from education experts across South Africa and from schools and communities in the areas surrounding Randfontein in Gauteng, uMthwalume in KwaZulu Natal, Thabazimbi in Limpopo, Bushbuckridge in Mpumalanga, Joe Morolong in Northern Cape and Wellington in Western Cape.

- 16 in-depth interviews were conducted with project stakeholders
- 28 in-depth interviews were conducted with education experts
- 20 focus group discussions were conducted with community members across the sample regions
- 4 in-depth interviews were conducted with circuit managers in the respective regions
- 11 focus group discussions were conducted with teachers in the sample schools
- 9 focus group discussions were conducted with parents in the sample schools
- 14 focus group discussions were conducted with learners in the sample schools
- 12 focus group discussions were conducted with school management teams in the sample schools

1.3. Introduction to the South African Public Primary Education Landscape

The majority of public schools are located in poor, black communities and reflect this in the demographic they serve. These schools tend to be under-resourced and the official language of learning and teaching in most of these schools is English - not the home language of most of the teachers or learners. There are 25,152 schools in South Africa and the majority have no connectivity (87%), no libraries (79%), no laboratories (85%), and no computer centres (77%). While there is acknowledgement that South Africa has made tremendous strides in quantity of schooling, quality remains a concern; performance in both the National Senior Certificate and the recently introduced Annual National Assessment (ANA) is low as well as in international benchmark studies. It is estimated that only 6% to 10% of South African learners are on par with 75% of the learners in developing countries and that the average 'poor' South African learner performs worse at reading than the average 'poor' Malawian or Mozambican learner.

Recent research in South African classrooms reveals that teachers have weak subject content knowledge and are struggling with subject pedagogy, content knowledge and are spending too little time on learning and teaching. Studies have also shown a direct correlation between school management and learner performance. High performance schools have school management that are focussed on learning and teaching and hence have strong internal and external accountability. Similarly there is a positive relationship between availability of textbooks and learner performance. In relation to literacy, teachers in the majority of public schools are using choral reading instead of scientifically based basal reading techniques. Basal reading instruction is a pedagogy that uses texts that have been specifically written to teach reading.

In response the Department of Basic Education and Gauteng and Western Cape departments of education have introduced large scale policy changes to improve classroom practices and ensure that teachers know the

cognitive demands of the curriculum. The National Curriculum Statement was introduced 2009, which offers more direction on the content and level that learners must achieve at the end of each grade. This curriculum policy is further supported by the introduction of the Curriculum and Assessment Policy Statement (CAPS) which comes into effect for foundation phase in 2012. In addition the Department of Basic Education (DBE) has designed and distributed 147 different workbooks to schools, so that learners can write in them and take them home to continue learning. The workbooks cover: literacy, numeracy and life skills in all official languages for foundation phase; literacy in all official languages for intermediate phase; numeracy and mathematics workbooks in English and Afrikaans for intermediate phase; and English workbooks and mathematics workbooks in English and Afrikaans for senior phase. The workbooks can be downloaded from the DBE website.

In 2003 the Western Cape Education Department launched its first literacy and numeracy strategy which was then extended for a ten year period in 2006. The recent McKinsey report on school systems includes the Western Cape Education Department as one of twenty international education systems that are showing improvements in learning and teaching. In 2010 Gauteng Department of Education launched its Primary Literacy Strategy which aims to change classroom practice of teachers.

The educational change literature is divergent but there is consensus on the following drivers for implementing systemic change: raising expectations; increasing accountability; capacity building; resources; goals that are achievable and interventions that are coherent and aligned to policy. While McKinsey offers the pathways to high performance education systems i.e. achieving the basics of literacy and numeracy; getting the foundations in place; shaping the professionals; and improving through peers and innovation.

Education experts interviewed identified eight challenges facing learning and teaching in South African public schools: apartheid legacy of unequal education provision; poverty; quality of teaching; accountability; corruption and inefficiencies; leadership and technical capacity; on-going change of political leadership; and ineffective implementation of the school language policy. They recommended a battery of interventions that can be grouped into four broad areas, namely: creating a positive learning and teaching environment; capacity building; increasing access to quality learning and teaching resources; and using technology.

1.4. Learning theories and Alternative models of Education

The South African curriculum policies draw on the work of developmental and cognitive psychologists Piaget and Vygotsky and hence is broadly categorised as 'constructivist or constructivism' in nature. Constructivism is a

move away from behavioural psychology that sees learning as a process of repetitive actions (stimulus-response). Constructivism sees learning as an active process where learners derive meaning through experiencing the environment and creating their own constructs. The role of teachers is thus to facilitate the construction of meaning and knowledge, a move away from lecturing content or choral reading.

Recent research by Brown and colleagues has shown that the context of learning plays a critical role in learning and knowing. Their research shows that learning and knowing is situated and hence learning in classrooms should be activity-based and that these activities should be based on real experiences, which Brown and colleagues refer to as ‘authentic activities’. They believe this is best done through ‘cognitive apprenticeship’, i.e. similar to craft apprenticeship. Thus coaching, mentoring, modelling and collaborations should be part of classroom pedagogy.

The Logo programming language created by Seymore Papert and his team in 1967 was the first software programme that drew on the works of Piaget and related constructivist theories and a move from ‘ready to use software’. Logo provided learners with activities that are project-based which allowed learners to do / learn / think individually and together through developing writing code to create geometric patterns or designing software to teach fractions. Since then the discourse of learning and information and communications technologies in learning and teaching has grown exponentially. Recently Koehler and Mishra introduced the concept of technology, pedagogy, and content knowledge to explore the competencies teachers require for integrating technology in delivering the curriculum or using technology to teach and learn. They provide a model of understanding good teaching using technology, i.e. the relationship and interaction between teachers’ subject content knowledge, pedagogy knowledge, and technology knowledge, i.e. understanding the subject that they teach and its epistemology, knowing how learners learn the concepts of their teaching subjects and appropriate teaching techniques to facilitate authentic learning, and distinguishing the functions of technology that can mediate learning. They coined the term ‘technological pedagogical content knowledge’ that reflects the intersections between content, pedagogy, and technology.

Hence effective learning and teaching require learner-centred, contextually relevant and active learning and teaching strategies in the classroom. The recent study on innovative teaching and learning by Microsoft Partners in Learning show that there were pockets of innovative teaching in the classrooms visited, however a coherent and integrated set of conditions to support the adoption of innovative teaching was lacking in most of the schools and all of the systems in their sample. The study concludes that innovative teaching practices are more likely to flourish when particular supportive conditions are in place; i.e. teacher collaboration that focuses on

peer support and the sharing of teaching practices; professional development that involves the active and direct engagement of teachers, particularly in practicing and researching new teaching methods; and a school culture that offers a common vision of innovation as well as consistent support that encourages new types of teaching.

1.5. Multi-grade Schools in South Africa and International Lessons

A third of South African public and community schools are categorised as multi-grade schools representing 0.4% learners and 7.07% teachers. Multi-grade schools are largely in rural areas and on farm schools with the exception of Gauteng. The majority of multi-grade schools comprise 1 to 2 classrooms. There is a slight increase in the number of multi-grade schools between 2004 and 2007 due to learner migration to cities and towns which has two adverse outcomes: decreased enrolment in disadvantaged communities and redeployment of excess teachers in these schools.

Currently there are no education policies directed specifically at multi-grade schools or multi-grade teaching and learning. Multi-grade schools do not receive additional resources or an 'adapted curriculum' that meets their unique context, hence teachers and schools are required to implement the curriculum which is solely designed for mono-grade schools and classrooms with fewer resources. Teachers are generally not trained for responding to multi-grade learning and teaching. Most teachers used revision and repetition to reinforce basic concepts and used peer tutoring to alleviate their burden.

While teachers attempt to adapt the curriculum to meet their own contexts, this is limited to organising the classroom. There appears to be a lack of skills in national and provincial departments of education in multi-grade classrooms and hence teachers are left alone to find solutions. Teachers are overwhelmed with managing classrooms and the diverse language needs of their learners in multi-grade classes. The only intervention to deal with multi-grade schools was established by the Cape Peninsula University of Technology in 2008. The University established the Centre for Multi-grade Teaching, which focuses on the basic principles of multi-grade teaching that offers accredited courses on rural education and multi-grade teaching up to doctoral level. Successful interventions to improve the quality of multi-grade schools show the following critical components:

- Adapting or re-organising the curriculum to meet multi-grade teaching and learning
- Developing learning and teaching resources specific for multi-grade teaching and learning
- Focussing on active learning and facilitating learners to learn independently and in collaboration with their peers
- Sustained teacher support and on-going professional development especially in improving teachers pedagogical content knowledge and skills
- Community involvement, especially in governance
- Policy commitment and acknowledgement of the unique needs of multi-grade classrooms
- Pressure and support (i.e. policy directives and related support)

1.6. Mobile technology in South African and Opportunities for m-Learning

Mobile technology is part of South African life, with mobile phones being ubiquitous from the urban suburbs to informal settlements to rural villages. Census 2011 shows that 88.9% of South African households own a working mobile phone and 74.5% a working television sets. Generally mobile phones are used to keep in touch with family and friends, access information, and search for work opportunities. The recent study by World Wide Worx shows that the average user spend on data has increased by half in the last 18 months, while spending on voice calls has declined. The internet is mainly accessed via mobile smart phones. The internet in the main is used to look for work (15.5%), search for information (15.5%), access social networks (15%) and to send and receive e-mails (14.5%). Recent studies show that learners are more adept at using digital technology than their teachers and parents.

Research on the use of mobile digital devices in learning and teaching in South Africa is scarce. The Digital Education Enhancement Project tested the use of information communication technologies including hand-held computers for teacher professional development in twelve schools in rural Eastern Cape in 2002/3. The study found information and communications technologies (especially hand-held computers) improved teachers' content knowledge, professional knowledge, fostered sharing, and enabled collaborative planning. At least a fifth of South African schools have computer laboratories and research in these schools show that teachers are resisting integrating them into their routine learning and teaching strategies because of lack of departmental support; lack of support and guidance from the principal, lack of training opportunities, no time given to learn the skills, overloaded with too many administrative burdens, having to attend too many training sessions on curriculum matters, unreliable technology, too little (or no) technical support, no time slots available to get into

the computer room, and no internet connectivity. Teachers appear to prefer mobile devices such as laptops to desktop computers for learning and teaching in their classrooms.

There are currently a few interventions using mobile phones in education including providing books on mobile phones; information on HIV/AIDS; and mathematics support. McKinsey groups the educational products available on mobile devices into the following eight categories:

- i. educational e-books and courses accessed through portable devices
- ii. learning management systems and authoring tools
- iii. game or simulation-based learning tools
- iv. collaboration tools
- v. adaptive assessment services
- vi. test preparation support and
- vii. distance tutoring and homework support.

1.7. Learning and Teaching in South African Public Primary Schools

Parents and learners interviewed share a high regard for learning and education for both its intrinsic and instrumental value. Learners see education as means of securing future employment and learning as a tool for a successful school career. An interesting finding is learners also view education as an instrument that nurtures acceptable social behaviour. Parents want their children to complete school, read for a higher qualification, get a secure job and be independent adults.

School is fun according to the children interviewed as they get to play with their friends; learn to read, write, spell, sing, dance, and draw; share with friends, answer questions, make jokes, visit places, use computers, and play sports. Interestingly learners are perceptive about quality of teaching, acknowledging of hard work by teachers, insightful about teacher's attitudes, and show understand their own learning styles and needs.

Schools also have a dark side, bullying at school is the most detested part of school life according to the majority of learners in the study. Bullies are both older learners in the school as well as their peers. There was unanimity between learners, parents, teachers and school managers that learner discipline is a problem and impacts negatively on the quality learning and teaching. No one appears to take responsibility for this ill-discipline. They are sceptical about positive discipline and alternative techniques to corporal punishment and prefer the use of spanking as a penalty for learners' mischiefs and misbehaviour.

Collegiality; management support; commitment to learning and teaching; concern and support given to learners; learner performance; and a beautiful school environment are characteristics that make teachers and principals proud of their respective schools. However, large numbers of learners per class or overcrowding; limited numbers of classrooms; and the absence of decent playgrounds and sporting facilities appear to crowd out and overshadow the positive school management and classroom practices in schools.

A very complex picture emerges of learning and teaching in the classroom. While, the Department of Basic Education has stipulated the content, the pace of content delivery, and assessment of content in the Curriculum and Assessment Policy Statement (CAPS) as well as a daily programme for teachers in the foundation phase teachers are struggling with implementation. Teachers complain that the content is too difficult and that the pace is too fast for their learners. Two dominant teaching strategies are used by teachers in the study to implement curriculum policy:

- first they use behaviourist teaching methods including ‘lecturing’, ‘choral reading’, ‘constant explanations’ and ‘repetition’, etc. and
- second they focus on their ‘top performing’ learners.

Their preference for behaviourist teaching practices appears to be influenced by their initial training, by their perceptions of their learners being ‘slow’, and their context of large numbers of learners per class. For example, teachers in the study feel very comfortable with using choral reading as the preferred reading methodology (as opposed to the basal reading), because they feel that this approach is most suitable for their learners’ aptitude and that it is appropriate in overcrowded classrooms.

Schools in the study are struggling with providing genuine learning opportunities in the classroom for learners with multiple learning barriers and learners with special education needs. It appears that schools are streaming learners within classrooms as a means of coping with the diverse learning needs of learners in the classroom. Repetition and peer learning are the two approaches teachers’ use in their classrooms to support learners who they consider ‘slow’.

Homework is a major struggle, few learners complete their routine homework tasks or major projects and assignments. Teachers blame parents for abdicating their parental responsibilities while acknowledging that parents are either working away from home or have low literacy levels to support their children with homework. Parents feel ill-equipped in terms of the new curriculum and have very little learning resources in their homes.

Orphaned children living in child-headed households, with grannies and extended families are further marginalised with respect to homework compliance.

Teachers and school managers interviewed do not acknowledge that they are struggling with subject content knowledge or subject pedagogy knowledge. They accuse the changes in curriculum, content overload in the curriculum, and learners' deprived home and community backgrounds as the factors responsible for the chaos in curriculum delivery in the classrooms.

It appears that lesson plans or the plans for actual classroom learning and teaching are informed by the curriculum policy, the availability of learning and teaching resources (or constraints of limited learning and teaching resources), and sensitivity towards their learners. The Curriculum and Assessment Policy Statement (CAPS) has positively contributed to teachers' planning as well as assessment practices. However, none of the schools in the study are able to complete the curriculum in any given academic year.

Language of learning and teaching is a contentious issue for parents and teachers. Most parents and teachers in the study would prefer that the language of learning and teaching be English. Their argument is that home language or first language is taught very academically at school which is very different from that spoken by learners in their home - especially the technical terms are foreign to learners. Furthermore, most classrooms are multilingual and most learners' homes are multilingual (parents who have different home languages). Another challenge facing home languages is the shortage of teachers who are qualified to teach in specific home languages per province. The current readers and workbooks for home language are reported to be badly written with many errors, which also contribute to make learning and teaching home languages difficult.

The Annual National Assessment is a huge challenge for schools in the study; both the school managers and teachers feel that the standards are too high and unfair for their learners and the contexts of their schools.

Teachers have few learning and teaching resources in their classrooms, they mainly use basic resources such as textbooks, workbooks, readers, chalkboard, wall charts, counters, and stationery.

1.8. Information Communication Technologies in Education

There was consensus that information and communication technologies are important in education and particularly in schooling. Respondents noted its instrumental role in school management and administration as well as in learning and teaching. All respondents were keen to ensure that learners learn about computers and were equally zealous about using digital technology to learn and to teach.

Teachers prefer mobile devices such as laptops because they can use it at home for planning and administration and they can use it in the classroom for learning and teaching. Furthermore, they argued that a computer laboratory is more difficult to integrate into their daily learning and teaching - it requires timetabling, time to get there and settle their learners, and having sufficient numbers to accommodate high learner-to-teacher ratios that is prevalent in most schools in the study, and multi-grade classes. Another struggle of managing computer laboratories in school is the lack of dedicated computer technicians to maintain the laboratory. The post provisioning norm does not accommodate for the employment of specialist staff.

The use of mobile phones in education was contentious. The main concern was the classroom management when integrating mobile phones in learning and teaching. Teachers feared that learners will be distracted and spend their class time on accessing social media and instant messaging services such as Mxit and WhatsApp. Accessing pornography was frequently raised as a concern of using smart phones. A few teachers also raised the alarm of cyber bullying. These are the reasons that schools in the study used to prohibit learners from bringing mobile phones to school. Parents share these concerns and agree that mobiles phones should not be taken to school. Another concern is theft of mobile phones at schools which teachers and school managers do not want to manage.

Nonetheless parents, teachers, school managers, and circuit managers do see the value of mobile phones in learning and teaching. They have experienced the positive contribution of mobile phones to learning and teaching. Teachers routinely use their mobile phones in their work. They use the calculator to work out percentages, the calendar for lesson planning, the clock for timing their teaching and learning activities and the web browser to access the internet.

1.9. School Management

The picture of school management is both byzantine as well as complex. While teachers and school managers talk passionately about collegiality and openness in their respective schools they simultaneously contradict this by accusing each other of non-performance. Similarly circuit managers provide contradictory reviews of schools in their respective circuits. Teachers and school managers accuse their respective circuits of offering minimal support or addressing their challenges.

An interesting finding is none of the school managers, circuit managers or teachers interviewed see school management in terms of delivering a quality curriculum, offering learners genuine learning opportunities, and facilitating high learner performance. These are the fundamental outcomes of a school system. School managers appear mainly to focus on their bureaucratic responsibilities such as monitoring and reporting and putting in place systems and processes. Few of the school management teams interviewed talked about their professional duties of providing professional development support to teachers, helping teachers to offer quality learning and teaching, successfully delivering the curriculum, and assisting learners achieve their goals.

The Integrated Quality Management System (a 360° performance management system) is the key policy instrument that schools in the study use to identify the professional development needs of their teachers. However there is no coherent professional development support for teachers and school managers in the study, making a farce of the integrated quality management system.

1.10. Social Partners

The national state is the major social partner of schools in the study. The private sector and civil society offer sporadic support. The National School Nutrition Programme provides all quintiles 1 to 3 primary and secondary schools with one meal a day. The South African Social Security Agency gives uniforms for orphaned and vulnerable learners at the beginning of each academic year and the Community Work Programme provides people to help with cleaning, gardening, and in some schools administration assistance and teacher assistance. Unlike the free uniform programme that reaches all schools, the Community Work Programme is a small scale intervention to provide employment opportunities (8 days per month) to a pre-determined number of unemployed people in selected communities. Local municipalities appear to offer minimal support to schools in their jurisdiction. In Gauteng the provincial education department is implementing the Extra School Support

Programme where 13 000 part time workers will offer primary school learners one hour supervised homework and one hour supervised recreational activities after school every day.

1.11. Children's Barriers to Schooling

Parents, school managers, and teachers interviewed noted numerous barriers to children's schooling in their respective communities, these include:

- Poverty in the home and community
- Low levels of literacy of parents and caregivers
- Young parents
- Orphaned children and child headed households
- Unavailability of support to learners with special educational needs
- High learner-to-teacher ratio
- Schools are far from children's home
- Negligent teachers
- Not enough food to eat
- Neglect and abuse in their homes

1.12. Challenges Facing Public Primary Schools in Poor Communities

Circuit managers, school managers, and teachers reported the following challenges that they face:

- Loosely coupled education system
- Migration to urban centres
- High Learner-to-teacher ratios
- Bad road infrastructure
- Limited opportunities for intensive professional development as well as continuous professional development
- Shortage of quality learning and teaching resources
- Weak parental participation in school
- Sporadic learner attendance

1.13. What Kinds of Support do our Public Primary Schools Require?

Public primary schools in the study face multiple deprivations from inadequate infrastructure to limited parental support. Here is a summary of areas that learners, parents, school managers and teachers prioritised for support during the interviews:

- Cleaning staff
- Adequate professional development support from the circuits/districts
- Learning and teaching resources
- Mobile digital devices
- Physical Infrastructure
- Basic Services
- Furniture
- Support orphans and vulnerable children
- Remedial and additional support for learners who are struggling
- Playground and sports facilities
- Review of the Post Provisioning Norm
- Improvement in school security
- Parental support

1.14. Community Perceptions about Education

Generally communities in the study recognise the instrumental value of education. They see education as a “key to success”, i.e. education is a means to gaining knowledge, skills, and values that can be harnessed to improve their livelihoods. Equally important to communities in the study is the notion of education as a tool for personal empowerment and enlightenment. Their experiences have highlighted that ‘illiterate’ people are undermined and exploited. Education is also seen as a means for intergenerational mobility. There is recognition that the economy is changing and requires higher levels of knowledge, skills and values. Education is also seen a tool for moulding socially acceptable behaviour and hence gender stereotypes.

Respect for oneself and for people around you is the most valued quality across all communities participating in the focus group discussions. Respect is considered the bedrock of learning and education; as such genuine

learning takes place in environments that foster respect and in individuals who are respectful. Communities in the study placed higher value on ‘soft skills’ than ‘hard skills’. Technical skills that would relate directly to employment are considered secondary to those skills that will enhance an individual’s relationship within society such as respect and being presentable. In other words shared communal values and cohesion within the community is paramount.

Communities in the study talked at length about the changes in the schooling system, but little about the wider education landscape. In terms of schooling they agree that there are tremendous strides in increasing access to education, especially for poor communities. They appreciate the no school fee policy, the national school nutrition programme, free transport, and free uniforms for vulnerable children. This has ensured that children in their communities remain in school for longer than before, i.e. they receive more years of schooling now. Furthermore they noted the improvement in learning and teaching resources in public schools, especially the access to photocopiers, printers, laboratory equipment, and library books.

1.15. Conclusion, Recommendations, and Possible Interventions

There are five major challenges facing public primary schools in South Africa; first high teacher-to-learner ratio or overcrowding, second shortages of classrooms and quality learning and teaching support materials, third the dominance of behaviourist teaching practices based partly on the assumption by teachers that their learners from poverty stricken homes are ‘slow’, fourth inadequate support to schools and their learners to mitigate the impact of poverty in their communities, and fifth lack of coherent and continuous professional development for teachers and school managers.

While recognising that all five challenges are structural or systemic in nature; social partners can contribute to alleviating these challenges particularly in meeting schools’ learning and teaching support material needs, building teachers’ confidence in using constructivist approaches to teaching and learning, and assisting teachers in improving their technological content knowledge. Thus the following recommendations emerge from the findings of the study:

- Consider the use of mobile digital devices such as tablets and mobile phones to enhance the functioning of schools and to support the delivery of the curriculum.
- Consider the use of mobile digital devices such as tablets and mobile phones to enrich learners’ home learning environments.

- Consider the use of mobile digital devices such as tablets and mobile phones to accommodate diverse learners in a classroom and to facilitate both individual and collaborative learning.
- Consider the production of digital learning and teaching resources for learner's home languages for foundation phase.
- Consider offering teachers and school managers an intensive in-service training programme that centres on gaining technical skills in using information and communication technology and exploring the role of digital mobile technology in the classroom to enhance learning and teaching.
- Consider providing parents with resources to make sense of curriculum policy, expected learning and teaching outcomes per grade, and ways in which they can help their children meeting the demands of formal schooling.
- Consider a means of allowing learners, teachers, and parents to be part of producing education resources that are meaningful to their own lived experiences.

The table below provides a summary of possible interventions to support learning and teaching in primary schools.

Participants / Partners in Interventions	Nature of Intervention	Description of Intervention
Learners	Resources to facilitate self-learning and peer learning	Curriculum resources that will augment textbooks, provide additional information, test understanding and encourage them to apply their knowledge and skills
	Active participants in the creation of learning and teaching resources	Learners are adept with technology and sensitive to their learning needs - it may be useful to allow them to be joint producers of learning and teaching materials
Educators	Intensive professional development support in technological content knowledge	Teachers urgently require technical knowledge about technology (knowing how to use it) as well as ways in which they can use it in their classrooms
	Lesson planning applications	Lesson planning is time consuming and teachers appreciate the templates provided, however an application will be more efficient and allow storing, retrieval and easy sharing
	Applications to adapt the curriculum to meet their classroom needs	South African classrooms are diverse and teachers need to meet diverse needs of their learners as well as comply with the curriculum. An application that can assist teachers in adapting their curriculum content to their class will contribute to enhancing teachers' professional decision-making
	Active participants in the creation of learning and teaching resources	Schools are located in diverse communities with different lived experiences. Teachers are creating their own learning resources and can be helped to share their resources with other schools in similar cultural, geographic and socio-economic circumstances
	Applications to create classroom resources such as posters, flashcards, worksheets, tests, examinations	Applications that will allow teachers to make 'professional' worksheets, tests, posters, etc. will go a long way in making classrooms learner friendly
Parents	Easy guide to curriculum policy	Easy guides to understanding the curriculum and the cognitive levels per grade
	Homework tips	Techniques to help parents support their children with homework
	Learning resources in the home	Easy to make and use learning resources for the home

2. HIGH-LEVEL INSIGHTS GENERATED FROM THE EDUCATION REPORT

2.1. Overall Insights

- The majority of public primary schools are located in poor black communities. The schools are under-resourced with high learner-to-teacher ratios. There are classroom shortages and the majority of public schools have no libraries, computer or other laboratory facilities. Very few schools have any form of connectivity. There is a serious shortage of quality learning and teaching resources in foundation phase from basic counters to readers to wall charts. Teachers cannot rely on their learners to bring recycled material from their home to improvise as their learners' home environments are deprived of learning resources including magazines or newspapers. Nonetheless teachers make rudimentary learning and teaching resources such as wall charts, worksheets, as well as use recycled material and sometimes resources from the environment like clay.
- The post provisioning norm is creating havoc in no fee schools or schools in poor communities. The number of educators per school is determined by the learner: teacher ratios. This formula is not sufficiently sensitive to the unique needs and contexts of small schools particularly multi-Grade schools and rural schools that want to offer a wide curriculum. According to schools in the study the post provisioning norm does not accommodate for specialists such as librarians, computer technicians, etc. Furthermore, most schools in the study are understaffed, where the learner: teacher ratio is as high as 60:1. The goals of the post provisioning norm does not translate into equity as poor schools cannot afford additional teacher posts that can be paid from school fees.
- Education is highly regarded by learners and their parents in poor communities. They see education and schooling in particular as a means to lead meaningful lives, secure well-paying careers, and to be able to live independently as adults. At an intrinsic level education and learning allows personal independence to function fully in communal, social, religious, cultural, and economic activities. Learning and education also cultivates self-awareness, self-esteem, confidence, helps individual to remain motivated, enables individuals to make decisions, find information that empowers their lives and assert their rights, and allows continued learning. At an instrumental level learning and education facilitates intergenerational mobility, cultivates socially acceptable behaviour and promotes respect and deeper understanding, and entrenches gender stereotypes, that is the different roles and responsibilities of males and females in society. The accepted view is that women and men are responsible for different social responsibilities.
- Learners enjoy school so that they can be with friends, play, and learn. Schools are also unsafe and bullying is the most dangerous part of being at schools. Corporal punishment appears to be part of the psyche of poor communities as the most effective means of disciplining children and learners. Positive discipline remains on the periphery and has not become part of schools' mainstream discipline programme.
- Learner performance of the majority of public primary schools in standardise tests is extremely low. The Annual National Assessment results for 2011 shows average scores of 30% and lower in languages and

mathematics in all the grades. Teachers and school managers find the Annual National Assessment unfair, they feel that the standard is too high and does not accommodate their school contexts. The majority of teachers are not completing the curriculum. Their main reasons for noncompliance are overcrowded classrooms, 'slow learners', content overload in the curriculum, too many distractions from teaching time such as cleaning classrooms, feeding learners, attending workshops and meetings. Furthermore teachers and school managers in poor communities seem to spend a lot of time on mitigating the impact of poverty on their learners. They act as social workers, police officers, primary health practitioners, food servers, donors and then teachers. Nonetheless it looks like teachers have weak subject content knowledge and subject pedagogy content knowledge and that they are spending too little time on learning and teaching. Teachers and school managers do not feel that they are lacking in subject content knowledge or subject pedagogical knowledge. They blame their uncertainty around the curriculum on frequent changes to the national curriculum policy. Generally teachers and school managers of schools in poor communities appear to resist sincere reflection on the quality of the learning and teaching they are offering their learners. Accountability, delivering quality curriculum and high learner performance do not appear in teachers and school managers reflections on their work and the challenges facing them. The objective conditions of their school environments and their learners' poverty stricken backgrounds dominate their discourse on weak learner performance.

- Teachers find their profession extremely rewarding. They became teachers because they enjoy helping young people to learn and to develop their full potential. It is also a means to contribute to their communities' wellbeing.
- Learners from poor communities face multiple barriers to formal education and schooling in particular - they do not have enough to eat at home; they are often neglected by their parents; they have limited learning resources in their homes; their parents and caregivers often have low literacy levels; they have no access to basic services in their homes such as water and electricity; they live in shacks or crowded homes; some of their parents are young and insecure; they live far from their schools; and they have limited access to social and health services. They attend schools that are overcrowded and are often neglected by their teachers because their teachers perceive them as being 'slow learners' or their teachers are too overwhelmed to offer them any individual attention. They come to school because they want to learn and because they are guaranteed a meal at school. However, many are left behind and are not on par with the expectations of local and international education standards.
- School-Based Support Teams (a committee of teachers from the school) are the only real and consistent help that vulnerable learners get in schools in poor communities. However, the teachers on these committees are untrained for this role and are overwhelmed with the number of cases of learners requiring special attention and the long process to access services from both the departments of education and social development. This is further exacerbated by the lack of support schools receive to assist learners with special educational needs. Streaming in classrooms, repetition, and peer learning dominate teachers' approaches to supporting learners with special educational needs. The National School Nutrition Programme has made a significant contribution to learning and teaching, while it is only one meal during the school day, learners, parents, teachers, and school managers appreciate the programme. In addition to alleviating hunger amongst learners, the programme also reduces bullying, improves learner attendance,

and contributes to the efficacy of HIV/AIDS treatment of infected learners (who need to be well nourished for the treatment to work). Free school uniforms to orphaned and vulnerable children have also contributed to increasing access to schooling for poor children.

- The National Curriculum Statement and the Curriculum and Assessment Policy Statement provide teachers and school managers with benchmarks for the cognitive level they need to ensure their learners reach at the end of a grade. In addition it stipulates the required content to be covered and the number of formal assessments to be implemented and recorded. In foundation phase the curriculum policy articulates the daily programme the teacher must follow in order to meet the content and cognitive demands of the curriculum. Lesson planning has become much easier for teachers with the introduction of the Curriculum and Assessment Policy Statement. The pace setters and content specifications has eased lesson planning. Their main resources in lesson planning include textbooks, resources on the internet and policy documents. However their actual classroom practices are restricted by the limited learning and teaching resources available in their classrooms and schools. Interestingly teachers are overwhelmed by the variety of textbooks in the markets. Teachers are planning individually as well as collaboratively. The quarterly and annual plans are done with their colleagues in the same grade / phase / subject area, while daily and weekly lessons plans are done individually. It appears that collaborative planning is contributing to their professional development and improving collegiality. Teachers and school managers appear to be compliant around on-going assessment as required by the Curriculum and Assessment Policy Statement. Furthermore they are aware of the need for formal and informal assessments in their teaching. Textbooks, department of education database of questions, resources on the internet, and school's own databank of assessments are used to set examination questions and other formal assessment tasks including tests and assignments and projects.
- Foundation phase teachers use two dominant strategies to implement curriculum policy in their context of overcrowded classrooms; i.e. behaviourist teaching approaches such as lecturing and choral reading and they focus on their 'top performing' learners. The preference to behaviourist teaching methodology is influenced by their initial training as well as their perceptions that their learners are 'slow'. Few teachers use basal reading techniques - a scientific method for teaching reading which focuses on phonemic awareness, vocabulary, fluency, and text comprehension. They prefer choral reading that centres on single letters and individual words often with single consonants. Teachers do use constructivist teaching and learning approaches sporadically including learning by play and learning by doing, collaborative learning and situated learning. They recognise the value and efficacy of these teaching strategies but resist using them all the time. It appears that the management of large classes and their perception of having 'slow' learners have created a fear that constructivist teaching methods may be impractical to do all the time. An interesting finding is that young learners in foundation phase understand quality learning and teaching and can make informed decisions about the quality of their teachers because they inherently understand their learning styles and their learning needs.
- The language of learning and teaching is a complex issue. The majority of parents and teachers want English as the language of learning and teaching from foundation phase for their children mainly because it is seen as the 'language of work' and that it will improve their chances of performing well at secondary school. Teachers complain that the home languages as thought in schools is very formal and almost foreign from the

language learners speak at home and the technical terms especially in mathematics are difficult in the home languages than in English. The home language resources are few and the quality is bad with lots of errors. They also find that their classrooms are multi-lingual. Furthermore there is a shortage of home language teachers and that all the curriculum policy documents are in English. Only a few teachers recognise the value and efficacy of teaching in the learners' home languages at foundation phase.

- Homework is another multifaceted issue. Teachers and school managers' report that their learners do not fulfil the homework requirement, while parents and learners say that they meet this requirement. However, parents do not feel competent or confident in helping their children with homework. They have few learning resources at home and often rely on their child's textbook and notes in their child's exercise book. They draw on given examples to help their children with homework. However there is a shortage of textbooks and teachers do not allow their learners to take home some of their books for fear of carelessness. Interestingly parents know very little about their children's school curriculum and are keen to learn more about it. Low literacy levels amongst parents and caregivers are also a reason for learners' noncompliance with regard to homework according to teachers and parents. There is also a perception amongst some parents that teachers are abdicating their teaching responsibilities when they give their children homework, while others are unsure about the purpose of homework. Homework also appears to further disadvantage learners who are orphaned and living in child-headed households, learners who are living with extended families and learners who live in dysfunctional home and are face neglected.
- Parental participation is low in their children's schooling and is another multi-layered issue. Teachers and school managers are frustrated and feel that parents are neglectful while acknowledging that parents are working far from their homes and are unable to be very active in their children's school events. Teachers also recognise that many of their learners' parents have low literacy levels and often feel intimidated by formal institutions such as schools. Parents also acknowledge that they may not be doing enough to help the school but are exasperated by their own poverty and limited resources in the home to share with their children's school or to make learning conducive in their homes. Both teachers and parents are aware that a significant number of learners and children live in child-headed homes with minimal support or living with their grannies that are unable to participate in school events.
- Professional development that is continuous and coherent to meet the developmental needs of educators is non-existent in the schools in the study. Teachers and school managers receive ad hoc training mainly in the form of short workshops or they can access bursaries to read for a qualification at a tertiary institution. Schools as workplaces have no budgets for internal professional development. Both teachers and school managers see this as a major contradiction of the Integrated Quality Management System that is underpinned by developmental appraisal.
- A third of South African public and community schools are categorised as multi-grade schools representing 0.4% learners and 7.07% teachers. Multi-grade schools are largely in rural areas and on farm schools with the exception of Gauteng. Multi-grade schools are small with 1 to 2 classrooms. Since 2004 there is an increase in multi-grade schools in South Africa. The increase is largely due to migration of learners from rural schools to urban schools, resulting in a drop of learner numbers in primary schools in rural areas. The post provisioning norm only considers learner enrolment figures in determining allocation of teachers to schools resulting in a shortage of teachers in rural schools. Multi-grade schools receive no unique support by

national and provincial departments of education. They are required to function like mono-grade schools and meet all the requirements of curriculum policies. Teachers are not trained and supported to teach multi-grade classes and resort to revision and repetition to reinforce basic concepts and use peer tutoring to alleviate their burden as well as a means to organise their classrooms.

- There are major interventions by the Department of Basic Education and the Gauteng and Western Cape departments of education. The Department of Basic Education has designed and distributed workbooks in all languages covering key subject areas from grade R to 7. The workbooks are free to schools and all learners should have a workbook and must write in them and take them home to continue with activities. The workbooks can also be downloaded from their website. The Gauteng and Western Cape departments of education have implemented large scale literacy and numeracy improvement strategies targeted to primary schools and foundation phase in specific. In the most recent McKinsey report (2011) - *How the World's Most Improved School Systems Keep Getting Better* – Western Cape Education Department is one of 20 education systems in the world that are showing improvement.
- South African experts in education policy and policy implementation have noted eight factors that are contributing to low educational outcomes in public schools, including: apartheid legacy of unequal education; high levels of poverty in communities; weak quality of learning and teaching; lack of accountability across the system; corruption and inefficiencies in the system; ineffective leadership and managements; on-going changes in the curriculum; and ineffective implementation of the language policy. They recommend that school improvement programmes should focus on creating a positive learning and teaching environment; building capacity across the schooling system; increasing access to quality learning and teaching resources; and using technology to support the functions of schools.
- The McKinsey Report – *How the World's Most Improved School Systems Keep Getting Better* identify six actions that improving school systems have in common. These are revising the curriculum and standards, ensuring an appropriate reward and remuneration structure for teachers and principals, building the technical skills of teachers and principals, assessing learners, establishing data systems, facilitating improvements through the introduction of policy documents, and education laws
- Successful international interventions to improve the quality of multi-grade schools show the following critical components: adapting or re-organising the curriculum to meet multi-grade teaching and learning; developing learning and teaching resources specific for multi-grade teaching and learning; focussing on active learning and facilitating learners to learn independently and in collaboration with their peers; sustained teacher support and on-going professional development especially in improving teachers pedagogical content knowledge and skills; community involvement, especially in governance; policy commitment and acknowledgement of the unique needs of multi-grade classrooms; and pressure and support (i.e. policy directives and related support).
- Mobile phones are ubiquitous in South Africa with 88.9% of household ownership and only 14.5% households have a working landline telephone. The internet in South Africa is accessed mainly through mobile phones. The average mobile phone user spend on data has increased by half in the last 18 months, while spending on voice calls has declined.

- Young people use the internet to keep in touch, mainly using Facebook and Mxit (cheaper than making a call or using short message services). They also used the internet in the main to look for work (15.5%), search for information (15.5%), and to send and receive e-mails (14.5%).
- Teachers, parents, school managers, and circuit managers are keen on using information and communication technologies in education. They want to teach learners about technology as well as use technology to learn and to teach. Currently technology is used for administration; communication; creating worksheets and examination papers; making learning and teaching resources and improving content knowledge. Parents also appear to use technology for child minding. Teachers prefer mobile devices mainly laptops and data projectors or smart boards over desk-top computers for learning and teaching in their classrooms. In a study in rural schools in the Eastern Cape in 2002/3 on using hand-held computers for professional development, findings showed positive improvements in rural teachers' contents knowledge, professional knowledge, fostered sharing, and enabled collaborative planning. Teachers find computer laboratories difficult to use because it takes time to get learners to the laboratory, there is not enough computers in the laboratory, and scheduling use of the laboratory is time consuming. Furthermore the lack of technical support is another major barrier to effectively using computer laboratories at school. It appears that school computer laboratories are seldom used in the foundation phase. Teachers also value television and radio sets as learning and teaching resources. Some schools in the study tune into the public broadcasters' educational programming offered on radio.
- Parents, teachers, and school managers acknowledge that learners are adept with mobile phones and that there may be educational value to mobile phones, especially accessing the internet through smart phones.
- Teachers routinely use their mobile phones in their work. They use the calculator to work out percentages; the calendar for lesson planning, the clock for timing their teaching and learning activities and the web browser to access the internet. While their learners use mobile phones to calculate, make voice calls, send and receive messages, download music, take pictures, share music, send 'please call me', play games, chat, and browse the internet.
- There is a significant gap between learners and teachers in both internet usage and using the applications available on mobile phones. Learners (82%) are more confident on advanced internet features than their teachers (51%). Learners (87%) tend to use the applications available on their mobile compared to their teachers (49%). Teachers' technological content knowledge is weak to effectively engage with information and communications technology available to them. In order for teachers to be able to effectively integrate technology, particularly information, communication technology, teachers must have sound technological pedagogical content knowledge. Technological pedagogical content knowledge is the intersection between teachers' content knowledge, pedagogical knowledge, and technological knowledge.
- Schools in the study have prohibited the use of mobile phones in the classroom for fear of classroom management demands the technology will impose. They fear that their learners will be distracted by social networks and instant messaging services available, theft of mobile phones, accessing pornography, and cyber bullying.

3. CHAPTER 1: INTRODUCTION TO THE STUDY AND OVERVIEW

The Centre for Democratising Information (CDI) Public Primary Education Research Project is part of a larger Community Capability Study that explores community wellbeing and agency. The CDI Public Primary Education Research Project aims to investigate the relationship between community wellbeing, agency and formal public primary schooling in local communities, with particular focus on poor communities.

The study uses Amartya Sen's Capability Approach as the lens for understanding community wellbeing, agency, and the relationship between communities and public primary schools. The outcome of the study is to generate a set of recommendations for future initiatives that are aimed at improving the quality of educational outcomes within public primary schools and foundation phase in particular.

As such the CDI Public Primary Education Research Project is extensive; including the voices of stakeholders in the project, experts working in the education sector, community members, circuit officials, school managers, educators, learners and parents.

The study was conducted in four phases over 10 months; starting in March 2012 and completing in December 2012.

- Phase 1: Exploring the state of learning and teaching (or quality) in South African public schools using a combination of literature review and in-depth interviews with project stakeholders and local education experts.
- Phase 2: Understanding the perceptions of communities that experience multiple deprivations (extremely poor communities) with regard to education in general.
- Phase 3: Reviewing the latest literature on the role of new digital technology, especially mobile devices in supporting education delivery.
- Phase 4: Investigating the context of public primary schools in communities that experience multiple deprivations and the kinds of support that is needed to improve the quality of foundation phase education in public primary schools.

The following section provides a brief description of Sen's capability approach, followed by the suitability of the approach to education. Section 3 presents the overall aim and objectives of the study, while section 4 provides a description of the various research methodologies used in achieving the aims of the study. The last section introduces the report structure.

3.1. Capability Approach

In 1979 Amartya Sen introduced the notions of ‘capability space’ and ‘basic capability equality’ as a means of measuring development and equality, which he later formulated into the capability approach. The capability approach offers a framework for determining development and wellbeing and the extent of achieving equality. Development as a means to extend individual and communities’ freedom is at the centre of the framework. In this capability space, it is about measuring the real opportunities individuals and communities have in doing and being what they reason to value. The capability approach provides an alternative lens for assessing development as it looks at the objective conditions of people and communities; what individuals and communities are able to do and be and their opportunity set, i.e. their possible

The foremost measure for development is economic growth, i.e. per capita income or gross national product which is calculated as the total goods and services produced within a country for a given period divided by the total population at that time. This calculation does not consider the distribution of income and hence provides a skewed reflection of individual wealth. Furthermore, income does not adequately reflect a person’s wellbeing in many areas of life be it health, education, or happiness, for example a person may have the necessary resources but is unable to do things due to personal, social or environmental constraints.

‘opportunities and successes’². Opportunities and successes are core concepts of the capability approach, where opportunities are referred to as capabilities and successes are functionings. Functionings are what individuals and communities are able to do and be and capability is the set of various combinations of functionings a person or community can achieve. Hence capability is an individual or communities’ set of choices or freedom to lead one or another kind of life (Sen, 1987, Saito, 2003, Zheng, 2009). In Sen’s words (1987, p36):

“A functioning is an achievement, whereas a capability is the ability to achieve. Functionings are, in a sense, more directly related to living conditions, since they are different aspects of living conditions. Capabilities, in contrast, are notions of freedom, in the positive sense: what real opportunities you have regarding the life you may lead.”

Zheng (2009) notes that Sen differentiates between “means to achieve” (what one values), “freedom to achieve,” and “actual achievement”. Hence individual or community wellbeing is determined by the freedom to choose a set functionings that is of value.

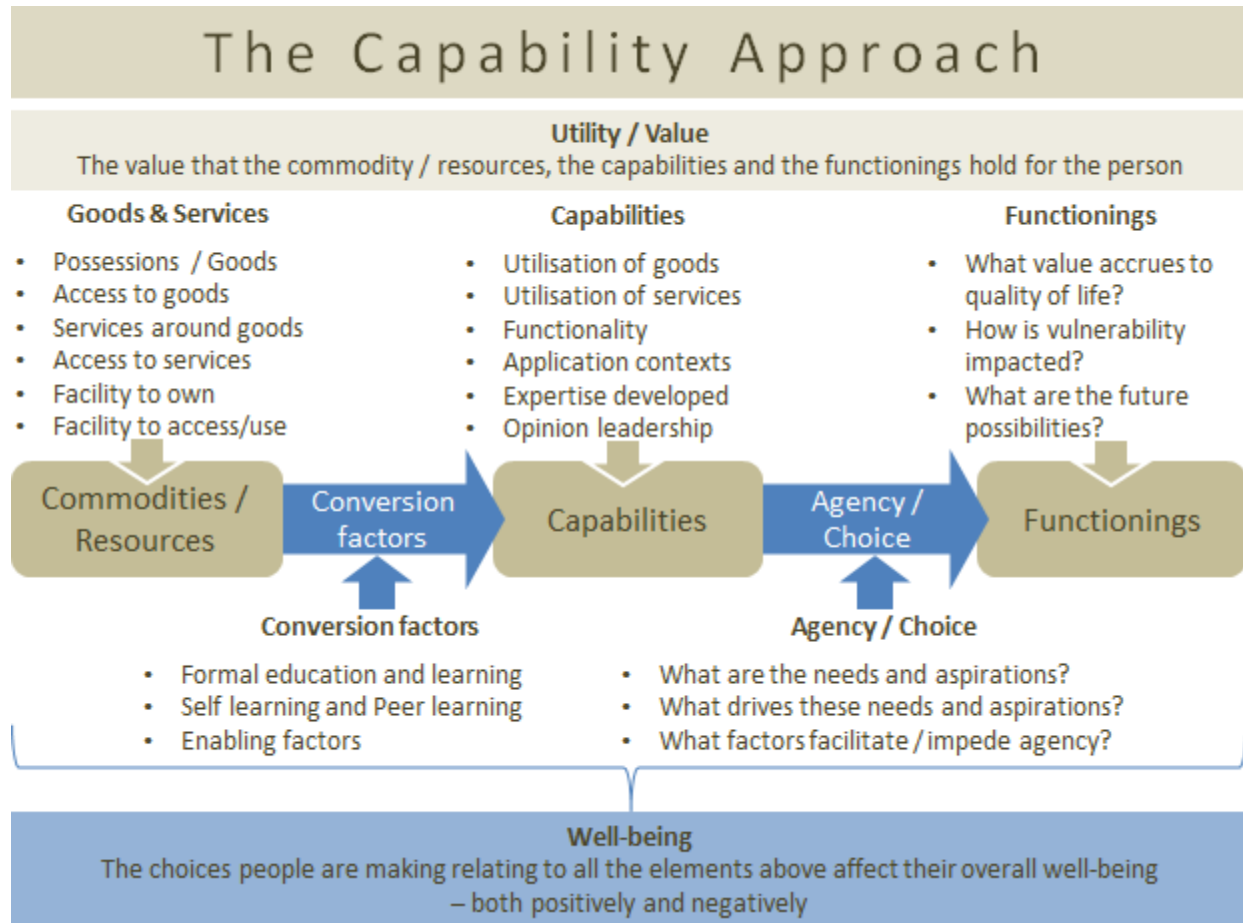
² Sen, A. (1993). Capability and Well-Being. In *Quality of Life*, edited Nussbaum, M, Sen, A, 1993, p50

The capability approach acknowledges that resources or commodities are useful because of the characteristics they have, for example bread for its nutritional value and social utility or a bicycle for transport or leisure activities or a book for learning or relaxation, etc. The capability approach goes a step further and looks at transformation of commodities into valuable doings and beings, for example access to bicycle does not necessarily translate into transportation if the road or terrain is unsuitable for this mode of transport or a person may be gluten intolerant and cannot digest the bread in his possession or the book available to a blind child is not in braille. The factors that enable transformation of commodities into functionings are referred to as conversion factors. Chigona and Chigona (2010) offers three categories of conversion factors, these are:

- personal characteristics, e.g. mental and physical condition, literacy and gender
- social setting characteristics, e.g. social norms (e.g. rule of behaviour, materialism, etc.), social institutions (e.g. political rights, public policies, etc.), and power structures (e.g. hierarchy, politics) and
- environmental factors, e.g. climate, infrastructure, resources and public goods (Sen, 1992).

Since choice is an integral part of selecting doings and beings of value, the notion of agency that is “one’s ability to pursue goals that one values and that are important for the life an individual wishes to lead; agency and well-being are hence deeply connected. Because agency is also central to Sen’s ideas of the freedom to make choices, a lack of agency or a constrained agency equates to disadvantage” (Walker, 2006). In the capability approach individuals and communities are active; they make choices and take actions to bring about the change they value. Thus to determine substantial development requires examining both wellbeing freedom and agency freedom (Saito, 2003; Walker, 2006; Chigona and Chigona, 2010). Figure 1 presents an illustration of the Capability Approach.

Figure 1: Illustration of the Capability Approach



3.2. Capability Approach and Education

Education is generally seen as a means to securing better work opportunities for the individual and at a national level as a way of getting skilled and knowledgeable citizens or a workforce that will contribute to economic growth and development (Sen, 1997; Unterhalter in Deneulin, 2009). This view of education is referred to as the human capital theory and views humans mainly in terms of production resources. The capability approach recognises this instrumental role of education, but sees education more broadly as having both intrinsic and instrumental value. Sen (1997) sees human capital and human capability as related but distinct:

“Consider for example. If education makes a person more efficient in commodity production, then this is clearly an enhancement of human capital. This can add to the value of production in the economy and also to the income of the person who has been educated. But even with the same level of income, a

person may benefit from education, in reading, communicating, arguing, in being able to choose in a more informed way, in being taken more seriously by others, and so on. The benefits of education, thus, exceed its role as human capital in commodity production. The broader, human-capability perspective would record – and value these additional roles. The two perspectives are, thus, closely related but distinct.”

While education is underspecified in the capability approach (Saito, 2003; Walker, 2006), Unterhalter (2003) argues that education fulfils three roles, namely:

- instrumental,
- empowering, and
- redistributive

In addition to these 3 roles, in using the capability approach the emphasis is not limited to employment opportunities but on the freedom to achieve what a person values. Hence, Walker (2006) suggests that we should ask this question: What does education enable us to do and to be? Furthermore as agency is an integral part of the capability approach and education contributes to individual empowerment, thus enhancing individual freedoms. In other words education is a basic capability which enhances an individual's wellbeing freedom and agency freedom to be and do what we value. Walker (2006) captures the dimension of education as:

“We might therefore argue that education in any context should promote agency, and as a key element of this agency that education should facilitate the development of autonomy and empowerment”.

The capability approach, as an evaluative framework, can also be used to determine the extent of national achievement in terms of education. One operational use of the capability approach is the United Nations Human Development Index which comprise adult literacy and school enrolment, life expectancy at birth and real gross domestic product per capita (adjusted for purchasing power parity). While there is debate that adult literacy and school enrolments do not adequately reflect an education system and the quality of the system, Saito (2003) argues that it nonetheless forces nations to put education on their development agenda.

At a systemic level the capability approach offers a powerful space to investigate whether an education system contributes to enhancing individual and community wellbeing by enhancing their freedoms to be and do what they value. Where traditional methods to systemic evaluation focuses on inputs such as teacher qualification,

textbooks, curriculum, classrooms and outputs such as learner performance in standardised tests such as the matric or the Annual National Assessments results, the capability approach centres on what learners are able to achieve as a result of their education and whether their opportunities to choose a life they value has expanded. Their achievements or functionings as well as their opportunity set are the real test for equality in education and genuine development.

The capability approach can also be used to assess different elements of an education system. Unterhalter (2003) paid attention to gender in education in South Africa and Chigona and Chigona (2010) explored the use of Information, Communication Technologies (ICT) in schools. Both these studies offer a sophisticated and robust analysis of the education system as a result of using the capability approach as a lens for exploration, as their analysis considered achievements, opportunities, agency, conversion factors and wellbeing. Chigona and Chigona (2010) using Sen's capability approach identified that teachers' insufficient technological skills and lack of technological pedagogical content knowledge; inflexible policy on the use of the technology, lack of freedom for some educators to access the laboratories, inadequate technical support, and high learner-to-teacher ratio reduced teachers' ability to convert the availability of the computer laboratory into their learning and teaching strategies. Unterhalter found that while schools enhance the capabilities of individuals in terms of learning opportunities, the context of school must be considered. If schools do not offer a safe environment for girls from sexual violence then schooling may destroy her capability.

The CDI Public Primary Education Research Report sees the capability approach as an evaluative framework to be used to explore the context of public primary schools and its' influence to quality learning and teaching. The voices of learners, parents, teachers and managers are considered to understand the context of public primary schools and the degree of agency in schools. As such this report applies the capability approach to help identify the conversion factors that public primary schools in communities facing multiple deprivations leverage to survive under their harsh conditions. These conversion factors coupled with the schools' and communities' agency will contribute to distinguishing and selecting educationally sound interventions that are relevant to these communities.

3.3. Aims and Objectives of the CDI Education Research Project

The CDI Public Primary Education Research Project aims to understand the state of learning and teaching in public primary schools, while the specific objectives are to explore the:

- i. challenges facing learning and teaching in South African public schools
- ii. dominant classroom practices in schools located in poor communities
- iii. factors contributing to current classroom practices
- iv. learning opportunities in the home
- v. role of digital technology in public primary schooling.

The findings from the study are used to formulate a set of recommendations for interventions supporting public primary schools in improving the quality of learning and teaching and learner performance.

3.4. Methodology

The CDI Public Primary Education Research Project employs a combination of reviewing local and international literature, in-depth interviews, and focus group discussions. The review of literature focussed on four aspects of school improvement; namely: the state of South African public schooling, learning theories, large-scale interventions, multi-grade classroom and the use of ICT specifically mobile technologies in learning and teaching.

The purpose of the review was fourfold:

- first to understand the state of public schooling in South Africa through recent analysis of public data and the resulting discourse on school improvement,
- second to identify the drivers for both improvement and change as well as those contributing to stagnation and decline of public schooling,
- third to explore multi-grade schools as the majority are located in poor communities and are often neglected in the national discourse on school improvement, and
- fourth to look at the opportunities that ICT and particularly mobile devices present for improving learning and teaching in public schools in communities facing multiple deprivations.

Focus group discussions were the dominant data gathering technique used in communities and in schools, as it allows participants to interact with each other, clarify issues, raise questions, and actively create research questions that will help to further the discussion. Hence focus group discussions help in exploring “not only what people think but how they think and why they think that way” (Kitzinger, 1995). Furthermore, focus group discussions were the most appropriate research tool for communities in the study as Kitzinger (1995) elegantly notes that focus group discussions:

- do not discriminate against people who cannot read or write
- can encourage participation from those who are reluctant to be interviewed on their own (such as those intimidated by the formality and isolation of a one to one interview)
- can encourage contributions from people who feel they have nothing to say or who are deemed unresponsive (but engage in the discussion generated by other group members).

Similarly focus groups were used with learners in foundation phase as a means to listen to their voices in relation to decisions that directly affect them and their education. The group interaction that focus group discussions allow as well as the interaction with the researcher was critical in gaining an understanding of the way children view education and their own experiences of learning and teaching (Kitzinger, 1994; Morgan, et al, 2002). A limitation of hosting the group discussions in school is the possibility that children may view it as a formal test or perceive the facilitator as an honorary teacher (Morgan et al, 2002). In the CDI Education Research project all attempts were made to make the children feel comfortable and to gain their confidence that the discussion is not related to their school work.

In-depth interviews were conducted with stakeholders of the project and experts in the field of education improvement and change due to the depth and detail the technique offers (Boyce and Neale, 2006). The experts interviewed were people who have worked extensively in education and included academics, researchers, implementing agents, funders, and practitioners. All have grassroots experience of working to improving the quality of learning and teaching in South African public schools. A snowballing sampling technique was used to identify experts – commencing from the stakeholders of the project. Hence a total of 39 stakeholders and experts were interviewed and five circuit managers. Table 1 presents a summary of the sample frame including the primary research techniques by research phase.

Table 1: Sample Frame Including Data Gathering Techniques by Research Phase

Phase	Region	In-depth Interviews	Focus Group Discussions			
			Teachers	Parents	Learners	School Management Team
Phase 1:	National	44 stakeholders and education experts				
Phase 2:	Randfontein, uMthwalume, Thabazimbi, Bushbuckridge, Joe Morolong		20 focus group discussions with community members on education in general			
Phase 4:	Randfontein in Gauteng	1 circuit manager	4	2	4	3
	uMthwalume in KwaZulu Natal	1 circuit manager	1	2	2	1
	Thabazimbi in Limpopo	1 circuit manager	2	2	2	2
	Bushbuckridge in Mpumalanga	1 circuit manager	2	1	2	2
	Joe Morolong in Northern Cape	1 circuit manager	2	1	2	2
	Wellington in Western Cape		2*	1	2	2
TOTAL		43	11	9	14	12

*Please note that, due to the small staff complement in the multi-grade schools in Wellington the teacher focus groups and the school management focus groups were conducted simultaneously.

3.5. Organisation of the Report

This report is organised into the following substantive chapters excluding this introductory chapter:

- **CHAPTER 2: INTRODUCTION TO THE SOUTH AFRICAN PUBLIC PRIMARY EDUCATION LANDSCAPE**
 - Presents the findings from the local literature review on public schooling in South Africa and the in-depth interviews with local experts working in the field of schooling.
- **CHAPTER 3: LEARNING THEORIES AND ALTERNATIVE MODELS OF EDUCATION**
 - Summarises the literature on learning and the use of ICT and digital mobile devices in learning and teaching.
- **CHAPTER 4: LEARNING AND TEACHING IN SOUTH AFRICAN PUBLIC PRIMARY SCHOOLS**
 - Discusses the findings from the primary data gathered from visiting fifteen schools and listening to the voices of learners, parents, teachers and school managers. The chapter also includes the views of circuit managers interviewed.
- **CHAPTER 5: COMMUNITY PERCEPTIONS OF EDUCATION**
 - This chapter summarises the findings from the larger CDI Community Capability Study on the education dimension.
- **CHAPTER 6: CONCLUSIONS, RECOMMENDATIONS AND POSSIBLE INTERVENTIONS**
 - This chapter provides a set of recommendations and potential intervention strategies and contains concluding remarks on this extensive study on public primary schools in South Africa.

4. CHAPTER 2: INTRODUCTION TO THE SOUTH AFRICAN PUBLIC PRIMARY EDUCATION LANDSCAPE

4.1. Introduction

This chapter of the report reviews current local literature on the state of public schooling in South Africa. The first section summarises the recent discourse on the state of public schooling which is followed by an outline of large scale interventions being implemented to change this status quo. Subsection 3 summarises the pathways to successful change in the schooling system that McKinsey & Company proposes in its most recent report on educational systems that ‘keep getting better’.

4.1.1. REVIEW OF LOCAL LITERATURE

The majority of public schools (approximately 80%) are located in poor, black communities and reflect this in the demographic they serve. These schools tend to be under-resourced and the official language of learning and teaching in most of these schools is English - not the home language of most of their teachers or learners (Christie et al 2007; Taylor 2011). The 2011 report on basic school infrastructure by the National Education Infrastructure Management System (NEIMS) shows that there are 25,152 schools in South Africa (including independent schools and schools that are exclusively for learners with special educational needs). The infrastructure backlog is significant (see Table 2: South African Schools with No Basic Infrastructure).

Table 2: South African Schools with No Basic Infrastructure³

INFRASTRUCTURE	NUMBER OF SCHOOLS	% OF SCHOOLS
No Electricity Supply	3,544	14%
No Water Supply	2,402	10%
No Ablution Facility	913	4%
No Fencing	2,730	11%
Without Library	19,541	79%
Without Laboratory	21,021	85%
Without Computer Centre	19,037	77%
Without Sports Facility	4,312	17%
No Communication System	409	2%
No Connectivity	21,626	87%

³ The percentage is calculated using the total number of ordinary schools, i.e. 24, 793 schools (excluding special needs schools).

While there is acknowledgement that South Africa has made tremendous strides in quantity of schooling, quality remains a concern (Motala 2001; DBSA 2008). Performance in both the National Senior Certificate (matric examinations) (DBE 2010) and the recently introduced Annual National Assessment (ANAs) is low (see Table 3 and Table 4).

Table 3: Number of Bachelor's Passes Between 2008 and 2011⁴

YEAR	NUMBER WROTE	NUMBER ACHIEVED BACHELOR PASS	%
2008	533,561	107,274	20.1%
2009	552,073	109,697	19.9%
2010	537,543	126,371	23.5%
2011	496,090	120,767	24.3%

Table 4: Percentage of learners at Acceptable Level of Performance for Grade and Subject⁵

ACCEPTABLE LEVEL OF PERFORMANCE (50%)	
Grade 3 Literacy	31%
Grade 3 Numeracy	17%
Grade 6 Language	15%
Grade 6 Mathematics	12%

When paying attention to South African learners, numbers show that there is nearly universal enrolment in primary and secondary schools and the enrolment of girls is among the highest in the world. The number of learners who progressed to higher levels of schooling has also significantly increased since 1994. However, performance in national, regional and international benchmarking studies including the Trends in International Mathematics and Science Study (TIMSS); Southern and Eastern Africa Consortium for Monitoring Educational Quality (SACMEQ); and Progress in International Reading Literacy Study (PIRLS) is low. To paraphrase the Development Bank of Southern Africa, only 6% to 10% of South African learners are on par with 75% of the learners in developing countries (DBSA 2008).

The quality of our schooling outcomes is extremely weak especially in comparison to countries in the region with significantly lower incomes (van der Berg 2011; Spaull 2011). Spaull (2011) summarises this poignantly:

“The average ‘poor’ South African learner performs *worse* at reading than the average ‘poor’ Malawian or Mozambican learner. This is in spite of the fact that the average ‘poor’ South African is significantly wealthier than the average ‘poor’ Malawian and Mozambican learner”.

⁴ Department of Basic Education, 2012, Report on the National Senior Certificate Examination – Technical Report, Pretoria

⁵ Fleisch, B. (2012). *Concept Paper for South African Basic Education Conference*, University of Witwatersrand, p6. 6

The local ANA shows similar performance patterns (Department of Basic Education 2011):

“The overall performance of learners as reflected in the ANA 2011 results was very low with average scores of 30% and lower in languages and mathematics at each grade. There were instances where some learners had not answered a single item in some tests. However, there were instances where some learners or all learners in a school had performed exceptionally well. This confirms the disparities in our schools which must be addressed, using ANA results.”

In response to weak learner performance in literacy, numeracy and science, recent school research has focussed on classroom practices in South African primary schools. These studies reveal that teachers have weak subject content knowledge and are struggling with subject pedagogy content knowledge and are spending too little time on learning and teaching (Fleisch 2012; Taylor 2011; DBSA 2008).

In relation to literacy, teachers in the majority of public schools are using choral reading⁶ instead of basal reading⁷. Basal reading instruction is a pedagogy that uses texts that have been specifically written to teach reading. These texts focus on phonemic awareness, vocabulary, fluency and text comprehension. According to Fleisch (2012):

Research on reading teaching provides insight into the link between policy, instructional practice and learner achievement. Not surprisingly, this research literature shows that, despite two decades of policy, there remain two distinct common instructional practices. The first is found in most disadvantaged township and rural primary classrooms (see MacDonald 2002 and 2006; Botha 2007; Place 2005; Pretorius 2009, 2010; Reeves 2008; Ganasi 2010; Machie 2007; Maphumulo 2010; Maswanganye 2010 and Bizo 2010). It is a common instructional practice defined by the routine use of choral reading aloud and photocopied worksheets. In Grades 1 and 2, reading teaching focuses on letter names, letter-sound relationships and simple words, with little or no reading of ‘books’ or writing. In Grade 3 teachers begin to introduce longer texts, but reading practice is still predominantly done through choral reading aloud. The teacher reads the text -- either from the board, in a worksheet or even in a workbook -- and the children repeat the word, phrase or sentence. ‘Clever’ learners are often chosen to read aloud while the majority of the class remain passive.

The second instructional practice is most commonly found in English and Afrikaans language classrooms in former Model C schools and some former Indian and Coloured primary schools. Teachers in using this

⁶ Choral reading is reading in unison with a whole classroom.

⁷ Basal reading is a scientific approach to teaching reading.

common instructional practice teach with graded or level reading schemes (sometimes known as basal readers), Dolche words lists, phonics programmes such as Letterland, Jolly Phonics and Thrass, and independent reading book collections (Gains 2010; Dixon 2010; and Kruizinga 2010).

In 2008 the minister of Education launched the Foundations for Learning Campaign with the objective to improve learner performance in reading, writing and numeracy in all South African schools (Department of Education (DoE) 2008). In terms of reading; the campaign required that foundation phase teachers spend at least 30 minutes daily on reading for enjoyment and at least 1 hour on extended writing per week. To develop learners' words and sentence construction teachers were required to focus on phonics, spelling, sight words, vocabulary, and show language in context every day for at least 15 minutes. Thus indicating a policy directive towards entrenching basal reading in all public primary schools in South Africa.

Figure 2: Examples of Phonics Programmes for PC

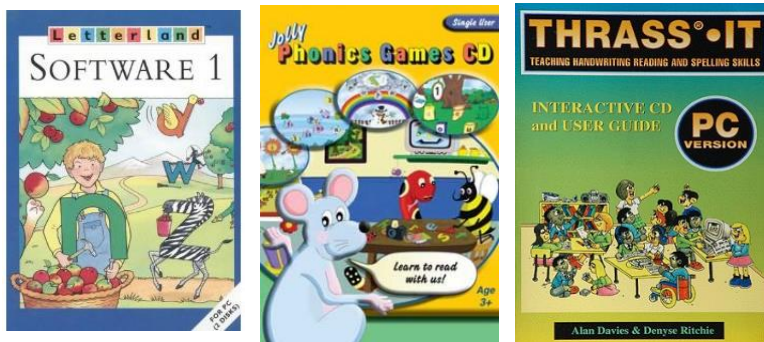
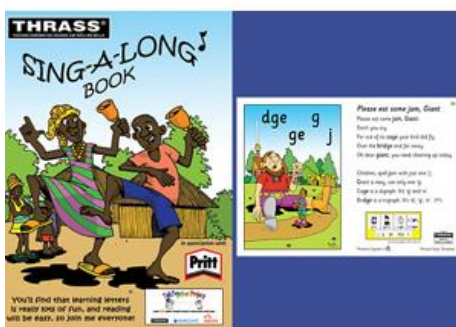
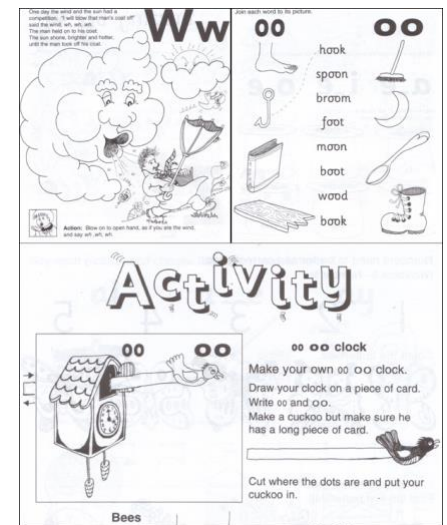
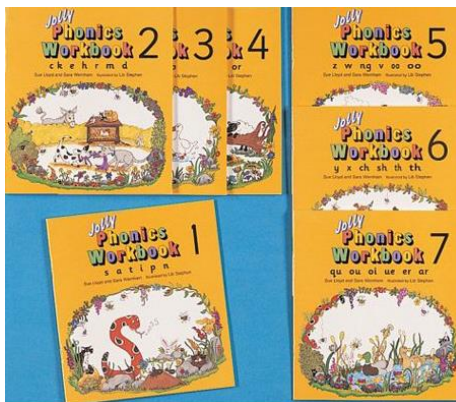
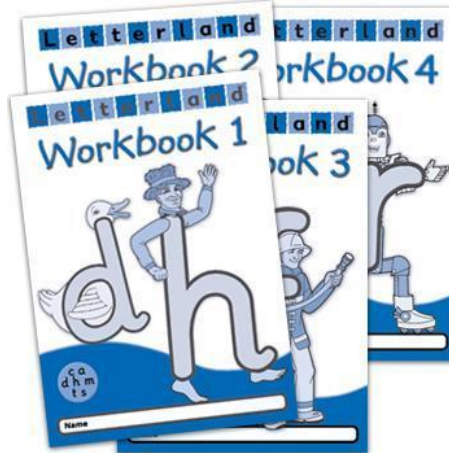


Figure 3: Examples of Phonics Programmes' Materials



Letterland:

www.letterland.com

Jolly phonics:

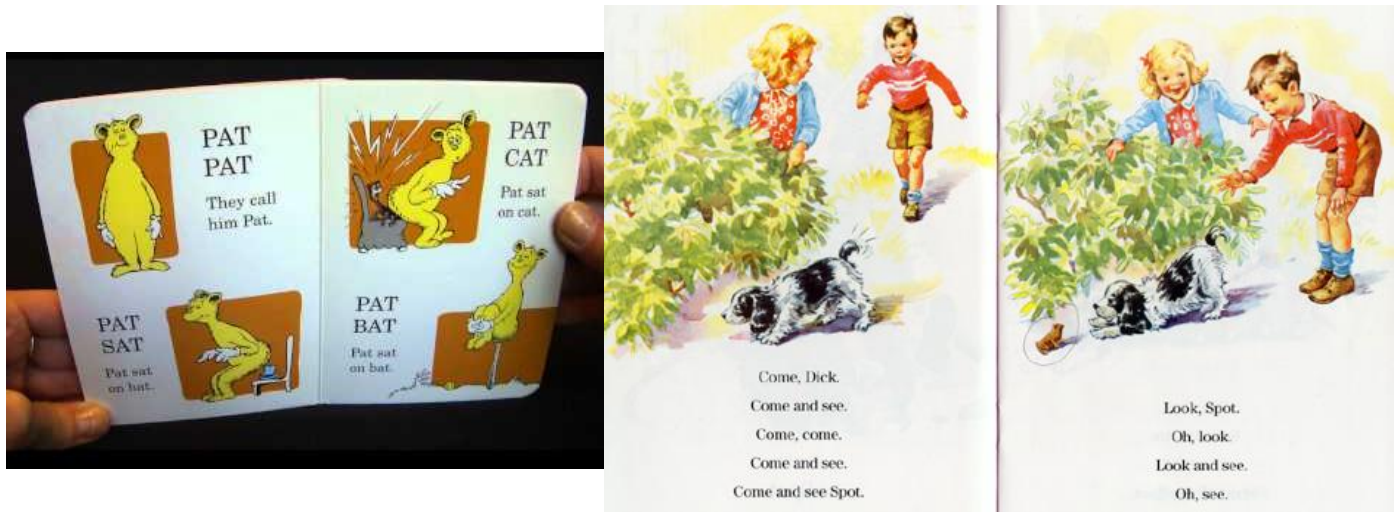
www.jollylearning.co.uk

Thraxs (Teaching Handwriting, Reading and Spelling Skills):

www.thraxs.co.uk

The graded basal reading schemes such as the 'Kathy and Mark' books and the Ginn Series are often the bedrock of the instructional practice. In this instructional practice, there is an emphasis on fluency, comprehension and vocabulary development, precisely what is required for success on the external literacy tests.

Figure 4: Examples of Basal Reading Texts



Thus current large scale interventions by national government and Gauteng and Western Cape Departments of Education is aimed at changing this classroom practice and moving teachers from an oral/choral culture to engaging learners in learning to read, write, count, and practice mathematical concepts (see section on Large Scale Learning and Teaching Interventions below).

In addition to teacher content and pedagogical knowledge, the evidence from both qualitative (Christie et al 2007) and quantitative (van der Berg et al 2011) research supports that school management and leadership is critical to learning outcomes. According to Christie et al (2007), public schools that are functioning irrespective of the socioeconomic status have the following in common:

- i. All of the schools were focused on their central tasks of teaching, learning, and management with a sense of responsibility, purpose and commitment
- ii. All of the schools carried out their tasks with competence and confidence
- iii. All had organisational cultures or mind-sets that supported a work ethic, expected achievement, and acknowledged success
- iv. All had strong internal accountability systems in place, which enabled them to meet the demands of external accountability, particularly in terms of Senior Certificate achievement

Similarly, Stephen Taylor (2011), in analysing the National School Effectiveness Study showed that there is a relationship between effective management and learner performance:

“An organised learning environment signified by curriculum planning for the full year, a functional timetable, good quality inventories for LTSM [Learning and Teaching Support Material], low teacher absenteeism and up-to-date assessment records were all strongly linked to better learner achievement, even after accounting for differences in previous learner performance and SES [Social Economic Status].”

Similarly recent studies (SACMEQ and Primary Mathematics Project) on resources confirm the importance of textbooks for every learner in improving performance (Fleisch et al 2010; van der Berg 2011).

Taylor’s analysis of the schooling system to the National Planning Commission looks at the culture of the system (2011):

“The endemic dysfunction of the country’s school system rests on two pillars. The primary cause is weak capacity throughout the civil service – teachers, principals, and system level officials simply don’t have the skills to do their jobs – which results not only in very poor schooling outcomes, but also breeds a lack of respect for the institution of government. The mirror image of this weakness in the technical core is a culture of patronage which permeates almost all areas of the civil service, with few departmental and, to a limited extent, one or two provincial exceptions. These two factors are closely related, with nepotism and the appointment of unsuitable personnel further weakening government capacity, and driving officials, in the absence of the technical skills, to entrench their positions by building their own patronage networks.”

He argues that a national intervention is required that will improve the technical skills of employees within the schooling system coupled with a political solution to address issues of corruption and nepotism in the system.

4.1.2. LARGE SCALE LEARNING AND TEACHING INTERVENTIONS

4.1.2.1. Curriculum 2005

The first large scale intervention to change classroom practice in post-apartheid South Africa was the implementation of Curriculum 2005 in 1997/8. Curriculum 2005 was underpinned on an outcomes-based education model for teaching, learning, and assessing which focuses on exit level competencies (what learners

are able to do) instead of content. This new curriculum was more open than the replaced apartheid curriculum in that it allows teachers to exert their professionalism and take greater control of learning and teaching in their classrooms (Chisholm 2003).

Three years into implementation of Curriculum 2005, the then minister of education set up a review committee (DoE 2000) to investigate the implementation of the curriculum, structure of the curriculum, and the understanding of outcomes-based education amongst others. The committee reported that, while there was support for Curriculum 2005, implementation was confounded by:

- “A skewed curriculum structure and design
- lack of alignment between curriculum and assessment policy
- inadequate orientation, training and development of teachers
- learning support materials that are variable in quality (often unavailable and not sufficiently used)
- policy overload and limited transfer of learning into classrooms
- shortages of personnel and resources to implement and support Curriculum 2005
- inadequate recognition of curriculum as the core business of education departments” (DoE 2000).

Curriculum 2005 was revised based on the recommendations made by the review committee resulting in the Revised National Curriculum Statements in 2002. Curriculum implementation remained a challenge which resulted in a third round of revisions, culminating in the National Curriculum Statement (NCS) in 2009. To further streamline the NCS and to improve implementation, the Department of Basic Education promulgated the National Curriculum Assessment Policy Statement (CAPS) which comes into effect for foundation phase in 2012. CAPS is an essential document for the ICT in education project as it sets the minimum content, outcomes, and standards as well as the processes and procedures for the assessment of achievement. Thus offering teachers with benchmarks for the cognitive level they need to ensure that their learners reach at the end of a grade. CAPS provide a single comprehensive curriculum and assessment document for each subject area in grades R to 12.

Curriculum 2005 was based on schools with high degree of teacher professionalism and qualified teachers who have deep subject content knowledge and confidence in their pedagogy thus providing them the space to allow for creativity in interpreting and translating the curriculum to meet their unique contexts. As such, Curriculum 2005 required schools with access to diverse learning and teaching support material, i.e. the curriculum was resource intensive. However, the majority of South African public schools are in townships or rural areas that

were victims of the apartheid system of underdevelopment of education for the Black majority. As such these schools were under-resourced and teachers were un- or under-qualified. The Revised National Curriculum Statement recognised that the majority of teachers were not qualified or confident to develop their learning and teaching programmes and hence provided comprehensive guidelines in this regards. These guidelines remained insufficient to meet teachers planning needs, hence the need for further revisions resulting in NCS. CAPS amalgamated the assessment and curriculum statement policies of NCS into a single policy for easing access to the national curriculum.

The move from Curriculum 2005 to CAPS raises issues of teacher professional autonomy; CAPS is extremely prescriptive and imposes learning programmes, hence leaving little room for teacher creativity. While CAPS helps those teachers who are unsure about the cognitive level for each grade and content coverage for each grade, it forces teachers into uniformity. Teachers who want to exercise their professional responsibilities in terms of making decisions that are in the interests of their learners' needs and contexts of their schools are compromised. Table 5,

Table 6 , Figure 5: Grade R Daily Programme is taken from the CAPS for mathematics to demonstrate the level of detail available as well as the degree of prescriptiveness.

Referring to this website:

<http://www.education.gov.za/Curriculum/CurriculumAssessmentPolicyStatements/tabid/419/Default.aspx>,
Foundation Phase CAPS shares every foundation phase subject (Home language, First additional language, Maths, Life skills) from Grade R to Grade 3 in every language.

Any programme/product/ service development aspiring to become mainstreamed within the education sector should use these documents as a guideline in their development. CAPS will also assist the process of designing holistic solutions – should that be the road decided on.

Table 5: Time Allocation per Content Area per Week

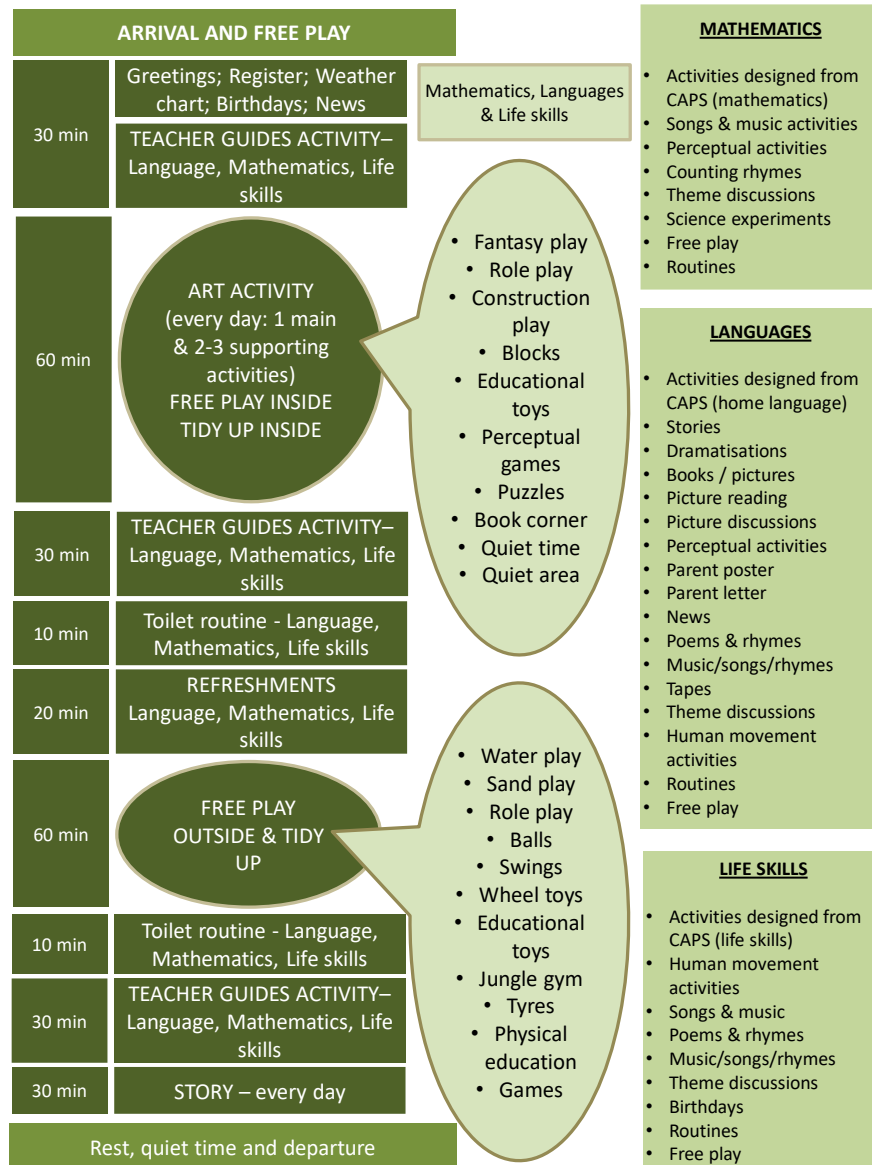
CONTENT AREA	TOPICS	SUGGESTED TIME
Numbers, Operations and Relationships	Counting; Number recognition; Identify and describe whole numbers; Number sense; Solving problems	120 minutes
Patterns, Functions and Algebra	Copy, extend and create own patterns	80 minutes
Space and Shape (Geometry)	- Recognise, identify and name 2-D shapes/pictures - Geometric shapes - Build 3-D objects using concrete materials - Spatial relations - Directionality	80 minutes
Measurement	Time; Length; Mass; Capacity	80 minutes
Data handling	Collect, sort, draw, read and present data	60 minutes
Total		420 minutes (7 hours per week)

Table 6: Recommended Number of Lessons per Content Area per Term

CONTENT AREA	TOPICS	NUMBER OF LESSONS				
		TERM 1	TERM 2	TERM 3	TERM 4	TOTAL
Numbers, Operations and Relationships	All topics of Numbers, Operations and Relationships	22	30	28	25	106
Patterns, Functions and Algebra	Number patterns	3	3	3	3	12
	Geometric patterns	1	1	1	1	4
Space and Shape (Geometry)	2-D shapes		3		3	6
	3-D shapes	3		2	1	6
	Position, orientation and views	2			1	3
	Symmetry			1	1	2
Measurement	Time	2				2
	Length	2		2		4

CONTENT AREA	TOPICS	NUMBER OF LESSONS				
		TERM 1	TERM 2	TERM 3	TERM 4	TOTAL
	• Mass	2			2	4
	• Capacity	1	2		1	4
Data handling	• Collecting, sorting, representing and analysing objects	2	1			3
	• Whole data cycle			3		3
	• Sections of data cycle				2	2
Total		40	40	40	40	160

Figure 5: Grade R Daily Programme



Since the promulgation of the NCS in 2009, four significant large scale interventions by the education department have been implemented to improve primary education, particularly the learning outcomes in literacy and numeracy in the foundation and intermediate phases. These are briefly presented in the following subsections.

4.1.2.2. Foundations of Learning Campaign

The Foundations for Learning Campaign launched in 2008 is a four year campaign to improve literacy and numeracy in foundation and intermediate phases. The campaign focuses attention on ensuring that learners spend sufficient time on reading, writing, and doing mathematics. As such teachers are given clear directives on the amount of time spent per day and per week on various elements of the curriculum, the kinds of learning and teaching activities that teachers should be practicing, and the expected levels of outcomes. The campaign requires that teachers in foundation phase:

- teach reading and numeracy every day
- spend 30 minutes daily on reading for enjoyment
- spend at least 1 hour on extended writing every week
- assess learners every month as well as quarterly.

While the Foundations for Learning Campaign, offers clear instructions on ways to implement the NCS and CAPS, it requires schools to be well resourced and teachers to spend their time on teaching, learning, and assessment. According to DBSA (2008), teachers in township schools spend 3.5 hours per day on instruction compared to 6 hours per day in suburban schools. Much of their time is currently spent on:

- form filling
- absenteeism
- disorganisation
- failure to enrol learners in time
- logistical problems in the delivery of books
- lack of discipline among pupils
- external interruptions
- inactivity.

4.1.2.3. Department of Basic Education Workbooks

The DBE's (2010) strategic objective 4 is to "distribute workbooks to all grade R to 9 learners in public schools to facilitate implementation of the curriculum among the poorest schools." In 2010 literacy and numeracy workbooks for grades R to 6 were distributed to schools for use in 2011. A total of 147 workbooks have been designed, covering:

- literacy, numeracy and life skills in all official languages for foundation phase
- literacy in all official languages for intermediate phase
- numeracy and mathematics workbooks in English and Afrikaans for intermediate phase and
- English workbooks and mathematics workbooks in English and Afrikaans for senior phase.

The workbooks are free to schools and all learners should have a workbook and must write in them and take them home to continue with activities. Workbooks can be downloaded from this DBE website:

<http://www.education.gov.za/WorkbookDownload/tabid/643/Default.aspx>

Each workbook provides 128 worksheets across two volumes, i.e. four worksheets per week and eight weeks per term. The workbooks intend to provide teachers and learners with additional resources to support learning and teaching and most importantly to ensure that time is spent on covering the curriculum (see Figure 6: Department of Basic Education Flyer on the Workbooks for the DBE communication flyer and Figure 7: Department of Basic Education Grade 1 Numeracy Workbook).

Figure 6: Department of Basic Education Flyer on the Workbooks

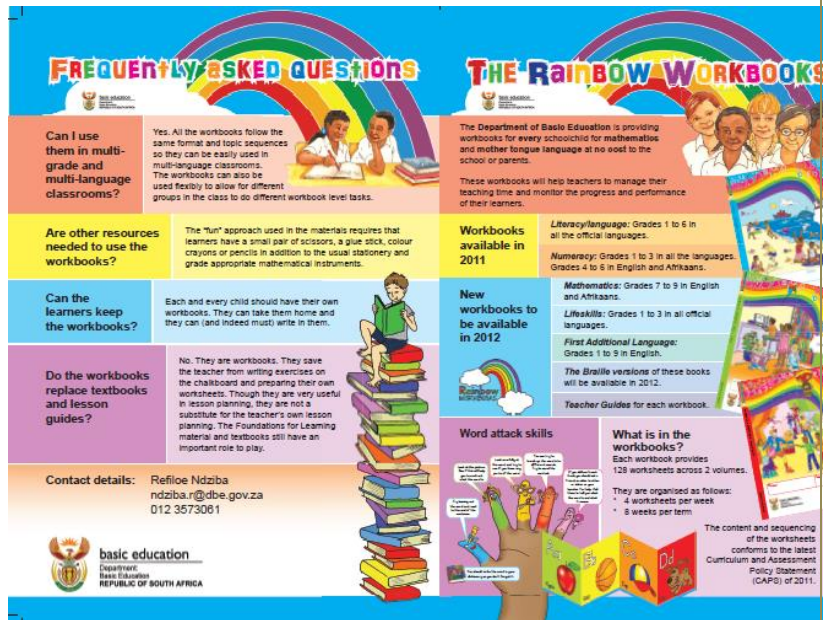
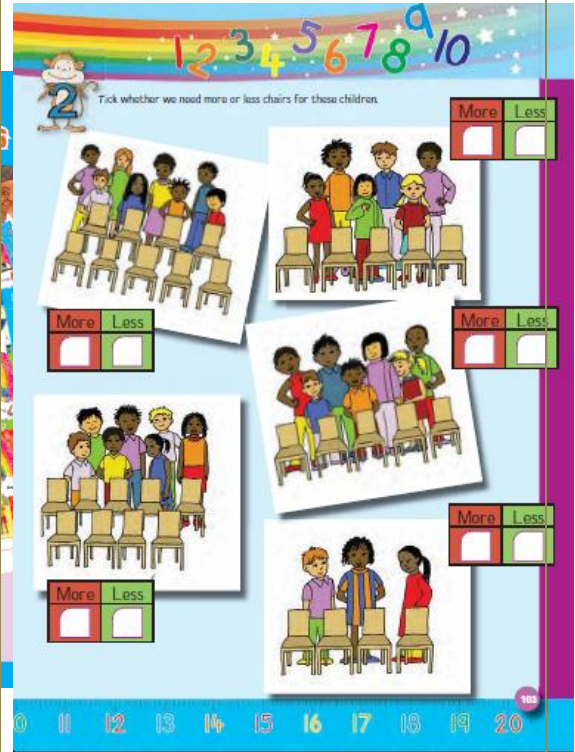


Figure 7: Department of Basic Education Grade 1 Numeracy Workbook



4.1.2.4. Western Cape Education Department Literacy and Numeracy Strategy

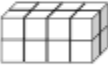
In 2002 the Western Cape Education Department (WCED) assessed a sample of grade 3 learners and found that only 36% of the learners were achieving the reading and numeracy outcomes expected at grade 3 level (WCED 2006). Hence the province launched its first literacy and numeracy strategy in 2003 which was then extended for a ten year period in 2006. The provincial strategy will intervene in the following areas:

- A pre-school programme
- Teacher Development
- The Language in Education Transformation Plan
- Changes to classroom practice
- Learning and teaching support material
- Research

- Monitoring and support
- Co-ordination and sustainability
- Advocacy, Family and Community Literacy.

In the most recent McKinsey report (2011) - *How the World's Most Improved School Systems Keep Getting Better* – WCED is one of 20 education systems that are showing improvement. The 2010 standardised assessments conducted by the province showed significant improvement year on year in literacy, numeracy, and mathematics in the province.

Figure 8: Example of a WCED standardised assessment test for Grade 6 Numeracy

1. What number in the place of * will make the following statement true? $7 + 4 = * + 7$ _____ 2. Fill in the missing numbers in this pattern: 0; _____; 0,4; 0,5; 0,6 _____ 3. Fill in the missing number: 3 4 10 20 × 3 → + 1 10 13 31 _____ 4. Round off 37,42 to one decimal place. _____ 5. Choose the expression from below that will give 45 as an answer. Circle the letter that shows the answer. A. $6 + (3 \times 7) - 2$ B. $6 - 2 + (3 \times 7)$ C. $(6 + 3) \times (7 - 2)$ _____ 6. $3\frac{3}{4} + 2\frac{2}{8} =$ _____ _____	7. Nuraan writes a test out of 500 marks. She scores 50%. How many marks did she get? _____ marks _____  A  B  C  D  E  F  G  H 8. Which object above, looks like a sphere? Write the letter of the object. _____ _____  9. How many small blocks do you need to build this shape? _____ blocks _____
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Since the first standardised assessment was conducted in 2003, learners' literacy outcomes in the province have shown remarkable improvement. Table 7 presents the year on year results of the recent provincial standardised assessments. The acceptable pass for the WCED is 50%.

(Exemplars of the standardised tests are available for download from
<http://wcled.pgwc.gov.za/home/service/litnumtests.html>)

Table 7: Literacy, Numeracy and Mathematics Results of WCED Standardised Assessment⁸

GRADE	LITERACY (AVERAGE %)		NUMERACY / MATHEMATICS (AVERAGE %)	
	2009	2010	2009	2010
Grade 3	50.5%	50.7%	39.5%	48.0%
Grade 6	48.2%	50.8%	31.9%	39.2%

4.1.2.5. Gauteng Primary Literacy Strategy 2010-2014

In 2010 Gauteng Department of Education (GDE) (GDE 2010) launched its Primary Literacy Strategy which aims to change classroom practice of teachers. The strategy focuses on four areas of intervention:

1. Measuring literacy and raising expectations
2. Strengthening the teaching of literacy
3. Improving programmes of support in primary literacy
4. Improving the management of literacy teaching and learning

The implementation and outcomes of the strategy is currently being evaluated by Eric Schollar and Associates.

4.1.3. PATHWAYS TO FACILITATE EDUCATION CHANGE

The recent large scale interventions by the South African education department are informed by the educational change literature as well as scientific evidence that have emerged on schooling and learning and teaching in South African classrooms since 1994. The educational change literature places emphasis on the following drivers for implementing systemic change (Darling-Hammond 1993; Hopkins and Harris 1997; McLaughlin 1998; Fullan 2000; Christie 2001; Elmore 2001; Corallo and McDonald 2001; Diamond and Spillane 2002; O'Day 2002; Taylor 2006; van der Berg 2008):

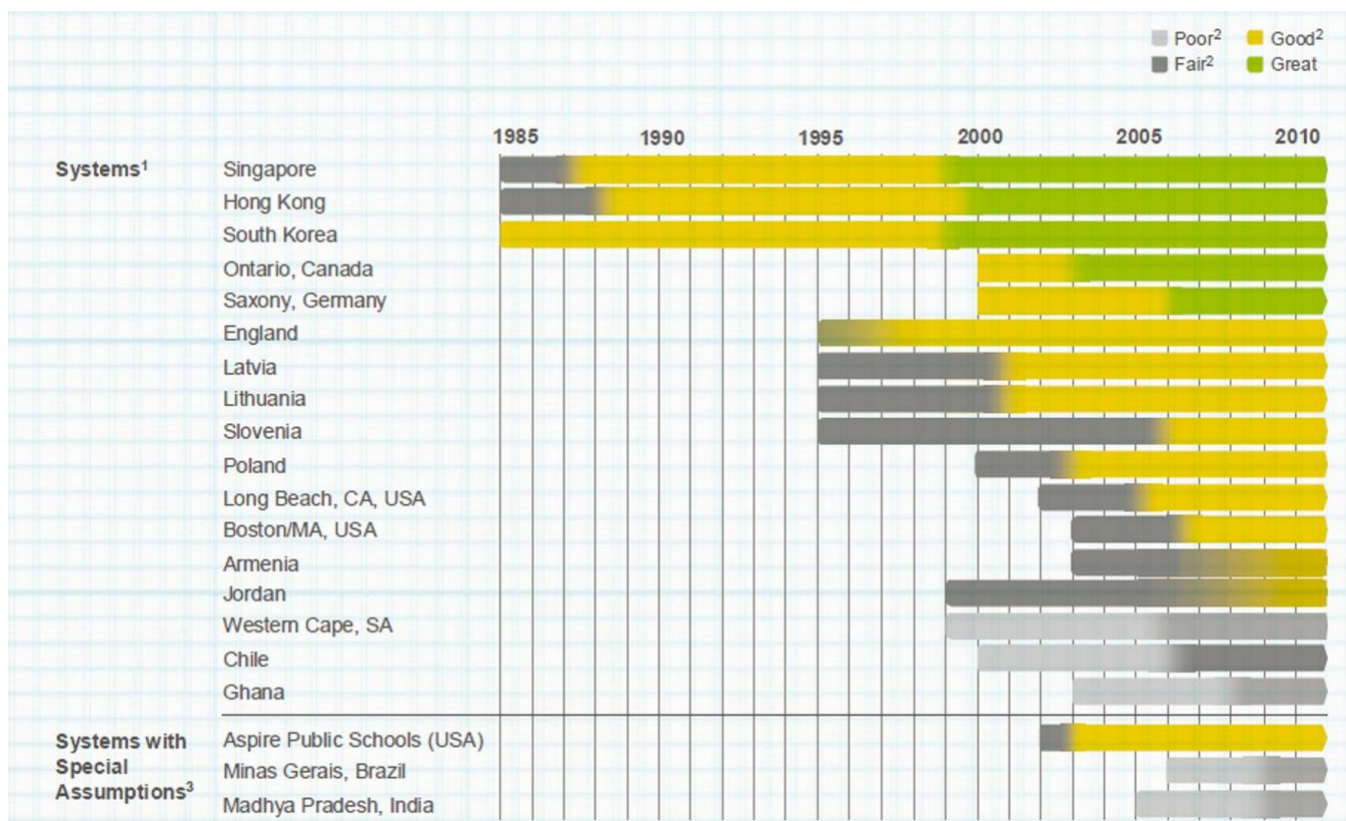
- raising expectations
- increasing accountability
- capacity building
- resources
- goals that are achievable and

⁸ http://www.westerncape.gov.za/eng/your_gov/3576/news/2011/feb/213538

- interventions that are coherent and aligned to policy.

The literature on school change is large and divergent, the recent McKinsey report (2011) - *How the World's Most Improved School Systems Keep Getting Better*, after reviewing 200 school systems, selected 20 systems that have “undertaken a journey of improvement along all the different stages of the performance spectrum – from poor to fair, from fair to good, from good to great, and from great to excellent” (see Figure 9). Michael Fullan the renowned educational change guru describes the report as “a one of a kind seminal contribution to this dynamic and critical field” in the foreword of the report.

Figure 9: Education Systems Journey from Poor to Excellent⁹



The pathways to educational change that emerged from the 20 school systems that are improving (as presented in the report) are summarised and described below.

⁹Mushed, M., Chi joke, C., Barber, M. (2011). *How the World's Most Improved School Systems Keep Getting Better*, McKinsey and Company, p19

Figure 10: Stages in Education Change



1. Performance stage: The genuine reflection of where the system is in terms of learner performance.

2. Intervention Cluster: Selecting an integrated set of interventions appropriate for the level of performance of the system and consistent implementation. Generally these 20 systems implemented a combination of the following six actions:

- *revising the curriculum and standards*
- *ensuring an appropriate reward and remunerations structure for teachers and principals*
- *building the technical skills of teachers and principals*
- *assessing learners, establishing data systems*
- *facilitating improvement through the introduction of policy documents, and*
- *education laws.*

3. Contextualising: Ensuring that the interventions are sensitive to the context of implementation.

4. Sustaining: The internalisation of new pedagogy or teaching practices resulting in on-going improvement and innovation within the school.

5. Ignition: The catalyst for the change process and long-term commitment by political leadership.

1. Drawing on the experiences of education systems showing positive change; the McKinsey Report (2011) identified five stages in the pathway to improvement. The onset for education change requires an honest assessment of the state of an education system. An objective assessment of an education system is the outcomes of learning and teaching which is captured through learner performance in standardised assessments. This initial stage is followed by designing an intervention that addresses the multiple weaknesses in the system that has contributed to low learner performance in the benchmarking process in the first stage. Generally, the twenty education systems that are showing on-going improvement have implemented six actions. However, implementation of the cluster of interventions is only successful if it is sensitive to the diversity within the education system; i.e. recognition that the system is not homogeneous and that some elements of the system will require more support than others. The implementation has to consider sustainability within the classroom; hence this requires intensive support to teachers so that they feel confident and committed to changing their teaching practices in ways that genuinely support their learners' needs. The last stage is about genuine commitment to long-term support for education change without wavering from the initial intentions.

In addition to these five stages to education change, Figure 11 reflects movement of schools from poor to fair and beyond by progressing through specific directives in 4 key groupings namely:

- i. Achieving the basics of literacy and numeracy
- ii. Getting the foundations in place
- iii. Shaping the professional and
- iv. Improving through peers and innovation.

Figure 11: School Progression through attainment of Directives

Poor to Fair	Fair to Good	Good to Great	Great to Excellent
Achieving the basics of literacy and numeracy	Getting the foundations in place	Shaping the professional	Improving through peers and innovation
Providing motivation for low-skill teachers	Data and accountability foundation	Raising caliber of entering teachers and principals	Cultivating peer-led learning for teachers and principals
Getting all schools to a minimum quality level	Financial and organizational foundation	Raising caliber of existing teachers and principals	Creating additional support mechanisms for professionals
Getting students in seats	Pedagogical foundation	School-based decision-making	System-sponsored experimentation/innovation across schools

McKinsey (2011) has divided education systems in four broad categories. Education systems at the lowest rank are those with low learner enrolments, weak learner performance, high teacher absenteeism, low teacher skills, and generally a lack of focus of the system on what counts, i.e. learning and teaching. Education systems in this lowest category need to focus on getting the basics in place and achieving the basic literacy and numeracy amongst its learners. Education systems in the second lowest rank are systems where internal and external accountability is taking root. In these systems schools are beginning to focus on learning and teaching which are based on sound pedagogical principals and putting in place internal and external accountability systems. Systems in this category require support in improving their internal and external accountability in the form of enhancing their financial and learner performance records and using the data to make informed decisions about learning and teaching, school management, and school governance. The good-to-great education systems are

those systems where professionalism is the internal norm without the need for bureaucratic pressure. To achieve this rank the focus of intervention is on professionalising all elements of the system; i.e. raising the standards of teachers and school managers and ensuring that schools and their social partners are equipped to make informed decisions on behalf of their learners. The top ranking education systems are those that continue to innovate and stretch the possibilities of education systems. To become part of the top performing education system requires support to the system that allows for genuine creativity, experimentation, and sharing amongst teachers, schools, districts, and provinces.

South Africa's basic education system is considered low performing in the first category. While learner enrolment is not a problem, quality of learning and teaching is the challenge in South Africa's basic education system.

4.1.4. CONCLUSION

The South African school system is dichotomous; the vast majority of schools are at the poor to fair stage in the McKinsey & Company continuum. A small minority of the schools are in the great to excellent. As a whole the public schooling system is weak. At school level teachers and managers require intensive coaching on curriculum implementation coupled with setting high cognitive standards for their learners and stricter implementation of accountability systems both internal and external. Availability of quality textbooks and improvement of school infrastructure are urgently required to create a positive environment for learning and teaching.

4.2. Stakeholder and Expert interviews: Learning and Teaching in South African Public Schools

This section of the report presents the findings from the in-depth interviews conducted with stakeholders and partners in this research project as well as with experts (as listed in Appendix 1: In-depth interviews) in the education sector. The findings are summarised under three headings:

1. Challenges facing learning and teaching in South African public schools
2. Interventions to improve learning and teaching
3. Current innovations in improving learning and teaching in South African public schools

4.2.1. CHALLENGES FACING LEARNING AND TEACHING IN SOUTH AFRICAN PUBLIC SCHOOLS

The challenges facing learning and teaching in South African public schools in the education sector, as identified in these interviews, can be classified into eight categories, namely:

- the apartheid legacy
- poverty
- quality of teaching
- accountability
- corruption and inefficiencies
- leadership and technical capacity
- on-going change of political leadership
- ineffective implementation of the school language policy

Each of these categories will be described in the following sections.

4.2.1.1. The Apartheid Legacy

The impact of unequal provisioning of education during apartheid is felt acutely in the public schooling sector. A significant number of schools (DBSA 2008; DBE 2011) do not have basic infrastructure, such as suitable classrooms and administration buildings, access to water and sanitation, and electricity. Currently there are no norms and standards for minimum school infrastructure to hold both national and provincial education departments accountable for provisioning of suitable school infrastructure or to benchmark the state of school infrastructure. The NEIMS is responsible for managing information of school infrastructure; however its 2011 report shows no benchmarking and is limited to reporting on a few infrastructure indicators (see Table 2: South African Schools with No Basic Infrastructure and the accompanying section).

In addition to basic infrastructure, the majority of public schools lack basic learning and teaching resources such as access to a library (79%) or laboratory facilities (85%) or connectivity (87%).

For many experts interviewed the current physical environment of public schools are inadequate spaces for learning and teaching and have contributed to the malaise amongst both the teachers and their learners towards learning and teaching.

4.2.1.2. Poverty

The no fees school policy, school transport, free uniforms to orphans and vulnerable learners, and the National School Nutrition Programme have contributed to mitigating the impact of poverty on learners' access to schools as well as their ability to learn. Nonetheless, poverty continues to impact on children's access to education and learning. At the school readiness level, malnutrition and stunting is prevalent in at least 20% of South African children (according to one expert), which has an adverse effect on their cognitive development. Similarly low nutritional intake in their homes and related health problems also affect learners' performance. In addition, the number of single and double orphans in the school system is significant (mostly as a result of HIV/AIDS) and the current system is ill-equipped to support these learners. Similarly teachers and the public school system do not have the resources to support learners who experience violence and other traumas that afflict poor communities to a greater extent.

- *"There needs to be a radical rethink of offering early childhood development, as 20% of our kids are stunted – we don't have a national nutrition for the 0 to 5 year old."* (Expert)
- *"The underestimation of the impact of HIV/AIDS on people ... [there is] considerable social dislocation distracting teachers from learning and teaching. They have to focus on these contextual factors."* (Expert)
- *"Poverty... we know that textbook pages have been used to start fires in poor homes."* (Expert)

Furthermore, poor parents appear to be less demanding of schools as the power relations are in the favour of teachers and school managers. Thus school governing bodies are not functioning optimally in poor communities and parental involvement in both the school and their children's learning is reported to be low.

In the words of one expert, *"schools are not part of the community"*.

A number of experts highlighted that parents in poor communities do not know the curriculum that needs to be implemented and the level at which it needs to be implemented per grade. Some feel that this lack of access to information about the cognitive performance of their children is due to an absence of external examinations across grades and it is hoped that the ANA will fill this gap – others are sceptical about this.

4.2.1.3. Quality of Teaching

Experts interviewed agreed that the quality of teaching in the majority of public schools is extremely low. They attributed this mainly to:

- teachers' weak knowledge of the subject they teach (i.e. content knowledge);
- inadequate subject pedagogical knowledge (i.e. knowing how to teach a particular discipline); and

- limited knowledge of assessment practices.

In addition, teachers do not spend the required time on learning and teaching - therefore time on task is a problem.

- *"To a large extent, the quality of teaching relates to teachers' ability, subject knowledge, and how teachers apply [their knowledge], how seriously they take their work. Teachers very often teach at low cognitive levels, not enough opportunity [for learners] to learn, the curriculum is not covered in most primary schools." (Expert)*
- *"The majority [of mathematics teachers] have understanding below the level of the grade they teach. Some have understanding below that of their learners." (Expert)*

Experts offered numerous reasons for this state of weak teacher competence, of which inadequate teacher pre-service training and ineffective on-going professional development were identified as the main contributory factors. The vast majority of teachers in the public school system were trained pre-1994 in colleges of education that offered black teachers a lower level curriculum than their white counterparts. Post 1994, the in-service professional development of teachers was dominated by "upgrading" and short workshop style courses. The bar for entering the teaching profession was increased to matric plus 4 years post matric qualification by the post-apartheid education system. Many of the teachers trained pre-1994 had matric plus 2 years post matric qualification, which resulted in individual teachers registering at universities for Advanced Certificates in Education to 'upgrade' their qualifications. The other form of teacher development has been short courses offered by national and provincial departments of education and non-governmental organisations to assist teachers with implementing the new curriculum and other school related policies. Thus teacher professional development post 1994 was piecemeal and did not focus on developing teachers in their profession, i.e. working in the classroom to improve learning or to enhance the profession.

- *"Our current teachers are products of bad education and teaching themselves." (Expert)*
- *"Weak training of teachers and related to this, many teachers have not seen how good schools operate." (Expert)*

In addition, teachers do not receive adequate support from their respective education districts, especially in implementing the curriculum and helping teachers to shape their classroom practices to meet the curriculum requirements.

A significant number of experts scathingly attacked the trade unions on de-professionalising teaching. Their arguments include that unions post 1994 have focussed their demands on better working conditions and better service level agreements for their members instead of improving quality learning and teaching and helping to professionalize teaching.

- *"As long as there is any form of disengagement on professional practice then there is no movement." (Expert)*

Lastly, a few experts were also concerned with the ‘lack of reading culture’ amongst teachers.

4.2.1.4. Accountability

Accountability across the system was identified as a major challenge facing learning and teaching in South African public schools. Experts acknowledge that the national government’s agreement with the trade unions to implement the Integrated Quality Management System (IQMS) in public schools in 2003 (combining developmental appraisal with performance management) is a means to improve accountability in the system. However, implementation remains tenuous due to the tensions between development and performance.

The above stated tension is further exacerbated by the history of the apartheid inspectorate system that used inspectors to maintain the status quo of Bantu education. The pre-1994 the inspectorate system used inspectors to ensure that teachers implemented the Bantu Education curriculum, teachers who offered more critical curriculum to their learners under the banner of ‘peoples’ education’ were victimised and removed from the system.

A few of the respondents argued that the lack of accountability within schools is due to a change in values within the schools and that individual materialism is the pervasive culture. While others argued that the lack of rewards and sanctions across the public service is the driver for weak accountability systems within schools. A significant number of experts also argued that the weak internal accountability within the schools encourages similar behaviour by the communities, and manifests in the form of vandalism of the school and limited involvement by communities in matters of schooling.

4.2.1.5. Corruption and Inefficiencies in the System

The procurement and distribution of learning and teaching support material to schools, learner transport, as well as infrastructure development in schools has been compromised by inefficiencies and corruption in the system. The recent interventions by National Treasury in placing selected provincial departments of education under administration are testament of the impact of corruption and inefficiencies.

Many experts are concerned that the schooling system still fails to deliver the ‘correct textbook at the right time to the right school and in the exact numbers.’ Another concern is the under-spending on infrastructure and the long distances that many learners have to walk to school.

4.2.1.6. Leadership and Management Technical Capacity

There was consensus amongst experts that weak leadership and management, especially management of the curriculum, are major factors contributing to low learner performance. According to these experts, principals and school management teams do not focus on learning and teaching, which is the core function of a school. Principals are reported to spend most of their time on fulfilling administrative duties. Similarly districts were criticised for not supporting their teachers where it matters, in the classroom with instructional practices. Experts believe that principals, school management teams, and district personnel have weak technical capacity to fulfil their professional duties. The manifestation of weak leadership and management capacity includes high learner and teacher absenteeism and dysfunctional school governing bodies.

4.2.1.7. On-going Change of Political Leadership

School improvement interventions as well as effective policy implementation are marred by the on-going change of political leadership across the education system. Since 1994, there have been routine changes at both national and provincial levels and similar patterns exist at district levels. The trend is for the incumbent to stop a programme, implement a new programme, or change a policy. Thus there is little continuity or long-term commitment for both large scale interventions as well as small innovative projects. Furthermore, it impacts negatively on using evidence-based programmes, as there is no history to reflect on and conduct rigorous studies. Other inadvertent outcomes of this culture are frustration and ‘change fatigue’ amongst bureaucrats and teachers. Experts posit that this may also have contributed to the low morale amongst teachers.

- *“Teachers being trained through three policies in fifteen years; when each policy should be given years to mature.” (Expert)*
- *“Frequent curriculum changes, together with a lack of adequate subject advisory services and a lack of teaching resources, create an environment of despair.” (Expert)*
- *“Teachers are demoralised because our education system is not stabilised. Further training is not provided to teachers in order to close gaps that exist in their inadequate skills.” (Expert)*

4.2.1.8. Ineffective Implementation of the School Language Policy

The language policy for schools promotes that the language for learning and teaching should be mother tongue for at least the first seven years of schooling (grade R to 6). Furthermore an additional first language must be introduced as early as grade 1. In reality many schools have opted for English as the language of learning and teaching, even though both their learners and teachers are not sufficiently proficient in English. Schools where mother tongue is the language of learning and teaching have few high quality resources to teach literacy and

ensure that learners are academically proficient in their mother tongue. This is further exacerbated by teachers who may not be proficient in the mother tongue of their learners. Similarly, where English is the first additional language, teachers are not skilled to teach a second language (or second language acquisition pedagogy). The result is low levels of literacy in foundation phase which is carried through learners' schooling career, and seriously disadvantages their learning opportunities.

- *"The level of reading literacy across all language groups in 11 languages is hopelessly too low. Children are unable to read in the level that allows them to carry on and handle the rest of the curricular right to matric."* (Expert)

4.2.2. INTERVENTIONS TO SUPPORT LEARNING AND TEACHING IN SOUTH AFRICAN PUBLIC SCHOOLS

The battery of interventions suggested by the experts is grouped into four broad areas, namely:

- Creating a positive learning and teaching environment
- Capacity building
- Increasing access to quality learning and teaching resources
- Using technology.

4.2.2.1. Creating a Positive Learning and Teaching Environment

Feedback emphasizes that creating a positive learning and teaching environment should be considered a priority in improving the schooling system. This includes:

- Investing in school infrastructure coupled with on-going maintenance of school assets.
- Supporting a culture of accountability in schools, through helping teachers and school managers to focus on "what matters" – being, effective delivery of the curriculum.
- Making school performance information accessible to parents, i.e. the schools' outcome in ANAs should be packaged in ways that parents can use to make decisions about their children's schooling as well as holding schools to account on performance (benchmarking cognitive level of performance).
- Improving the management of schools by focusing on offering teachers and school managers more opportunities to engage in professional learning communities, i.e. helping teachers and principals to work together with their peers in school improvement and thus learning together.

4.2.2.2. Capacity Building across the System

The long-term approach to improving the capacity of the schooling system is raising the status of the teaching profession and hence the recruitment and retention of high quality young people into the profession. In the interim, medium-term (at least three years) investment in teachers, school managers, and district based officials professional development should be prioritized. While experts recognized that on-going professional development is the responsibility of individuals, in this period of crisis, the state should be the driver of professional development that is related to enhancing instructional practices.

Experts also promoted in-class and in-school mentoring and coaching as a means to helping teachers improve their instructional practices as well as helping principals to be effective managers. Similarly they advocated the establishment of professional learning communities to improve agency amongst both principals and teachers.

However, experts cautioned that such an investment will be futile if teachers are required to teach subjects that they themselves are not trained in.

4.2.2.3. Increasing Access to Quality Learning and Teaching Resources

An interesting finding is that good quality textbooks, workbooks for learners, graded readers for foundation phase, and a good library were prioritized by the experts interviewed. In addition, connectivity was also prioritized, so that learners and educators have access to a world of resources. The use of mobile devices was put forward, especially in situations where learners are disadvantaged by weak infrastructure and limited access to quality learning and teaching resources.

4.2.2.4. Using Technology

There was consensus amongst stakeholders and experts that technology, especially information, communication technology should be used to help improve access to quality resources, improving classroom practice and effectively managing and administrating the schooling system.

While acknowledging that the availability of quality learning and teaching resources to teachers is not sufficient, teachers must value and feel confident in using the resources. Nonetheless, experts were concerned that learners' were being disadvantaged, especially in extremely deprived learning environments, where teachers are not covering the curriculum. In these cases technology can offer solutions, especially through mobile education.

According to the recent McKinsey (2011) report, m-Education offers the following three advantages in improving education delivery and hence learner performance:

- It simplifies access to content and experts, overcoming traditional constraints of time, location and collaboration
- It personalizes education solutions for individual s, helping educators customize the teaching process, using software and interactive media that adapt levels of difficulty to individual learners' understanding and pace
- It addresses specific challenges that lower the efficiency of educational systems worldwide. Case in point: MIT's Education Collaboration Services gives teachers access to best practices
 - The MIT Educational Collaboration Space (ECS) provides an open source tool for “building focused communities of teachers”¹⁰. This software is freely available to all and allows teachers to share their resources, like lesson plans and other pedagogical collaboration.

4.3. Local and International Innovations in Learning and Teaching Resources

A uniquely South African innovation is the *Microscience kits* designed by RADMASTE at the University of Witwatersrand. Currently these science kits are being distributed in 70 countries (including South Africa) by UNESCO. In the absence of science laboratories in the majority of South African public schools, RADMASTE designed science experiment equipment on a micro scale that can be used in a classroom. The kit uses small amounts of chemicals and the learners and teachers can use the equipment on any work surface.

The workbooks, referred to in Figure 6: Department of Basic Education Flyer on the Workbooks, produced by the DBE are also distinctive to South Africa - the images and contexts used are South African.

The majority of programmes and projects that experts referred to are around delivering curriculum resources and teacher professional development using information, communication technology. Mind-set (e.g. on MultiChoice) is the largest and the oldest of such initiatives. Through its various delivery platforms (including satellite television and internet), it provides video lessons and other audio-visual resources to the schooling sector.

South African non-governmental organisations as well as some educational districts and provinces have adapted international resources. For example:

- Schoolnet is piloting Nokia's MoMaths in partnership with the Department of Education
- Mxit and Cell C are partnering

¹⁰ <http://ecs.mit.edu/>

- MTN and Maskew Miller Longman are partnering
- Ekurhuleni education district is using the Singapore numeracy and literacy workbooks in their primary schools.

Table 8 and Table 9 presents a list of local innovations in learning and teaching resources and the use of international innovations adapted to suite local public schools. These lists were compiled from the in-depth interviews.

The innovations shared by experts are generally in response to two weaknesses in the basic education system, namely lack of learning and teaching resources in the majority of schools and weak teacher subject content knowledge and subject pedagogical knowledge. Furthermore with the exception of the DBE Workbooks, the interventions are small scale and are subject to the availability of donor funding. Hence systemic change responsibilities are entrusted to the state. The post-apartheid state had a huge task including the amalgamation of 21 education departments into nine provincial departments; repealing apartheid legislature and promulgating new legislation aligned to the adoption of the democratic constitution in 1996; ensuring universal access to primary education; addressing the infrastructure backlog due to apartheid's unequal resourcing of schools; transforming the curriculum to meet democratic needs as well as a globally competitive economy; making school governance democratic; supporting professional teacher development to help those teachers who were un or under qualified to meet the new requirements for the profession amongst other priorities such providing a meal to poor learners and improving learner attendance. The post-apartheid state tackled these challenges simultaneously through the education white paper processes and the release of multiple education policies. However, the implementation of this plethora of policies was thwarted by limited capacity in the state and long term political commitment to dedicate the necessary resources and support to implementation. Hence, the state drew on non-governmental organisations and other social partners to support implementation. Furthermore, most international donor resources were directed to the state via the National Donor Fund managed by treasury. This inadvertently resulted in non-governmental organisations and other social partners playing the role of support to the state and not engaging in experimentation, innovation or genuine research in education. Beside publishers and Mindset, few of the interventions mentioned by experts developed quality content and new learning and teaching resources.

Table 8: List of Local Innovations in Learning and Teaching Resources

LEARNING AREA/S	INNOVATION	ORGANISATION	DESCRIPTION OF INNOVATION
Physical Science	Microscience kits	RADMASTE (University of Witwatersrand)	Due to the high costs of chemicals and materials, RADMASTE has developed a number of science related kits for use in the classroom and laboratories. There are kits for primary school science, more advanced secondary school and first year tertiary level chemistry education (covering electrochemistry, organic chemistry, and volumetric analysis) Supporting workbooks and resources have been developed in conjunction with UNESCO and implemented in 70 countries
All learning areas/ subjects	Mind-set	Mind-set Learn	Learning and teaching resources online, and broadcast through DSTV and Top TV (Multi-platform)
Mathematics	Dr. Math	Council for Scientific and Industrial Research	Mathematics tutors available through mobile technology
Early Childhood Development	Amazing Brainz	Amazing Brainz	Helping young children to develop cognitively
All Learning Areas	Education Centre Programmes	Resourcing communities with ICT infrastructure coupled with offering Saturday classes in mathematics and science	Executed by Media in Education Trust (MIET)
Mathematics	Master Maths	Offering tutoring coupled with worksheets and online assessment	Franchise ownership
Literacy, Numeracy, Mathematic, Life skills	Workbooks	Department of Basic Education	The curriculum is divided into days, and there is a lesson for everyday of the school teaching calendar. learners can take them home to continue working on activities
Gauteng Online	Improving connectivity and use of computers in provincial schools	Gauteng Department of Education	The success of this R4 billion intervention remains questionable

LEARNING AREA/S	INNOVATION	ORGANISATION	DESCRIPTION OF INNOVATION
Khanya Project	Improving connectivity and use of computers in provincial schools	Western Cape Education Department	¹¹ In terms of tangible deliveries, Khanya has achieved the following to date (these figures are as at 3 August 2011 and are changing on a daily basis): • 1 339 schools have been provided with technology facilities, typically computer laboratories, consisting of between 25 and 40 computers each (LAN networked and internet linked) • A further 133 schools are in the process of infrastructure preparation for installation within the year • A total of 46 088 PCs have been deployed in these schools • 28 035 educators have received basic IT training and are receiving on-going training through the Khanya process of using facilitators • 905 464 learners are benefiting from using the technology on a daily basis

Table 9: List of International Innovations in Learning and Teaching Resources that are used in South African Schools

LEARNING AREA/S	INNOVATION	ORGANISATION	DESCRIPTION OF INNOVATION
Mathematics and English	Workbooks	Singapore Government	Workbooks for learners to write in. The workbooks enable the learners to cover the curriculum
English Literacy	Letterland	English	Improving reading and vocabulary
Listening and reading skills (English)	Xbox Kinect	Microsoft	Gaming technology to enhance English, piloted in Vryheid
Mathematics	MoMaths	Nokia	A mathematics programme for learners to access on their mobile phones (currently being implemented by Schoolnet)
All learning areas/ subjects	Video Lessons, interactive activities and assessments	Khan Academy	Online video lessons available in all learning areas. Media in Education Trust (MIET) are using their resources in their education centres

Tables 8 and 9 confirm the limited innovation in basic education in post-apartheid South Africa. Similarly exciting and fun learning and teaching resources are borrowed from international partners with no adaption to the South African context such as Letterland or the Khan Academy resources. There appears to be a move toward the need for local innovation with the DBE Workbooks and Dr. Maths. The catalyst or trigger for encouraging local innovation and experimentation is the collective agreement that the basic education system is in dire

¹¹ <http://www.khanya.co.za/projectinfo/?catid=32>

straits and requires multiple solutions to meet the diverse context of basic education delivery. Furthermore that improving the current status quo in basic education desperately requires a social contract with all social partners including civil society, labour, business, government, parents, learners, and teachers.

Experts also recommended that the following programmes be reviewed as best practices in improving learning and teaching:

- **English in Action** (Bangladesh) – A nine year running intervention that uses mobile technology to improve conversation English in 25 million people in India (<http://www.eiabd.com/eia>)
- **Hole in the Wall** – An Indian physicist placed a personal computer with a high speed internet connection in a wall in the urban slums and rural communities and learned that young children gained significant computer literacy and language skill through learning together with the interactive device (<http://www.hole-in-the-wall.com>)
- **Open Educational Resources Movement** – The Hewlett Packard Foundation has been partnering with universities to develop content and offer it free through various technologies (<http://www.oercommons.org>)
- **The Flipped Classroom concept** – A ‘blended learning’ approach where learners are offered video lessons that they can access on mobile phones while at home, in order for classroom time to be spent on doing activities (<http://educationnext.org/the-flipped-classroom>)
- **Pratham** – An Indian non-governmental organisation that has designed, tested, and implemented learning English through peer mentoring (<http://www.pratham.org>)
- **Akshara Library Programme** (India) – A network of libraries in schools and communities to encourage and sustain a reading habit among children as a means of improving learning outcomes (<http://akshara.org.in>)

Samoff et al (2011), in reviewing innovations in education in Africa, conclude that for programmes and projects to go to scale the following factors are critical:

- A clear, explicit, visible, and reiterated political commitment to support both the reform and efforts to enlarge its scale
- Clear accountability for outcomes
- Significant and sustained local involvement in decision making and implementation
- Local ownership of specific elements of the reform
- Organising pilots as learning experiences
- Expectation to enlarge scale from the outset of the pilot

- Flexible, iterative planning
- Strong links among community and other organisations
- Effective infrastructure, including availability of facilitators, trainers, animators, and support staff.

Nonetheless they conclude that it may be more useful to scale up *“the conditions that permitted the initial reform to be successful and the local roots that can sustain it”*.

4.4. Conclusion

There are two ways of interpreting the dataset. First, the state of public schooling is appalling and requires an overhaul. The second, using McKinsey and Company’s phrase *“never waste a good crisis”*, is to begin to offer a basket of support to all the cogs in the system. The streamlining of the National Curriculum Statement in the form of CAPS, the DBE workbooks, the ANA and the provincial numeracy and literacy strategies are examples of policies and programmes that use ‘pressure and support’ to improve learning and teaching in schools and hence performance. Furthermore business and civil society (through non-governmental organisations in the sector) are finding creative solutions to improving learning and teaching.

There is consensus among experts on the challenges facing learning and teaching in public schools – which is a good beginning in terms of not wasting a good crisis. The future for public schooling will depend on the efficacy of implementation. The post-1994 experience of policy implementation has shown that the initial ‘command and control’ approach or ‘mandate change’ has been unsuccessful. **Understanding the context of implementation and the barriers to implementation at the coal face is critical** in order to offer the necessary support to teachers, principals, district officials, and managers.

5. CHAPTER 3: LEARNING THEORIES AND ALTERNATIVE MODELS OF EDUCATION

5.1. Introduction

In the previous chapter educational experts noted that while access to schooling has increased, quality of educational outcomes of public schools remains weak. Experts interviewed identified low quality of teaching among six contributory facts and recommended that school improvement interventions should focus on creating a positive learning and teaching environment, building capacity at a systemic level, increasing access to quality learning and teaching resources, and using ICT.

This chapter takes the discourse further by translating the findings and recommendations from the 'state of South African public schools' into further exploring learning and teaching theories, multi-grade classrooms, and mobile technology in South Africa and opportunities for m-learning.

The chapter is divided into three subdivisions:

- Subdivision 1: Learning Theories and the National Curriculum Statement and the Curriculum and Policy Assessment Statement
 - Provides a summary of the learning theories that underpin and influence the South African national curriculum statement.
- Subdivision 2: Multi-grade Schools in South Africa and International Lessons
 - Provides an overview of multi-grade schools in South Africa within the global phenomenon of multi-grade schools.
- Subdivision 3: Mobile technology in South African and Opportunities for m-Learning
 - Looks at mobile phones in South Africa within the context of information communication technologies in education and m-Learning in specific. This section also explores e-Learning projects locally and internationally with specific attention to developing countries.

5.2. Learning Theories and the National Curriculum Statement and the Curriculum and Assessment Policy Statement

The Revised National Curriculum Statement promulgated in 2002 on which the current NCS is based on is underpinned by the values of the South African Constitution and the Manifesto of Values, Education and Democracy; recognising the crucial role that education can play in building a national identity and deepening democratic and human rights culture. Furthermore the Revised National Curriculum Statement sees teachers or educators as professionals who will be able to fulfil their roles as required by the Norms and Standards for Educators (2000); i.e. mediators of learning; interpreters and designers of learning programmes and materials; leaders, administrators and managers; scholars, researchers and lifelong learners; community members, citizens and pastors; assessors; and learning are/phase specialists. Similarly it envisions learners who are “imbued with the values and act in the interests of a society based on respect for democracy, equality, human dignity, life and social justice” (DoE, 2002, p9). The curriculum is a tool to create lifelong learners who are confident and independent, literate, numerate and multi-skilled, compassionate, with a respect for the environment and the ability to participate in society as critical and active citizens.

The Norms and Standards for Educators and the Revised National Curriculum Statement look at teaching as a mediated process that requires the active participation of learners; i.e. that learning is an active process. The notion of mediated and active learning is influenced by the works of developmental and cognitive psychologists Piaget and Vygotsky and hence is broadly categorised as ‘constructivist or constructivism’ in nature.

- Constructivism is a move away from behavioural psychology that sees learning as a process of repetitive actions (stimulus-response). Constructivism sees learning as an active process where learners derive meaning through experiencing the environment and creating their own constructs. **The role of teachers is thus to facilitate the construction of meaning and knowledge, a move away from lecturing content or choral reading.** While there are differences between Piaget and Vygotsky in relation to development, their work in learning and hence education advocate that **learning is active that genuine learning is deep and fundamental changes occur in learners’ mental structures.**

Piaget (1964) distinguished four stages of cognitive development in children, namely the first stage is the sensory-motor (pre-verbal stage, the first 18 months), the second stage is the pre-operational (beginnings of language), the third stage is concrete operations, and the fourth stage is formal operations (hypothetic-deductive).

In the sensory-motor stage the child develops practical knowledge and the structures required for 'representational thought'. In the second stage the child begins to develop symbolic functions or representations. In the concrete operational stage the child is able to manipulate or 'operate' on physical objects but unable as yet to create verbal hypothesis, it is in the fourth stage that the child is able to reason on hypothesis or abstract thought. Piaget hence posits that development is necessary for learning. The factors that contribute to learning are physical/mental maturation, experience, social transmission and equilibrium (or self-regulation). For genuine learning to occur the learner must actively assimilate the new knowledge or experience into existing mental structures and where 'cognitive conflict' arises will create new structures resulting in a new equilibrium. Hence according to Piaget (1964) **the learner is fundamentally responsible for learning through the process of self-regulation.**

- *"Learning is possible only when there is active assimilation. It is this activity on the part of the subject which seems to me to be underplayed in the stimulus-response schema. The presentation which I propose puts the emphasis on the idea of self-regulation, on assimilation. All the emphasis is placed on the activity of the subject himself, and I think that without this activity there is no possible didactic or pedagogy which significantly transform the subject."*

While Vygotsky (1926) showed that **child development is rooted in their social environment** and that her development is a result of the assistance of peers and adults and the technologies prevalent in her society. Thus according to Vygotsky learning is a mediated process, for education it means that learning is directed by a facilitator, who can be a teacher or a peer through collaborative learning:

- *"The entire history of the child's psychological development shows us that, from the very first days of development, its adaptation to the environment is achieved by social means, through the people surrounding him. The road from object to child and from child to object lies through another person."*

Vygotsky introduces the notion of the zone of proximal development which is essential to mediated learning. The zone of proximal development is created during the learning process and reflects what the child is able to achieve independently and with a mediator:

- *"We propose that an essential feature of learning is that it creates the zone of proximal development; that is, learning awakens a variety of developmental processes that are able to operate only when the child is interacting with people in his environment and in collaboration with his peers."*

Piaget and Vygotsky both emphasise that **children actively construct their knowledge** and do not simply sit and absorb their teachers' ideas. Children create their own ideas; they assimilate new information into existing structures (notions) and change these if there is 'cognitive conflict' to form more complex ideas and require appropriate support through this process. As such **classroom experiences and pedagogy must be learner centred**, allow for genuine experiences, supportive, and collaborative. A teacher should facilitate cognitive

development and learning, the classroom should have appropriate learning resources, and peer learning or cooperative learning must be part of a teachers' repertoire (Gangwal and Kapur, 2009). Papert and Harel (1991) coined the phrase learning-by-making to summarise the constructivism.

5.2.1. SITUATED LEARNING

Recent research by Brown and colleagues (Brown et al, 1998) has shown that the context of learning plays a critical role in learning and knowing. Their research shows that learning and knowing is situated; i.e. it is:

- *"inextricably situated in the physical and social context of its acquisition and use ... Knowledge is fundamentally a co-production of the mind and the world ... Knowledge we claim is partially embedded in the social and physical world. And these embedding circumstances allow people to share the burden of solving problem efficiently. Learning is the process of constructing robust understanding out of this sort of embedded activity."* (Brown et al, 1998).

This concept of situated learning means that learning in classrooms should be activity based and that these activities should be based on real experiences, which Brown and colleagues refer to as 'authentic activities'. They believe this is best done through 'cognitive apprenticeship', i.e. similar to craft apprenticeship, learners cognitive or conceptual tools should be acquired, developed and used in authentic situations. Thus coaching, mentoring, modelling and collaborations should be part of classroom pedagogy (see Figure 12, Brown et al, 1998). In this ways learners participate actively in their learning through social interaction and collaboration with their teacher and peers.

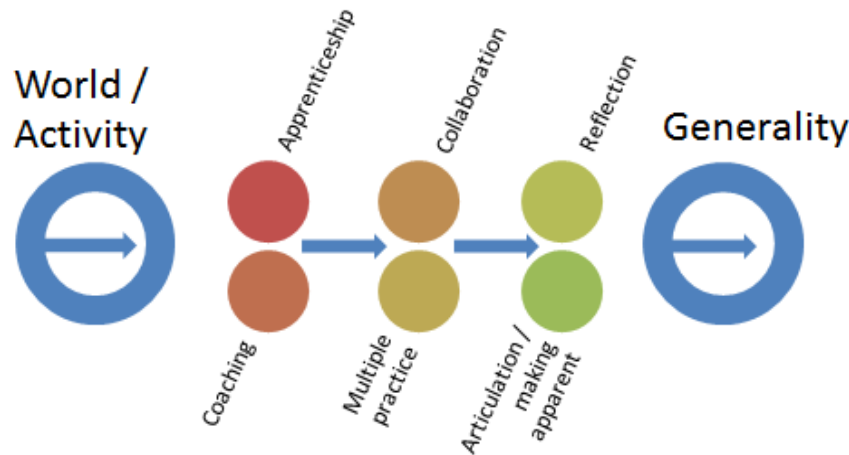
Brown et al summarises the salient features of group learning (1998):

- **Collective problem solving:** Groups are not just a convenient way to accumulate the individual knowledge of their members. They give rise synergistically to insights and solution that would not come about without them.
- **Displaying multiple roles:** Successful execution of most individual tasks requires learners to understand the many different roles needed for carrying out the task. Getting one person to be able to play all the roles entailed by authentic activity and to reflect productively upon his or her performance is a monumental task of education. The group, however, permits different roles to be displayed and engenders reflective narratives and discussions about the aptness of those roles.
- **Confronting ineffective strategies and misconceptions:** We know from an extensive literature on the subject that learners have many misconceptions about qualitative phenomena in physics. Teachers rarely have the opportunity to hear enough of what learners think to recognise when the information that is offered back by learners is only a surface retelling for school purposes that may mask deep misconceptions

about the physical world and problem-solving strategies. Groups, however, can be an efficient means to draw out, confront, and discuss ineffective strategies.

- **Providing collaborative work skills:** Learners who are taught individually rather than collaboratively can fail to develop skills needed for collaborative work. In the collaborative conditions of the workplace, knowing how to learn and work collaboratively is increasingly important. If people are going to learn and work in conjunction with others, they must be given the situated opportunity to develop these skills.

Figure 12: Situated Learning



5.2.2. LOGO PROGRAMMING

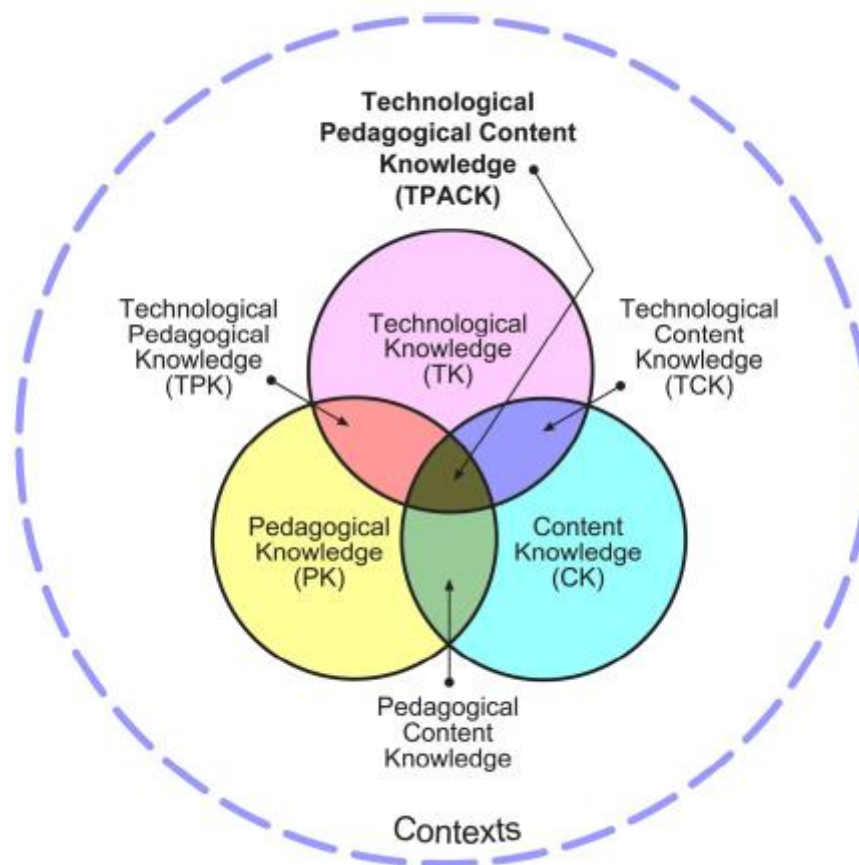
The Logo programming language was created by Seymour Papert and his team in 1967 as a tool to help children think and solve problems; hence **it is learning with a computer and not learning about a computer**. This was the first software programme that drew on the works of Piaget and related constructivist theories and a move from 'ready to use software'. Logo provided learners with activities that are project based which allowed learners to do / learn / think individually and together through developing writing code to create geometric patterns or designing software to teach fractions. The use of Logo is globally widespread including in the Lego Mindstorms range and hence the literature is extensive. The work by Papert offers an example of constructivism and situated learning / cognition.

5.2.1. LEARNING AND TECHNOLOGY

Koehler and Mishra in 2006 (2009) introduced the concept of technology, pedagogy, and content knowledge to explore the competencies teachers require for integrating technology in delivering the curriculum or using technology to teach and learn. Analogue technologies such as pencils, abacuses, rulers, magnifying glasses used

in teaching and learning are considered 'transparent', in that their workings are easily understood and are directly related to their functions. While new digital technologies such as computers and mobile devices are opaque (in that their workings are hidden), rapidly changing, and used for multiple purposes and contexts. For the majority of teachers the current technology was unavailable during their initial training and they need time to learn the technology. However, teachers generally have limited time to spend on learning the technology and then considering ways of integrating the technology in their lessons. Koehler and Mishra provide a model on understanding good teaching using technology, i.e. the relationship and interaction between teachers subject content knowledge, pedagogy knowledge, and technology knowledge, i.e. understanding the subject that they teach and its epistemology, knowing how learners learn the concepts of their teaching subjects and appropriate teaching techniques to facilitate authentic learning, and distinguishing the functions of technology that can mediate learning (2009).

Figure 13: Technology, Pedagogy, and Content Knowledge Framework and its Knowledge Components



Koehler and Mishra define technological pedagogical content knowledge (TPACK) as (2009):

- *“TPACK is an emergent form of knowledge that goes beyond all three “core” components (content, pedagogy, and technology). Technological pedagogical content knowledge is an understanding that emerges from interactions among content, pedagogy, and technology knowledge. Underlying truly meaningful and deeply skilled teaching with technology, TPACK is different from knowledge of all three concepts individually. Instead, TPACK is the basis of effective teaching with technology, requiring an understanding of the representation of concepts using technologies; pedagogical techniques that use technologies in constructive ways to teach content; knowledge of what makes concepts difficult or easy to learn and how technology can help redress some of the problems that students face; knowledge of students’ prior knowledge and theories of epistemology; and knowledge of how technologies can be used to build on existing knowledge to develop new epistemologies or strengthen old ones.”*

The TPACK (technological pedagogical content knowledge) framework allows teacher professional development programmes and interventions in using ICT to enhance learning and teaching in classrooms to consider the subject content knowledge, subject pedagogy knowledge, and the technology available and its functions and relevance to the teaching subject.

5.2.2. SUMMARY

Table 10 below provides a summary of the kinds of learning activities and the underlying theories.

Table 10: Learning Theories and Associated Learning and Teaching Activities

Learning Theory	Learning and Teaching Activities	Exemplar Technology for Learning
Behaviourist	Drill and practice Choral reading Lecturing	Ready to use software in the form of quizzes, video lessons, etc.
Constructivist	Activities that allow learners to construct their own knowledge and meanings through mediation by technology or peers or facilitators	Programming that allows finding solutions such as Logo
Situated Learning	Solving real life problems Case studies Context-based learning Working collaboratively	Simulation games that require active participation by learners

Constructivists and **situated learning call for learner-centred, contextually relevant, active learning pedagogies in the classroom**. Unfortunately, the majority of classrooms across South Africa and globally remain ‘behaviourist in nature’ i.e. ‘chalk and talk’ mode. The recent study on innovative teaching and learning by Microsoft Partners in Learning (2011) show that there were pockets of innovative teaching in the classrooms the researchers visited, however a coherent and integrated set of conditions to support the adoption of innovative teaching was lacking in most of the schools and all of the systems in their sample. The study concludes that

innovative teaching practices are more likely to flourish when particular supportive conditions are in place. These conditions include (Microsoft Partners in Learning, 2011):

- Teacher collaboration that focuses on peer support and the sharing of teaching practices
- Professional development that involves the active and direct engagement of teachers, particularly in practicing and researching new teaching methods
- A school culture that offers a common vision of innovation as well as consistent support that encourages new types of teaching.

It is here where the TPACK (technological pedagogical content knowledge) framework may be used to facilitate teacher professional development programmes and interventions in using ICT to enhance learning and teaching in classrooms by considering the subject content knowledge, subject pedagogy knowledge, and the technology available and its functions and relevance to the teaching subject. This process is however easier said than done!

5.3. Multi-grade Schools in South Africa and International Lessons

A third of South African public and community schools are categorised as multi-grade schools representing 0.4% learners and 7.07% teachers (see Table 11). Multi-grade schools are largely in rural areas and on farm schools with the exception of Gauteng (Brown, 2010, Joubert, 2010, Education Policy Consortium, 2011). The majority of multi-grade schools comprise 1 to 2 classrooms. There is a slight increase in the number of multi-grade schools between 2004 and 2007 (Education Policy Consortium, 2011). According to Brown (2010), multi-grade classes are an outcome of numerous factors including:

- *“limited classroom space, teacher shortage and absenteeism, and teacher deployment issues characterised by teacher refusal to work in schools in rural areas.”*

Since 1994, there is a steady increase in learner migration to cities and towns which according to Brown (2010) has two adverse outcomes:

- decrease enrolment in disadvantaged communities and
- redeployment of excess teachers in these schools.

Table 11: Multi-grade Schools in South Africa¹²

Pro- vince	Schools			Educators			Learners		
	All Schools	MG Schools	% in Province	All Educators	MG Educators	% in Province	All learners	MG learner	% in Province
EC	5,669	1,524	26.88	67,420	4,753	7.05	2,032,579	12,734	0.63
FS	1,531	277	18.09	22,960	1,573	6.85	637,265	1,915	0.30
GT	1,970	761	38.63	54,586	4,689	8.59	1,720,243	5,057	0.29
KZ	5,928	1,167	19.69	86,142	5,128	5.95	2,782,227	7,778	0.28
LP	3,988	1,649	41.35	56,766	5,025	8.85	1,671,672	11,330	0.68
MP	1,844	461	25.00	33,984	2,262	6.66	1,016,479	3,101	0.31
NC	600	83	13.83	8,888	483	5.43	264,857	542	0.20
NW	1,716	506	29.40	25,672	1,899	7.37	764,493	3,083	0.40
WC	1,453	223	15.35	31,329	1,591	5.08	944,701	1,504	0.16
SA	24,699	6,651	26.93%	387,837	27,403	7.07	11,834,516	47,044	0.40

Multi-grade schools are part of the world national education systems as shown in the following statistics (Education Policy Consortium, 2011):

- In England in 2000: 25.4% of all classes in primary education
- In France in 2000: 34% of primary schools
- In Ireland in 2001: 42% of primary school classes
- In Norway in 2000: 34% of all primary schools
- In Nepal in 1998: almost all primary classes
- In Peru: 23 419 (73%) of all primary schools (Ames 2007)
- In India in 1986: 84% of primary schools had three or fewer than three teachers, making multi-grade teaching inevitable
- In The Netherlands: 53% of primary school teachers teach in multi-grade classes
- In Finland: a third of primary schools have 50 or fewer than 50 s, thereby necessitating multi-grade teaching
- In Austria: about 25% of primary schools are one- to three-room schools
- In Greece: 31% of primary schools are multi-grade
- In the Czech Republic: 35% of primary schools are multi-grade

Little identifies ten factors that contribute to the formation of multi-grade schools across the world (2004):

¹² Education Policy Consortium. (2011). *Research Report: Teaching Literacy and Numeracy in Multi-grade Classrooms in Rural and Farm Schools in South Africa*, Centre for Education Policy Development. Johannesburg, p. 17

1. Schools in areas of low population density where schools are widely scattered and inaccessible and enrolments low. Schools may have only one or two teachers responsible for all grades.
2. Schools that comprise a cluster of classrooms spread across in different locations, in which some classes are multi-grade for the same reasons as (1), and some are mono-grade. Some teachers within the same 'school' will spend most of their time with multi-grade classes; some with mono-grade classes.
3. Schools in areas where the learner and teacher numbers are declining, and where previously there was mono-graded teaching.
4. Schools in areas of population growth and school expansion, where enrolments in the expanding upper grades remain small and teacher numbers few.
5. Schools in areas where parents send their children to more popular schools within reasonable travel distance, leading to a decline in the potential population of learners and teachers in the less popular school.
6. Schools in which the number of learners admitted to a class exceeds official norms on class size, necessitating the combination of some learners from one class grade with learners from another grade.
7. Mobile schools in which one or more teacher moves with nomadic and pastoralist learners spanning a wide range of ages and grades.
8. Schools in which teacher absenteeism is high and supplementary teacher arrangements are non-effectual or non-existent.
9. Schools in which the official number of teachers deployed is sufficient to support mono-grade teaching but where the actual number deployed is less (for a variety of reasons).
10. Schools in which learners are organised in multi-grade rather than mono-grade groups, for pedagogic reasons, often as part of a more general curriculum and pedagogic reform of the education system.

An interesting finding from local literature on multi-grade classrooms, schools, and teaching is the limited consensus around defining multi-grade education. Joubert (2010) formulated a definition of multi-grade teaching that emerged from the national baseline study on multi-grade schools conducted in South Africa in 2009:

- *"Multi-grade teaching is the situation, where one teacher, often of a different culture and language background as the students, teaches simultaneously all the learning areas or some of the learning areas to students, often of different cultures and different languages, which are in two or more grades or in different grades in a combination of different phases. Multi-grade teaching occurs in rural areas, with limited facilities, and mostly on farms."*

Little in 1995 offered a definition of multi-grade teaching which is still used in the literature:

- *"Multi-grade teaching refers to the teaching of learners of different ages, grades and abilities in the same group. It is referred to variously in the literature as 'multilevel', 'multiple class', 'composite class', 'vertical group', 'family classes', and, in the case of one-teacher schools, 'unitary schools'. It is to be distinguished from mono-grade*

teaching in which learners within the same grade are assumed to be more similar in terms of age and ability. However, substantial variation in ability within a grade often leads to 'mixed-ability' teaching."

Currently there are no education policies directed specifically at multi-grade schools or multi-grade teaching and learning. To date the DBE and provincial departments of education do not differentiate between multi-grade schools and mono-grade schools in terms of both allocations of resources and curriculum implementation and related assessment practices. Multi-grade schools do not receive an 'adapted curriculum' that meets their unique context, hence teachers and schools are required to implement the N C S which is solely designed for mono-grade schools and classrooms. Furthermore there is an uneven distribution of learning and teaching support material across schools in the Education Policy Consortium study on multi-grade schools (2011).

A study of multi-grade classrooms in the Free State Province in 1998 revealed that teachers were not trained for responding to multi-grade learning and teaching. Most teachers used revision and repetition to reinforce basic concepts and used peer tutoring to alleviate their burden (Drost et al, 1999). This picture has not changed in 2011, according to the Education Policy Consortium report (2011) teachers' organise their learners in groups without genuinely understanding the theoretical foundations of peer collaboration in learning, and that their teaching strategies combined whole-class teaching with differentiation between activities. Brown (2010) noted that the grouping is done so that the teachers could teach grades separately and when grades are combined during teaching, the curriculum of the upper grades are emphasised.

While teachers attempt to adapt the curriculum to meet their own contexts, this is limited to organising the classroom. Few of the schools in the Education Policy Consortium study had lesson plans in place that reveal their unique strategies in facilitating learning and teaching and achieving curriculum outcomes for their learners. This is exacerbated by the limited internal and external support received by teachers, and this is blamed on the lack of expertise within the various departments of education regarding multi-grade learning and teaching coupled with the lack of acknowledgement of the unique needs of multi-grade schools. Brown (2008) in studying multi-grade schools in the Eastern Cape noted generally teachers in these schools lacked classroom management skills to deal with multi-grade classes. Implementing the appropriate language of learning and teaching is a challenge in multi-grade classrooms, Joubert (2010) found that learners in a multi-grade classroom come from diverse language backgrounds or teachers are not proficient in learners' home language or that teaching multi-grade classes across phases necessitated code switching between home language for lower grades and English for upper grades.

The only intervention to deal with multi-grade schools was established by the Cape Peninsula University of Technology in 2008. The University established the Centre for Multi-grade Teaching, which focuses on the basic principles of multi-grade teaching that offers accredited courses on rural education and multi-grade teaching up to doctoral level (Brown 2010; Jordaan and Joubert, undated).

Successful interventions (Chile, Columbia, Guatemala, India, Nepal, Pakistan, Sri Lanka, and Vietnam) to improve the quality of multi-grade school show the following critical components (McEwan, 2008; Khan, 2006; Blum and Diwan, 2007; Little, 2005):

- Adapting or re-organising the curriculum to meet multi-grade teaching and learning
- Developing learning and teaching resources specific for multi-grade teaching and learning
- Focussing on active learning and facilitating learners to learn independently and in collaboration with their peers
- Sustained teacher support and on-going professional development especially in improving teachers pedagogical content knowledge and skills
- Community involvement, especially in governance
- Policy commitment and acknowledgement of the unique needs of multi-grade classrooms
- Pressure and support (i.e. policy directives and related support)

The earliest mass multi-grade school improvement programmes were implemented in Columbia, known as *Escuela Nueva* and then replicated in other Latin and Central American countries (McEwan, 2008; Kline, 2002). McEwan summarises the four central features of *Escuela Nueva* as implemented in Columbia and later adapted to neighbouring countries, these are (McEwan, 2008):

- *“First, they emphasise that teachers should receive adequate training to teach in a multi-grade setting.*
- *Second, the reforms provide teachers and learners with instructional materials and textbooks that are suited to a ‘one-room schoolhouse’ in which teachers cannot instruct all learners and grades at the same time.*
- *Third, the reforms address the relative isolation of teachers by providing opportunities for professional interaction with colleagues in other schools.*
- *Fourth, the reforms emphasise that learners are active participants in the learning process.*
- *As such, learners are encouraged to work independently and creatively towards specified learning goals.”*

The *Escuela Nueva* in Columbia and the Rishi Valley in India interventions in multi-grade primary schools (Little, 2006; Blum and Diwan, 2007) puts learners at the centre and encourages active learning by providing high quality learning material that will allow learners to work independently and to progress at their own pace. Blum and Diwan summarise the benefits of this approach used in the Rishi Valley (2007):

- *“In a sense, these programmes expect the curriculum to bend to fit the needs and lives of learners, rather than asking learners to conform to the strict demands of the education system. In inverting the relationship in this way, both NGOs have opened new potential avenues of meaningful access for children who for reasons of family circumstances, ill health, or poverty might not otherwise persist or succeed in school.”*

At a national and systemic level the Cuban Education System remains a model for both developing and developed countries. Multi-grade schools receive greater resources and support by the system. Gasperini (2000) identified the following characteristics that allow the system to continue to produce quality educational outcomes in the face of huge resource constraints and challenges:

- Sustained and high levels of investment in education
- Consistent policy environment and political will in support of education for all
- Quality basic education, including early childhood and learner health initiatives
- Literacy, adult and non-formal education programs
- Universal access to primary and secondary school
- Highly professional, well-trained teachers of high status
- On-going professional development of teachers
- Quality low-cost instructional materials
- Creativity on the part of local educators in adapting and developing instructional materials
- System-wide evaluation
- Solidarity within schools and classrooms; competition among schools and classrooms;
- Significant community participation in school management
- Compensatory schemes for disadvantaged and rural children
- Clear connections between school and work
- An emphasis on education for social cohesion and values education.

The Recent Education for All (2012) report, published by UNESCO, shows that good quality pre-school programmes are essential to children’s success at school. The benefits of pre-schooling include a head-start in literacy and numeracy skills to improved attention, effort and initiative. They quote evidence from the 2009 survey in 65 countries (UNESCO, 2012):

- *“Recent evidence based on the 2009 survey in the OECD Programme for International Student Assessment (PISA) shows that in fifty-eight out of sixty-five countries, 15-year-old students who had attended at least a year of pre-primary school outperformed students who had not, even after accounting for socio-economic background. In*

Australia, Brazil and Germany, the average benefit after controlling for socioeconomic background was equivalent to one year of schooling.”

Luxomo (2009) looked at the relationship between attendance in early childhood development programmes and the impact on patterns of repetition, controlling for background factors using the Birth to Twenty (Bt20) dataset. While Luxomo found that overall repetition rate for the children in the Bt20 study is 33.8% or 707, with a difference of 6.6% from the raw data for the two groups investigated, the study also found that quality of pre-school programmes must be considered. An interesting outcome of Luxomo’s (2009) study is the “extensive repetition in grades 1 and 2 regardless of preschool participation”.

Education White Paper 5 on Early Childhood Development released in 2001 make grade 0 or reception year compulsory by 2010 and is the responsibility of the DBE. Grade 0 or R is now the first year of foundation phase in public primary schools. By 2007 the DBE had only achieved 49% of its targets for offering grade 0 in primary schools (See Table 12) (Biersteker, 2010). Nonetheless Biersteker is optimistic that the DBE will meet the targets set by the Education White Paper 5 for grade 0 because of the political will in achieving universal access to reception year. Furthermore Biersteker noted the following challenges with rolling out reception year:

- Infrastructure and transport costs especially for training practitioners and site management committees
- Low remuneration levels for practitioners drawing weak practitioners
- Not enough funding to employ personnel to implement the policy, especially in regards to monitoring and quality assurance
- Concerns that allocations for early childhood development do not allow for planned extension of the reception year
- Lack of funds for learner support material

The 2011 census show a decline in pre-school attendance over the last 12 years. In 2001, 575,936 children above 5 were attending pre-schools; while in 2011 only 128,719 children were enrolled in pre-school.

Table 12: National Enrolment in Grade 0 1999-2007

Province	1999	2000	2001	2002	2003	2004	2005	2006	2007	Target	%
E. Cape	20,703	19,555	18,873	23,562	46,371	75,571	105,231	96,364	112,889	149,968	75%
F. State	14,649	15,025	16,002	17,220	16,323	16,482	18,449	20,072	22,429	58,550	38%
Gauteng		21,368	23,920	28,189	31,666	34,690	41,073	47,314	49,931	168,664	30%
KZN	36,334	66,031	73,993	72,312	75,996	73,098	79,276	92,948	118,884	214,515	55%
Limpopo	28,702	75,219	84,243	90,332	89,790	89,725	98,273	102,969	93,030	132,965	70%
Mpumalanga	16,302	10,922	5,803	12,148	13,884	23,695	14,171	25,734	34,962	74,090	47%
N. West	3,444	3,193	3,176	3,142	4,325	5,625	9,737	15,311	16,143	81,137	20%
N. Cape	4,155	3,972	4,042	3,744	5,500	5,875	6,598	7,259	8,423	10,061	44%
W. Cape	22,003	11,346	11,473	28,077	31,532	31,726	32,389	33,650	30,834	91,580	34%
National	156,292	226,631	241,525	278,726	315,387	356,487	405,197	441,621	487,525	990,530	49%

In summary addressing the needs of small, rural, and multi-grade schools and classrooms requires a commitment by the state to support teachers and communities to be active in adapting the national curriculum, linking the curriculum to communities' experiences and production processes, creating relevant learning and teaching resources that are low cost and are of high quality, encouraging local teachers to remain in their communities, and helping teachers to be part of the broader professional community. Special attention will need to be placed on grade 0 learners in multi-grade classrooms and their unique needs. Most importantly community participation should not be reduced to a governance issue that is resolved through stronger school governing bodies. Active community participation requires that all members of the community take part in school activities from volunteering to teach extra-curricular activities to helping with the safety and security of learners to shaping the types of pedagogy that is authentic to their learners' experiences.

The literature on multi-grade schools is less extensive than traditional schooling, this is further worsened by the limited routine monitoring by governments (Education, Policy Consortium, 2011; Brown, 2010; Little, 2004), hence Little (2006) suggests forty critical questions that should be considered in a multi-grade school / classrooms /teaching research or development agenda (See Table 13).

Table 13: Critical Research Questions by School Dimension for Research and Development Interventions in Multi-Grade Schools

Dimensions	Critical Questions
Awareness	- How many learners are learning in multi-graded classes? - How many teachers are teaching in multi-graded classes? - How many support staff are supporting learning and teaching in multi-graded classes? - How many learners in mono-graded schools who, because of teacher absenteeism, find themselves in settings which de facto call for multi-grade teaching strategies?
Learning Time	- How much time in a school year do learners in a multi-grade class have for learning? - How much time do learners spend waiting in a multi-grade class for teacher input? - How much time do learners spend learning alone? - How much time do learners spend learning in groups?
Teacher Time and Method	- Does the teacher employ the concept of differentiation in the multi-graded class? If so does she/he differentiate by grade, by subject, by content within subject, by level of teaching input, by learning tasks, by learning outcomes? - How does the teacher manage the curriculum in a multi-graded class? Does he/she merge two or more curriculum frameworks and teach them as one i.e. the multi-year curriculum spans? Does he/she teach common topics/ theme and differentiate individual or group tasks? Does he/she treat the class as if they were two or more single (mono) grades? Does he/she focus on the learner and the provision of graded learning materials? - Does the teacher use a repertoire of organisational methods in his/her class, or is he/she dependent on one or two only?
Curriculum	- How many layers/elements does the curriculum have? (goals, aims, frameworks, syllabi, teacher guides, texts for teachers, texts for s, lesson plans, tasks etc.) - How 'graded' are each of these layers/elements? - Are curricula content-, process- or outcomes based? - Who is responsible for designing which layers/elements of curriculum? Over which layers does the teacher exert some control? Over which layers does the expert curriculum developer exert control? - To what extent can curricula be re-sequenced or otherwise re-organised in order to support the teacher of multiple grades?

Dimensions	Critical Questions
Learning Materials	• With what types of curriculum material do learners work? • In what quantities are they available in the classroom? • Do teachers encourage the use of materials by s? • What is the quality of the material (e.g. is the material attractive? Is it easy to use? Is the use of the material dependent on language? If so, is it of a level that learners can understand?) • Are materials available for learning remediation and extension?
Assessment	• What types of assessment tasks does the teacher use to assess learning? • Does the teacher use assessment information to adjust her method with individual children and/or groups? • Are assessment tasks built into sequences of learning materials? • Is assessment always directed by the teacher? Do learners self and peer assess?
Social organisation	• Are learners completely dependent on the teacher for all learning activity? • Do learners support each other in their learning? • Do learners take responsibilities for the general organisation of school and its activities? • Is the teacher able to attract volunteers and community members to support him/her in the classroom?
Teacher Training	• Are teachers trained in the principles and practice of multi-grade teaching? • Do teachers demonstrate their understanding of principles in the classroom? • Are teachers trained in the concepts of diversity and differentiation and in their application? • Are teachers exposed to a range of teaching methods and understand their respective purposes? • Are teacher educators able to demonstrate to teacher trainees good practices in multi-grade teaching?
Teacher Conditions of Service	• What incentives could be put in place to support the deployment of teachers to work in disadvantaged areas in general and in disadvantaged areas with multi-grade schools in particular? • What incentives could be put in place for teachers and schools to reach out to and enrol out of school s?

Dimensions	Critical Questions
	• What is the number of small schools (< 50 enrolled) which could benefit from multi-grade teaching strategies that generate more learning time for s? • How can repetition be reduced through managed progression that does not involve the repetition of complete years in all subjects? • Are affordable strategies available to support multi-grade learning and teaching that do not involve system level reforms of all learning materials • Can resource allocation practices (teacher deployment, learning materials supply) and professional support systems be hanged to promote a multi-graded pedagogy rather than hinder its use?

5.4. Mobile technology in South African and Opportunities for m-Learning

Mobile technology is part of South African life, with mobile phones being ubiquitous from the urban suburbs to informal settlements to rural villages. Recent focus group discussions held by CDI show that mobile phones are universally accessible followed by television and radio sets in five underdeveloped communities in South Africa (CDI, 2012). Census 2011 shows that 88.9% of South African households own a working mobile phone and 74.5% a working television set (Statistics South African, 2011). Generally mobile phones are used to keep in touch with family and friends, access information, and search for work opportunities. Older people, especially grannies mainly use voice calls, while young people in the communities in the CDI study use the internet to keep in touch, mainly using Facebook and Mxit. These are considered cheaper than making a voice call or sending a short message service (SMS). The recent study by World Wide Worx (2012) shows that the average user spend on data has increased by half in the last 18 months, while spending on voice calls has declined. The findings on data spend shows that:

- *“The biggest increases in specific uses of data on the phone were seen in instant messaging services, with more than a fivefold increase in the proportion of BBM [Black Berry Messenger] users in the past 18 months – from 3% to 17% of adult cellphone users living in cities and towns – and WhatsApp emerging from nowhere to claim a quarter of adult cellphone users. Browsing on the phone also increased substantially, from 33% to 41% of users, app downloads rose from 13% of users to 24%, while Facebook use rose by more than half, from 22% to 38%.”*

Mobile phones are also used to share digital data files using the Bluetooth technology available on smart phones. While the CDI technology and media studies did not probe in-depth mobile phone users' behaviour, the study found that 29.2% of poor respondents (living in under-developed areas) accessed the internet using their mobile phones. They used the internet in the main to look for work (15.5%), search for information (15.5%), access social networks (15%) and to send and receive e-mails (14.5%). Kreutzer (2009) and Donner and Shikoh

(2009) confirmed that young South African mobile phone users are mainly accessing social media. Both these studies found that mobile phones are the main internet platform for the majority of young South Africans. The 2011 census shows that the internet is accessed mainly via mobile phones (16.3%); however the majority of South Africans have no access to the internet (64.8%). The availability of working landline phones in homes has significantly declined between 2001 and 2011 from 24.4% to 14.5% (Statistics South Africa, 2011), explaining why only 8.6% of South African households accessed the internet from their homes.

Goldstuck (2010) in a study in South African private schools on teachers and parents' competence with ICT found a significant gap between learners and teachers competence in using computers and mobile phones. There was a significant gap between learners (82%) and teachers (51%) knowledge and skills on advanced internet features. A similar gap appears in using the applications available on mobile phones, 87% learners reported usage while only 49% teachers acknowledge using the applications. In the same study, 49% of learners from township schools reported accessing the internet using the Google search engine on their mobile phones. The majority (70%) of the learners from township schools were confident in using the applications available on mobile phones.

The availability of research on the use of mobile phones and other mobile devices by South African teachers is sparse. The Digital Education Enhancement Project tested the use of information communication technologies including hand-held computers for teacher professional development in twelve schools in the Eastern Cape in 2002/3 (Leach, 2005). The schools were located in rural communities and the schools had limited infrastructure (some schools had no electricity while a few schools had dirt floors). The study found ICT (especially hand-held computers) improved teachers' contents knowledge, professional knowledge, fostered sharing, and enabled collaborative planning. According to Leach et al (2006):

- *"The majority of teachers reported using the hand-held on a regular basis for a variety of functions, including classroom activities. The hand-held's small size and weight meant teachers could have the device with them wherever and whenever they wished, facilitating 'anywhere, anytime professional learning'.*

Similarly the research on using ICT and computers in schools is also thin. There appears to be a growing use of computers in administrations as well as learning about computers than learning with computers. However as discussed in conjunction with Table 2: South African Schools with No Basic Infrastructure, 77% of schools have no computer laboratories and 87% of schools have no connectivity. Here is a summary of research in ICT in South African schools:

- Rahimi et al (2012) focussed on the conceptual difficulties of e-Learning implementation in South Africa using the Khanya programme in the Western Cape as a case study. They found that e-learning and ICT integrated education is not simply about infrastructure and transferring skills by conducting basic computer literacy skills. Programmes should consider numerous factors such as social resistance, psychological factors and cultural and political factors. Hence interventions should offer deep training, schools must be encouraged to take ownership, control and participate in the programmes, and most importantly teachers must be willing to embrace ICT and e-learning in order to drive successful integration of ICT in learning and teaching. The challenges facing teachers in successfully integrating ICT in the Khanya programmes included: lack of departmental support; lack of support and guidance from the principal, lack of training opportunities, no time given to learn the skills, overloaded with too many administrative burdens, having to attend too many training sessions on curriculum matters, unreliable technology, too little (or no) technical support, no time slots available to get into the computer room, and *flocci non facio* attitude.
- Bladergroen et al (2012) looked at the way teachers in under-resourced contexts in the Western Cape understood the discourse around education and technology. They found that teachers are keen and positive about ICT and its use in education. However they lack capacity and support to use ICT. The authors using critical discourse analysis found that teachers shared all the positive attributes of ICT in education, without considering the challenging contexts they work in and the integration of ICT in their schools for fear of being considered backwards. Hence they take on the dominant discourse and their real voice may be unheard. The authors conclude that more should be done to empower the users to voice their concerns which will genuinely contribute to integrating ICT in learning and teaching and schooling in general.
- Dalvit et al (2011) looked at the implementation of two projects in rural and peri-urban communities in South Africa. Schools in both these communities are under-resourced. They found that schools in more marginalised schools require greater resources. Second that the impact of ICT is greater in the more marginalised schools.
- Chigona et al (2010) studied the domestication or integration of ICT in schools in disadvantage communities in South Africa. They found that teachers resistance to using ICT in learning and teaching is their lack of knowledge and skills of ICT. This is exacerbated with teachers having no access of ICT in their homes. The high ratio of learners to computers made classroom management problematic, which is further compounded by learners' limited or no access to computers in their homes which created another barrier. The lack of technical support was also identified as an impeding factor. They conclude that for schools in the disadvantaged communities to successfully domesticate ICTs, there should be sufficient resources to allow teachers time to learn and practise the use of ICT for teaching.
- Slayer et al (2007) explored the use of interactive whiteboards in Eastern Cape schools. They found seven key criteria for successful integration of interactive whiteboards into the learning environment; time to experiment with the technology; ICT literacy; access to ICT facilities; exposure to ICT; administrative support; technical support; and a change in pedagogical practice. They conclude that even in the most difficult teaching and learning environments, it is the teacher's willingness to change that 'makes-or-breaks' an ICT deployment in schools.

- Wilson-Strydom and Thomson (undated) in late 2004 implemented the Intel® Teach to the Future programme survey instrument across schools in South Africa and received 231 responses. They found that the presence of a computer laboratory is not sufficient to encourage teachers to integrate technology in their lessons. Similarly having access to the internet does not influence teachers' use of technology in their lessons. The barriers to integrating technology in their lessons included 'necessary computers were not available' (75%); software not available (48.3%); no Internet connection (43.9%); too little preparation time (36.8%); lack of technical support (35.1%); and lack of administrative support (33.3%). While learners in the study who have used technology in a lesson felt motivated, were more active in their learning, collaborated with their peers, and felt more creative. Teachers in the main used computers for administration followed by searching for information, and to plan their lessons using critical questions.
- Pelgrum (2001) in an international study of 26 countries (including South Africa) looked at obstacles in integrating ICT in education and found that insufficient number of computers, teachers lack of knowledge / skills, difficult to integrate in instruction, scheduling computer time, and not enough computers with simultaneous access to the internet were identified as major barriers.
- Hardman (2005) explored whether introducing computers in teaching mathematics impacted on pedagogy. The study was conducted in four primary schools in disadvantaged urban and rural communities in the Western Cape and found that teachers used computers for drill and practice as well as to motivate and re-engage their learners in mathematics. An interesting finding is that mathematics teachers used the computer laboratory to explore topical issues using Encarta.
- Bovee et al (2007) explored the attitudes of primary and high school learners towards computers and found that there were no gender differences. Both male and female learners valued computers and see computers as useful and a tool to learn new things. They also believed that being computer literate will contribute to finding a good job in the future. Their favourite activities/computer programmes included computer games, sending and reading e-mails, and searching for information on the internet. An interesting finding is that girls enjoyed using e-mails more than boys. They also found a correlation between experience and attitude, i.e. the more experience learners had with computers the more positive their disposition to computers. Hence learners from township schools had a less positive attitude towards computers than the middle and upper middle class children in the study.
- Nonyane and Mlitwa (undated) in a study of access and usage of computers in rural schools in Mpumalanga found that physical infrastructure and ICT skills amongst teachers and administrators were the major barriers to effectively integrating computer use in learning and teaching. Furthermore the support services for maintaining ICT hardware and software is located far from the schools.

These studies reveal that training and support is critical and that technical support must be an imperative in introducing ICT in schools in disadvantage communities. In addition they highlight the importance of teachers' attitude towards integrating ICT in pedagogy. Most importantly is that ICT appears to have a greater impact on the schools in more marginalised areas.

The NEPAD e-Schools Initiative has identified the following principles as fundamental to supporting the uptake of ICT in schools (quoted in Adam et al, 2011):

- Across the continent, every young African and each school context is unique.
- There is no single technical or educational model/approach to integrating ICT in schools which can be adopted across the continent, or even uniformly across a single country.
- The primary objective of continental and national e-schooling policies and plans should therefore be to create an enabling environment which stimulates and supports schools to invest in, acquire, and effectively use ICT to the educational benefit of young Africans.
- To be successful, any investment in ICT infrastructure should be accompanied by investments in:
 - supportive legal, regulatory, and policy frameworks
 - affordable connectivity
 - relevant educational ICT applications and electronic content (teaching and learning materials for both school and health contexts)
 - professional development of all important players, including government officials, schools principals, administrators, teachers, and learners
 - maintenance and support strategies and
 - effective governance and operational systems and processes.
- Experience suggests that several infrastructural preconditions are required before a school is able to integrate ICT effectively into its day-to-day operations. These include access to reliable power, secure and appropriate school buildings, and good road access to the school. Provision of this infrastructure, while critical to effective integration of ICT into schools, is not specifically part of initiatives concerned with ICT in education. An important objective of e-schooling initiatives should be their alignment with national infrastructure delivery initiatives.
- Dysfunctional schools cannot be made functional through the deployment of ICT.
- Successful integration of ICT into education depends on schools developing the capacity to produce their own technology plans rather than responding to directives from above. When technology decisions are forced onto schools it is usually not possible for school communities to develop a sense of ownership of the technology they receive, which results in high levels of wastage. Schools need to be empowered to develop technology plans which support their unique requirements and contexts, and to make their resulting choices and investments accordingly.
- Integration of ICT in education should be driven by national governments through the appropriate policy and planning processes. These processes should draw on support and contributions from donors, the private sector and civil society. These contributions should be aligned with a clear national strategy rather than dictating what that strategy should be.
- There is a multitude of ways in which one can imagine a future where ICTs are integrated into schools and have changed the way in which education systems function. To name a few:

- Government support staff communicates by e-mail with each other and school management teams and no longer rely on hard-copy letters, gazettes and official circulars which are posted or delivered to them.
- Government positions and vacancies are published electronically and distributed by e-mail to improve transparency in job application and appointment processes. Applications can be submitted electronically.
- School management teams make extensive use of EMIS data to report on their school status and to manage school record-keeping, staff appointments and other management functions.
- Teachers can access curriculum documents and supportive educational content linked to these documents freely and easily from the Internet, in order to reduce their preparation time and improve the quality of their teaching.
- Individual teachers are in electronic contact with a whole community of peers and have access to a range of professional development opportunities which encourage and sustain collegial support and innovation.
- Parents can access information about individual school performance and make applications for enrolment electronically.
- Parents are notified by e-mail or SMS if their child is absent from school, ill or involved in disciplinary action.
- School progress reports are distributed electronically to parents and there is a repository for each learner, accessible through the World Wide Web, through which they can view all reports throughout their child's school career.
- Learners can access assessment material from the Internet and can submit applications for further educational opportunities and bursaries and scholarships online.
- Learners use and publish information to the World Wide Web and are able to collaborate with other learners in other schools, other regions and internationally.
- Learners can access school timetables, homework assignments, assessment dates and extramural schedules electronically, and are notified electronically of new events and programme changes.

In 2004 the Department of Education launched the White Paper on e-Education and defines it as (DoE, 2004):

- *"e-Education is about connecting learners and teachers to each other and to professional support services, and providing platforms for learning. e-Education will connect learners and teachers to better information, ideas and one another via effective combinations of pedagogy and technology in support of educational reform. It supports larger systematic, pedagogical, curricular and assessment reforms that will facilitate improved education and improved use of educational resources such as ICT."*

Hence, e-Education views ICTs as a resource for reorganising schooling, and a tool to assist whole-school development. It includes ICTs as (DoE, 2004):

- a tool for management
- an administration tool to increase productivity
- a resource for curriculum integration
- a communication tool
- a collaborative tool for teachers and s
- a learning environment that advances creativity, communication, collaboration and engagement.

Mobile learning or m-Learning did not feature in the White Paper on e-Education; nonetheless there have been significant strides in using m-Learning in South Africa:

- **Yoza Project (www.yoza.mobi/ or <http://yozaproject.com/>):** The **Yoza Project** was launched in 2010 as a result of the successful pilot the m4Lit supported by the Shuttleworth Foundation. Yoza offers a range of teen stories in different genres, it also has classics or public domain content being studied by learners in South Africa, e.g. Romeo and Juliet. Yoza is available on Mxit in South Africa and Kenya. The statistics for the first year include: are 28 m-novels, 5 Shakespeare plays, 11 poems, 40, 000 comments, 145,000 unique visitors, 69,000 Mxit subscribers, 5,400,000 pages viewed, 44,000 votes, 8,500 competition entries.
- **Young Africa Live (www.praekeltfoundation.org/young-africa-live.html):** Young Africa Live (YAL) is a project of Praekelt Foundation and was launched on 1 December 2009. It is a mobile platform to allow young people to access information on HIV/AIDS. The project is described as “entertainment-oriented, fun, interactive, and provocative. A platform that would not simply state the facts and ‘lecture’ young people about the do's and don'ts, but rather create a space where young South Africans could talk about hot topics that affect their daily lives: love, sex, relationships, gender and cultural issues, as well as HIV/AIDS.” It has about 360, 000 unique users. Between 1 December 2009 and 31 May 2011 over 36,000,000 pages were viewed, over 1,000,000 comments made, and over 357,000 unique visitors.
- **Dr. Maths (<http://drmath.meraka.csir.co.za>):** Dr Maths is a CSIR Meraka Institute project started January in 2007 which aims to support school learners in South Africa with Mathematics. Dr Maths is predominantly accessed through the mobile social networking service Mxit. Learners from the Faculty of Engineering, the Built Environment and Information Technology (EBIT) at the University of Pretoria, have been assisting Dr Math in fulfilment of a compulsory undergraduate module, Community-Based Project. Dr Math has supported 28 000 registered users since its inception. Dr Maths has expanded to include mathematics competitions and games.
- **Nokia: Mobile for Learning Maths or Momaths**
(<https://projects.developer.nokia.com/Momaths>): Nokia began piloting the Momaths project in early 2009 in 6 schools in 3 provinces with 300 learners which was a success and continued to rollout since then. In 2010 there were 4,000 learners in 30 schools in 3 provinces. In 2011 the programmes increased to 20,000 learners in 150 schools in four provinces. Its target for 2012 is 50,000 learners. The service includes: maths theory descriptions; maths exercises; maths tests; individual progress reports; comparative usage and attainment; and competitions.
- **QuizMax (www.quizmax.net):** provides mathematics, physical science, and life sciences revision quizzes directly to mobile phones or computers. It is also available on Mxit. According to their website QuizMax offers:
 - Preparation tool for all your tests and exams
 - Immediate feedback: answers plus reasons for the correct answers
 - Wide range of exam-level questions
 - Developed by experienced Maths, Physical Science and Life Sciences educators

- Complies with National Curriculum Statement
- Compliant with current Examination Guidelines

- **FunDza Literacy Trust (www.fundza.co.za):** The trust aims to boost the literacy levels of teens and young adults in South Africa. The trust produces a range of books for teens and young adults and distributes them through youth organisations. The Harmony High Series centres on the real-life issues and choices faced by a group of teens attending a fictional high school. The narratives are gripping and fast-paced; and, the messages positive, but not preachy. The language is easy to understand; the chapters are short; and the plots – built on tension and excitement – keep readers reading.

FunDza also uses mobile phone technologies to interact with members and build a community of young readers. The FunDza mobi network includes: a please-call-me facility, bulk SMS and a mobi site that feeds content to the hugely popular Mxit platform. FunDza currently has more than 300 000 registered users on its Mobi network.

- **Telkom Foundation (www.telkomfoundation.co.za):** Telkom Foundation over the last decade has implemented numerous projects to increase ICT use in schools. It's most recent project; Telkom's Connecting Schools Project donated 120 mobile tablets to two schools with connectivity to explore the use of tablets in learning and teaching. The intention is to rollout to another six schools using the new mobile technology.

McKinsey (2012) shows that globally private companies have already begun to offer products for education. The report groups these products in seven categories; i.e.

- v. educational e-books and courses accessed through portable devices
- vi. learning management systems and authoring tools
- vii. game or simulation-based learning tools
- viii. collaboration tools
- ix. adaptive assessment services
- x. test preparation support and
- xi. distance tutoring and homework support.

Valk et al (2010) explored the role of m-learning in improving access to education and in promoting new learning (i.e. personalised, interactive, as well as encourages collaboration) through six m-learning pilot projects in Asia. All six projects used mobile phones, especially the SMS, MMS and games features available on most mobile phones. The goals of the programmes varied from English language, mathematics, health, teacher training, and continuous assessment. They found that m-learning increased access as most participants enjoyed using the mobile technology for learning for its convenience of flexibility as well as the novelty of using a new technology. However, the screen size, quality of software and hardware, unfamiliarity with advances smartphone functions, and inadequate infrastructure were some of the barriers affecting the pilot projects. They echo the findings

reported in relation to computers in learning, i.e. that mobile technology do not intrinsically facilitate collaboration; this needs to be part of the pedagogy.

While there are challenges facing the use of mobile phones and other mobile devices, the characteristics of these devices allow for easy use and integration into learning and teaching (see Table 14). These include (Naismith et al, 2004, Prensky, 2005; Kukulska-Hulme et al, 2009; Barker et al, undated):

- **Portability:** small size and weight of mobile devices means that they can be easily integrated into classrooms and be moved from classroom to classroom and can also be used outside the classroom, which computers and computer laboratories cannot offer.
- **Collaboration and social interactivity:** Data can easily be distributed and hence sharing of information, making collaboration easier.
- **Motivation:** learners are generally motivated as it allows them to be active instead of passively listening to their teachers.
- **Context sensitivity:** mobile devices can both gather and respond to real or simulated data unique to the current location, environment and time.
- **Connectivity:** a shared network can be created by connecting mobile devices to data collection devices, other devices or to a common network.
- **Individuality:** scaffolding for difficult activities can be customised for individual learners.

Table 14: Mobile Phone Features and Learning Opportunities

Mobile Phone Features	Learning Uses	Example of Learning Uses
Voice	Dial into interesting voice lectures	Pocket Eijiro in Japan, phone in for short lessons in English
Short Text Messages (short message services)	Reminders of learning Assessment Learning language	Go Test Go that provides test preparation
Graphic displays	Display diagrams, texts, and graphics	Mobi Novels Yoza
Downloadable Programmes	Can download a variety of 'computer programmes' and applications	Exploring the physical world with digital guides
Internet Browsers	Accessing information, and Open Education Resources	Khan Learning Academy Connexions Yoza
Cameras and Video Clips	Recording Capture data	
Global Positioning System	Google Maps	

Local and international literature shows the challenges that teachers face in genuinely integrating ICT in their learning and teaching. The Hole in the Wall project in India unequivocally demonstrates that ICT helps to unlock the creative potential for self-development inherent in children in ways that educationist would not have deemed possible even a few years ago (Mitra and Rana, 2001). Hole in the Wall is referred to as Minimally Invasive Education, i.e. providing internet kiosks for children in public places without any form of mediation by adults. Since the first experiment in Delhi in 1999, the World Bank sponsored internet kiosks to be placed across the length and breadth of India to study the influence of minimally invasive education on children's' learning. The pilot revealed two learning process (Ganwal and Kapur, 2009; Mitra and Rana, 2001):

- children form social networks to gain competence in using the computer / kiosk and
- use cognitive inputs from their environments.

Mitra et al (2005) note the following improvements in learners in:

- Enrolment, attendance and school examinations, particularly in subjects that deal with computing skills
- English vocabulary and usage
- Concentration, attention spans and problem solving
- Working together and self-regulation

It is estimated that 300 children can learn at least the following skills in three months:

- All Windows operational functions, such as click, drag, open, close, resize, minimize, menus, navigation etc.
- Draw and paint pictures on the computer
- Load and save files
- Play games
- Run educational and other programs
- Play music and video, view photos and pictures
- Browse and surf the Internet, if a connection is available
- Set up e-mail accounts
- Send and receive e-mail
- Chat on the Internet
- Do simple troubleshooting, for example, if the speakers are not working.
- Download and play streaming media

- Download games

In 2002 the Centre for Scientific and Industrial Research tested the same concept in Cwili in the Eastern Cape and referred to the pilot as Digital Doorway. In the last ten years 200 Digital Doorways have been deployed across South Africa. The kiosk offers multiple terminals with software application and content. The aim is to contribute to reducing the digital divide.

In addition to these m-learning initiatives, there are numerous long standing programmes to increase and improve ICT use in education and the integration of ICT in learning and teaching. Here follow thumbnail sketches of key interventions that can be used as resources to leverage new initiatives:

- **Thutong Portal (www.thutong.doe.gov.za):** Thutong Portal is the Department of Basic Education's online resource platform. The portal provides free education resources, policy information and interactive services to the South African schooling sector. The aim is to create strong and vibrant online communities of practice to facilitate discussion, share information and ideas amongst peers.
- **The Teacher Laptop Initiative (www.teacher-laptop.co.za):** The Teacher Laptop Initiative is managed by the Education Labour Relations Council. Teachers can purchase a laptop and get a monthly taxable allowance of R130.00. Service providers have been selected and their packages range from R250 to R390 per month over five years. The packages consist of appropriate hardware with prescribed minimum specifications, school administration, national curriculum and other software, as well as Internet connectivity, insurance, and finance, as per the requirements of GG 32207.
- **Khanya Education Technology Project (www.khanya.co.za):** The Khanya Education Technology Project was launched in early 2001 by the Western Cape Education Departments to improve learning and teaching using ICT. Between 2001 and 2010, R530 million was spent on the project excluding the support given by donors and the private sector. The project offers hardware, software, training, and technical support to participating schools.
- **Gauteng Online Schools Project (www.education.gpg.gov.za):** The project was initiated in 2007 with the aim of getting schools connected so as to use e-mail facilities and open educational resources. Two billion Rand were allocated and to date R1.3 billion is spent to build and install 1,557 computer laboratories.
- **The Mind-set Network (www.mindset.co.za):** Mind-set Network is a non-profit organisation that was established in 2002. The organisation develops and distributes educational resources for use in the schooling, health and vocational sectors. Materials are distributed through various technology platforms including broadcast and data cast. The materials are made available in video, print and in computer-based multimedia formats. Mind-set has expanded to Mind-set Health, Mind-set Cabanga, and Mind-set Livelihoods. To date Mind-set Network transmits to: over 2 million households in sub-Saharan Africa, over 1200 secondary schools throughout South Africa, over 307 health clinics and hospitals in South Africa, and 50 primary schools throughout South Africa.

- **SchoolNet South Africa (www.schoolnet.org.za):** SchoolNet South Africa was established in 1997 to create a network of teachers. The organisation mainly focuses on professional development of teachers in ICT integration in learning, teaching and managing schools.
- **eSchools Network (www.esn.org.za):** The organisation was founded in 1993 with the intention to create connectivity communication solutions for schools. To date it operates in over 1,700 schools nationwide. They also operate a call centre to help schools.
- **Siyavula (www.projects.siyavula.com):** This project is another Shuttleworth Foundation seeded initiative. The site provides a place for physics teachers to share ideas and resources. The site has free textbooks that can be downloaded. The project uses Connexions which allows the building of textbooks to perfectly meet teachers' needs. Hence a useful for creating open educational resources and sharing these, Connexions is one of the most popular websites in the world.
- **MathsExcellence (www.mathsexcellence.co.za):** This is a website dedicated to the teaching and learning of mathematics. It provides resources as well as a platform and network for maths teachers to exchange ideas and resources.
- **Meraka Institute (www.meraka.org.za):** The institution is part of the Centre for scientific and Industrial research and one of its mandates is to support innovation in ICT in education. The organisation created Dr Maths.
- **The Vodacom Mobile Education Programme (www.digitalclassroom.co.za):** The programme has four components: the Vodacom Mobile Education ICT Resource Centres, the web-based Vodacom Digital Classroom education portal, the Vodacom Mobile Education Virtual Private Network and the Vodacom Mobile Education Training Programme. Nine ICT resources, one per province has been rolled out. These centres aim to be the hub of the district's teacher-training programme, and will be outfitted with a computer classroom and an internet café. Vodacom has contracted SchoolNet SA, a non-profit training company specialising in using technology in education, to provide ICT centre management training and continuing support.
- **Microsoft Partners in Learning (www.pilsr.com):** Microsoft launched this initiative in 2003 as means to partners with local organisations in the implementation of it global ICT in education programme. Its South African partner is SchoolNet South Africa which has offered face-to-face training to teachers.
- **Intel® Teach (www.intel.com):** Intel® Teach is professional development programme for teachers. The programme in South Africa is implemented by SchoolNet and to date 2,000 teachers have received the training. The training is specially designed to allow teachers to learn how, when and where to incorporate technology tools and resources into their teaching.

5.5. Conclusion

Effective learning and teaching requires a repertoire of classroom practices that are based on the principles that learners construct their own meaning and that their learning is strongly influenced by their contexts of learning and the support they are given. As such classroom practices should allow learners to experiment; support, coach, mentor and facilitate learners in their construction of knowledge; organise learners to learn from each other; offer learning opportunities using technology. However computer laboratories have many barriers to be successfully integrated into learning and teaching; while mobile devices appear to be easily integrated into routine classroom practices. Nonetheless teachers require adequate support in improving their technological knowledge to be confident to make technology part of their learning and teaching standards.

6. CHAPTER 4: LEARNING AND TEACHING IN SOUTH AFRICAN PUBLIC PRIMARY SCHOOLS

This chapter presents the findings of learning and teaching in fifteen primary schools in poor communities in six provinces. The findings are discussed under the following main themes:

- Perceptions about Education and Public Primary Schools
- Learners' Lives Outside of School
- Pre-School Admissions Policy
- Teaching a Rewarding Profession
- What is Happening in Our Public Primary Schools Classrooms?
- Information Communication Technologies in Education
- What is Happening in our Schools?
- Children's Barriers to Schooling
- Challenges Facing Public Primary Schools in Poor Communities
- What Kinds of Support do our Public Primary Schools Require
- Conclusion

6.1. Perceptions about Education and Public Primary Schools

6.1.1. WHAT DO PARENTS AND LEARNERS' VALUE ABOUT EDUCATION

Parents and learners interviewed share a high regard for learning and education for both its intrinsic and instrumental value. Learners see education as means of securing future employment and learning as a tool for a successful school career. An interesting finding is learners also view education as an instrument that nurtures acceptable social behaviour.

- *"When you are uneducated you lack discipline."*
- *"You are ill mannered."*
- *"You are unreliable, you can't run errands."*
- *"Disrespectful."*
- *"You steal."*
- *"You won't get promoted to the next Grade in a new class."*
- *"You won't listen to your teachers." Learners, Thabazimbi*

Parents also see education as a means of improving their children's earning potential as well as empowering them to be able to live meaningful lives. They also see it as a way of facilitating inter-generational mobility.

- *"He can also see that if you are not educated, you cannot be anything in this world; you cannot do anything that is important for yourself." Parents, Joe Morolong*
- *"I like it when a child is learning so that he can be the president or a nurse in the future. It is important that children learn so that even when they are old and have children, then they can also educate them." Parents, Randfontein*
- *"If you have proper education your opportunities to get jobs are wide." Parents, uMthwalume*
- *"My child must be better than me - maybe a policeman." Parents, Western Cape*

Parents have many aspirations for their children's future; they would like their children to successfully complete their schooling, be able to read for a higher qualification, obtain a secure job, and to be independent adults.

- *"I want to see them writing matric and after matric do something for three years after going to university I want them to find a job. So in that way they can help in the household and they are able to take care of themselves." Parents, Joe Morolong*

However, the limited number of public further and higher education institutions in their vicinity is few and the lack of money for further and higher education is disheartening for parents interviewed in the study.

- *"The higher education institutions like colleges are far from us here, they are only available in Mafikeng, Johannesburg, and in Kimberly." Parents, Joe Morolong*

Nonetheless a few parents reported that they have begun saving for the children's higher education.

- *"By saving and investment. We have started by saving and we know that what we have is not enough, but at least in the second year, bursaries can take over. Adding to that, there is this Fundisa Account from Nedbank." Parents, Randfontein*
- *"You have to budget for your child so that when they want to go to university you have to put money away for them so that they can use that money to go to university." Parents, Bushbuckridge*

The value of education and schooling in particular shared by respondents are the same as those share in their respective communities (see Chapter 5, Value of Education). Education is generally considered important and prized to create meaningful lives and a means to facilitate intergenerational progress.

6.1.2. SCHOOLING: A 360° PERSPECTIVE

School is fun according to the children interviewed because they get to play with their friends; learn to read, write, spell, sing, dance, and draw; share with friends, answer questions; make jokes; visit places; use computers, and play sports. Hence schools are places to look forward to and not to be feared.

- *"We draw flowers." Learners, Thabazimbi*

- *"It's nice playing with other kids at school." Learners, Randfontein*
- *"I like reading. Reading is nice because that's how I teach myself more. I also like reading at home." Learners, Randfontein*
- *"Writing. So that I can be knowledgeable." Learners, Randfontein*
- *"Playing around the computers." Learners, Western Cape*
- *"I love to share my food with my friends. Because if I do not have bread they give me too." Learners, Randfontein*
- *"Making jokes." Learners, Randfontein*
- *"I like talking. Kearah, Lebogang and Venisha. We talk about what we want to be when we grow up and she says she is going to be my lawyer." Learners, Randfontein*
- *"We are doing Zulu dance, singing and also just casual dancing." Learners, uMthwalume*
- *"We also do modelling." Learners, uMthwalume*
- *"We go to Shaka Marine." Learners, uMthwalume*
- *"Play sport and learn." Learners, Western Cape*

Parents interviewed confirmed that their children enjoyed school because of the singing; dancing; playing sports; eating well; debating; writing; playing with friends; swimming; and the availability of computers.

- *"He relates and play with the kids that are from his school, so he enjoys being in the school." Parents, Randfontein*
- *"The school has introduced swimming lessons; my daughter enjoys that very much." Parents, Randfontein*

Parents noted that their children's enjoyment of school is often related to their teachers. Children appreciate teachers who inspire and encourage them and teachers who allow them to learn. These teacher characteristics encourage high learner school attendance according to the parents in the study.

- *"Spending time with their teachers it means they treat them well because they enjoy being with them." Parents, Bushbuckridge*
- *"Sometimes you find that a child goes to school because he likes a certain educator because he teaches them well. And then, you find that that child from that school succeeds because there is somebody who is encouraging him." Parents, Joe Morolong*

Learners confirmed that their favourite teachers are those who "teach them nicely", "encourages us", and "likes to teach us", "pretty", and "likes us". Learners are perceptive about quality of teaching, acknowledge hard work, insightful about attitudes, and understand their own learning styles and needs.

- *"Because she always encourages us to speak and learn English." Learners, Randfontein*
- *"Mistress M. I like her because she teaches us nicely." Learners, Randfontein*
- *"Mistress K. She teaches us Maths nicely." Learners, Randfontein*
- *"Madam M. Because she likes children and she likes to teach us." Learners, Randfontein*
- *"My favourite teacher is Madam J because she tells us stories, keeps us busy and gives us homework." Learners, Randfontein*
- *"My favourite teacher is Madam K. Because she is pretty and she knows how to dress." Learners, Randfontein*
- *"My favourite teacher is Madam S. Because if you are not learning your work then she hits you." Learners, Randfontein*
- *"Mrs S, I enjoy how she teaches me Setswana." Learners, Thabazimbi*

- *"Mrs M, She teaches us to speak well." Learners, Thabazimbi*
- *"We like Mrs S because she is selling to us in an acceptable manner. She is selling cakes, chips and sweets." Learners, uMthwalume*
- *"She can control and manage four classes when the Educators of those classes are away." Learners, uMthwalume*

It appears that learners enjoy and appreciate those teachers who are able to fulfil their professional roles and is similar to those articulated in the Norms and Standards for Educators (2000); namely mediators of learning; interpreters and designers of learning programmes and materials; leaders, administrators and managers; scholars, researchers, and lifelong learners; community members, citizens, and pastors; assessors; and learning area/phase specialists. In particular they respect teachers who are able to mediate learning; the pastoral care offered by teachers; and the expertise in their teaching subjects.

An interesting finding is that there was no specific learning area / subject that learners enjoyed most or found most difficult. Some learners found Setswana difficult while others found writing demanding and others found doing sums a challenge. Similarly some learners enjoyed mathematics while others appreciated writing.

● Negative ○ <i>"For me it is Setswana. I don't understand everything." Learners, Randfontein</i> ○ <i>"I don't understand English sometimes." Learners, Thabazimbi</i>	● Positive ○ <i>"Handwriting because I write my word in there and I learn them every day and I like my handwriting it is nice." Learners, Randfontein</i> ○ <i>"Maths because I like it." Learners, Western Cape</i>
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This finding was confirmed by parents in the study. Their children have diverse interests and preferences in terms of learning areas / subjects.

- *"Mine like Afrikaans they like watching 7delaan - they like Afrikaans." Parents, Joe Morolong*
- *"He likes Tsonga because he likes using deep Tsonga words and he wants to understand what they mean." Parents, Bushbuckridge*
- *"Maths, she passes it well, she practises maths at home." Parents, Thabazimbi*
- *"With mine, I think he doesn't like art, because it makes him work too much, and he has to look for stuff to make whatever he has to make and if he cannot, he gets nervous." Parents, Randfontein*
- *"My one [child] complained about Mathematics." Parents, uMthwalume*

However, teachers report that learners appear to struggle more with languages than mathematics. This may appear counterintuitive; as there is a common perception that numeracy may be more difficult due to the low numbers of learners performing well in mathematics in the matric examinations. At the foundation level (see section 6.5.6) learners appear to struggle more with languages due to the formal nature that languages are introduced to them. Furthermore, this view of teachers' experiences in teaching literacy and numeracy and not from objective assessments.

- *"They pass maths, most of them under-perform in home language but not in Maths. They can get 100% in maths and fail home language." Teachers, Bushbuckridge*

Schools also have a dark side, bullying at school is the most detested part of school life according to the majority of learners in the study. They detest and fear unkind words, teasing, swearing, fighting, hitting, and stealing, which appear to be daily experiences of being at school. Bullies are both older learners in the school as well as their peers.

- *"I don't like swearing at others." Learners, Thabazimbi*
- *"Throwing things at each other." Learners, Thabazimbi*
- *"Stealing. They steal pencils, scissors and erasers." Learners, Randfontein*
- *"And the Grade 5's to 7, they write our names." Learners, Randfontein*
- *"I don't like being made fun of." Learners, Randfontein*
- *"No, it is the older children who do that to us. They take food from us. They write our names in the toilets." Learners, Randfontein*
- *"I feel sad and it hurts." Learners, Randfontein*
- *"Some of them bring knives to school." Learners, Randfontein*
- *"They hit us with stones and when we tell the teachers they say we are lying." Learners, Randfontein*
- *"He is saying he doesn't like coming to school to be beaten up." Learners, Bushbuckridge*
- *"They are called bullies and they eat our lunch tins because we are smaller than them." Learners, Bushbuckridge*
- *"Stabbing other learners with pens." Learners, uMthwalume*
- *"When you are playing the ball, boys will come and pull out a knife at you. And ask for money." Learners, uMthwalume*

- *"R: He was beaten up yesterday*
- *M: And who beat him up?*
- *R: It was Thulani who beat him up*
- ***M: And who is this Thulani?***
- *R: He is a boy in our class*
- *R: He is this boy that we are scared of."*
- Learners, Bushbuckridge*

Parents confirmed that bullying is prevalent in their children's school. Teachers also appear to continue to use corporal punishment to discipline their children. Another concern raised by parents about their children's schools is the narrow interpretation and implementation of school policies, i.e. without considering mitigating factors or just demonstrating sensitivity and caring. Learners are responsible for cleaning their classrooms which is contentious for most parents interviewed. Filthy and dirty toilets also make schools a difficult environment for their children. In the Western Cape scarcity of water on tap in schools put pressure on learners to bring water from their homes or from the nearby streams.

- *"There was a teacher who used to hit them I remember my child came home and was bruised on his back and I did not want to go to school because you find that when you go complain they start ill-treating the child. I found that his back had been beaten. So I told him that he must not be naughty because that teacher will hit him but now it seems like they have told that teacher to stop." Parents, Bushbuckridge*
- *"What I do not like about this school is that with some of us parents, we cannot afford to buy full school uniform for our kids. So, sometimes in winter they would say, this child is not wearing a school jacket. So, the teachers make the kids take off their jackets even in winter. So, that is what I do not like about this school; because you find that, the parent cannot really afford to buy that for a child. Sometimes maybe she has about four kids who are at school, and she cannot buy them all uniforms at once." Parents, Joe Morolong*

- *"Ja, there are problems with water like we said the farm owner is not helping the school, so things like the toilets are affected badly. Water is a serious problem here and the children have to struggle, but there is a little bit of drinking water available for them and also some for the toilets. There is water from the mountain which helps the school." Parents, Western Cape*

There was unanimity between learners, parents, teachers and school managers that learners discipline is a problem and impacts negatively on the quality learning and teaching. Parents blame the taverns in their neighbourhoods and the permissiveness in their communities for their children's ill-discipline. School managers and teachers accuse parents of abdicating their parental and custodial responsibilities, especially in relation to their children's education. Learners are sensitive to ill-mannered peers and feel uncomfortable with their behaviours.

A creative learning environment that fosters democratic and human rights values requires learners and teachers who respect each other and are committed to learning and teaching. An environment that is fraught with insolence and rudeness deprives creative learning and teaching and promotes a repressive and undemocratic culture where authoritarian teaching and learner cheekiness becomes a norm. Such an environment prevents any conversion of classroom 'resources or assets' into genuine learning, hence depriving learners from developing their full potential.

- *"I do not like it when the children tell the teacher ugly things because that means they do not respect their mothers." Learners, Randfontein*
- *"It is the throwing or littering of dirty papers on the premises." Learners, uMthwalume*
- *"They break windows; they insult teachers and write on the toilet walls knowing that nothing will be done to punish them. They talk vulgar language from the taverns, insult children." Parents, uMthwalume*
- *"The parents sometimes don't care and even if you call them to come to school, they don't come." Teachers, Randfontein*
- *"It becomes very difficult for us when it comes to discipline because we need to share that with the parents but the parents are not cooperative. We can write them a note because their child is misbehaving in class and we need to sit and talk, we try calling them because alone we do not know what to do." Teachers, Joe Morolong*

Learners, parents and teachers are sceptical about positive discipline and alternative techniques to corporal punishment and prefer the use of spanking as a penalty for learners' mischiefs and misbehaviour. Teachers feel that positive discipline has only worked partially in their classrooms.

- *"They mustn't leave the school cause where will they learn, they must just be punished and smacked by the teachers for what they do to other children." Learners, Bushbuckridge*
- *"They must hit them." Learners, Randfontein*
- *"At school, they must punish them and it can help, they do as*

○ *"R: And I think even in the classrooms we have classroom rules. I tell most of my learners that we have classroom rules and whatever they are doing there they must do it there but in our class we must stick to our classroom rules.*

○ *M: And does that work?*

○ *Rs: Sometimes.*

○ *R: For some it works and for some it doesn't.*

○ *R: For me it doesn't work, definitely not. It doesn't work for me." Teachers, Randfontein*

they please. Children were also rude even before but they were punished.” Parents, uMthwalume

- *“It comes to the point where we detain the child afterschool but sometimes they continue to be naughty.” Teachers, Joe Morolong*

6.1.3. OUR SCHOOLS: PRIDE AND TRIBULATIONS

Collegiality; management support; commitment to learning and teaching; concern and support given to learners; learner performance; and a beautiful school environment are characteristics that make teachers and principals proud of their respective schools.

- *“The thing that I like about my school is the way in which I interact with my colleagues. Curriculum wise and socially, I think we are unified.” Teachers, Bushbuckridge*
- *“Even if we know that the staff is short we know that we work hard to achieve our goals and our money gets used wisely at the school.” Teachers, Joe Morolong*
- *“I think the things we are proud of are the improvements and the way we handle the kids, we have an educator that deals with orphans, we help them and also visit their homes, because there are child headed homes. And if a child is sick or injured in hospital, we do go and visit them, and we don’t say because they live in squatter camps, we won’t visit them, we also visit them. In the past when the government wasn’t providing uniform, we used to go and get sponsors for the kids. So I think our school is a kind of school that the parents will want their kids to attend.” Teachers, Randfontein*
- *“Our school works as a team and we advise each other, we do not have a fear to ask another teacher to help me even if I teach Grade 3’s, the teacher guides me and I go teach. We give each other a chance to show our abilities.” School Management Team, Thabazimbi*
- *“The way the principal supports us because in all the projects that we do he doesn’t just let you do the things on your own.” Teachers, uMthwalume*
- *“We obtain in the literacy and numeracy tests we have very good results...(shows award) ... It was one of the best mid white schools let me put it that way... We were the only black school in ...you see in this area who received this reward and the other two schools were two white schools and this is a multi-Grade school.” Teachers, Western Cape*
- *“And there are learners that we are proud of, that represent us in different things like in sports, I think there were boys and girls who have just won trophies, it was a district thing, the other one was chosen for soccer and they can represent, the other was for debate, so we are proud of the school because it does not only end up here, it goes outside as well to represent the school.” Teachers, Randfontein*
- *“We are proud of this school, let’s start with sports we are number 1 in Thabazimbi, in the whole district and the province.” School Management Team, Thabazimbi*

However, large numbers of learners per class or overcrowding; limited numbers of classrooms; and the absence of decent playgrounds and sporting facilities appear to crowd out and overshadow the positive school management and classroom practices in schools.

- *“The challenge as mam T has said is the overcrowding in the classrooms. Because you know that even if you have prepared you will not reach all the learners in the classroom that is the problem, you can teach some but some others get left behind. Now we work with the books that are prescribed by Angie Motshekga and our own books so when the children get left behind, it creates a problem for you because at the end of the day you will not be able to complete your syllabus that is the problem.” Teachers, Thabazimbi*

- *"We know that our kids come from disadvantaged backgrounds and they don't have a safe place to play." Teachers, Randfontein*

Schools in the study with the exception of the multi-Grade schools in the Western Cape are weak performing schools in terms of the ANA. Using the ANA outcomes as a gauge of school effectiveness all these schools should be considered dysfunctional (see section 6.5.7, p.136). In some schools, however, teachers and school managers portray a school management environment that is open and committed to their learners and staff, and that the objective conditions of the schools such as overcrowding and lack of infrastructure and basic services are compromising quality learning and teaching. Teachers and school managers also argue that their learners come from very poor homes and homes that are dysfunctional, some of their learners are orphaned and some live in child-headed households, and a significant number of their learners require remedial support which is contributing to low learner performance in their school. They also noted that a significant number of learners are ill (tuberculosis or HIV infection) and require frequent visits to the local clinic which adversely affect their school attendance. The recent Global AIDS Response Progress Report by the South African government indicates that there are 1 744 573 orphaned and vulnerable children who receive some form of support from the government (Republic of South Africa 2012). The report shows a decline of HIV prevalence among children between 2 and 14 years between 2002 and 2008 from close to 6% to about 2%). This decline is attributed to the prevention of mother-to-child transmission programme. Furthermore three quarters of HIV positive people are receiving antiretroviral treatment. Hence schools must be equipped with the knowledge and skills necessary for ensuring learners who are infected and affected are offered the necessary conditions to develop fully as many classrooms will have learners who are infected or affected based on the current prevalence rate of HIV infection amongst children.

- *"Children are getting sick and they become absent at school. The mother passes on and father passes on and there is no one to look after the child." Teachers, uMthwalume*
- *"Sometimes it is health issues that kids absent themselves from school, and then, at the end, they cannot grasp anything; so, they attend the clinic schedule, they say "I am going to the clinic tomorrow teacher, and again the week, I am going to the clinic." Teachers, Randfontein*

School managers and circuit managers also criticise their teachers for not fulfilling their duties which is another contributory factor to weak learner performance in their respective schools.

- *"I also think that there is the issue of laziness in some of the teachers, I mean you will ask them to give you work and they never do, you will ask and ask until you forget." School Management Team, Thabazimbi*

It appears that teachers and school managers are proud of their schools and their achievements in the context of overcrowding and learners from extremely deprived homes; however they seem to resist any form of sincere reflections on their professional conduct and its contribution to learner performance.

6.2. Learners' Lives Outside of School

6.2.1. WHAT DO LEARNERS DO BEFORE SCHOOL?

Learners' morning activities are focussed on getting ready for school; they bath, dress, eat breakfast and walk to school. Only a few learners have private transport to school or use public transport. Many learners watch a bit of television before going to school. Learners who live near the school wake up on average at 6am and leave home at 7am. However a significant number of learners according to parents and teachers live far from their schools and leave home much earlier. Because the schools in the study provide a meal, parents only sometimes prepare lunchboxes for their children. Parents also like to give them some allowance if they can afford it. A few parents include morning prayers in their children's preschool routine.

- *"I don't give them lunchbox or money because they have a feeding scheme at school." Parents, Randfontein*
- *"Only when we have money but when there is no money then we don't give them." Parents, Bushbuckridge*
- *"The younger one always wants me to give her money, so, I always try even if I do not have money, I give her maybe 50c or R1 or R2." Parents, Joe Morolong*
- *"Yes and we pray with the other 2 kids it should be a habit." Parent, Randfontein*
- *"My routine in my house is nobody leaves the house without a prayer, we pray together." Parent, Western Cape*

6.2.2. WHAT DO LEARNERS DO AFTER SCHOOL?

Learners' after school activities in the home are dominated by changing their clothes, lunch, household chores, playing, watching television, and homework (see Section 6.5.2). Their main household chores are related to getting their school attire ready for the next day, i.e. washing their uniform (socks, shirts, tunics, trousers) and polishing their shoes. In addition they help with household cleaning tasks such as washing dishes, sweeping the floors, cleaning the toilets, etc. In Joe Morolong and uMthwalume learners' chores at home include fetching water, while in uMthwalume learners (especially boys) are responsible for looking after the cattle.

- *"No, we take off our school uniform, you eat, then you help your mother with your shirts then you do our homework, then we watch TV, play then you wash and go to sleep." Learners, Randfontein*
- *"After washing my socks and polishing my shoes I play PlayStation." Learners, Randfontein.*
- *"I take off my uniform." Learners, Thabazimbi*
- *"And then I look at my books." Learners, Bushbuckridge*
- *"We wash our clothes." Learners, Western Cape*
- *"He changes his school uniform, makes himself food and then goes to play and comes back at 4 to study, then he eats and does his homework then it's bedtime. No he is 7 years old" Parents, Thabazimbi*
- *"I taught my child to come back from school and relax a little and eat and then study. I taught her that routine in Grade 2. So I know that she is struggling a bit with her maths so I asked the teacher to give me some material that I could teach her at home as well so we do her maths sums when she gets home." Parents, Bushbuckridge*

- *“My boy looks after the cows and sometimes my girl cooks.” Parents, uMthwalume*
- *“My one fetches water and washes her shirt then does her homework.” Parents, uMthwalume*
- *“With mine, the younger ones do not do anything; but when their brother comes back, before he goes to play, he must go fetch water.” Parents, Joe Morolong*

Parents complained that television and mobile phones are taking up too much of their children’s time at the expense of homework and studying. They also grumble that their children don’t like doing household chores.

- *“What steals their time is TV and cell phones, kids are more into cell phones than education.” Parents, Randfontein*
- *“They rush for televisions they come and throw their bags on the floor, go and play and come back at 8pm.” Parents, uMthwalume*
- *“Yes, we do but it does not matter to them. They just leave you to play. They do not fetch water, do not wash shirts. You find yourself in the garden thinking that things are taken care of at home, only to find that nothing has been done. You then have to cook while they play.” Parents, uMthwalume*

Television appears to be part of learners’ morning and afternoon routines. Learners in this study do not seem to be overburdened with household chores or helping with household income generating activities. While rural learners appear to have more household responsibilities such as fetching water and looking after cattle; learners in rural areas still have sufficient time for other learning opportunities. With the exception of learners walking long distances to school and back, learners generally appear to have sufficient time in the mornings and afternoons to continue engaging in learning activities. Morning structured television programming may positively contribute to continuing learning, or the school day can be made longer as it will have no impact on parents’ livelihoods.

6.2.3. WHAT DO LEARNERS LIKE TO PLAY?

Playing includes sporting activities, cultural activities, indigenous games, and mimicking social norms. Table 15 presents the popular games played by learners in the study. Most of the games are physical including the indigenous games. The indigenous games in the main related to physical sports, for example ‘mokoko’ or kho-kho is a running game with runners and chasers; while ‘ligusha’ is a combination of skipping and high jumps. None of the learners interviewed are playing board games such as marabaraba or scrabble or chess.

The study did not explore the nature of knowledge and skills gained from play and playing different types of games; Vygotsky wrote extensively on play and its role in the mental development of the child (1933). It is useful to quote Vygotsky on play in detail (1933) as he includes Piaget’s work on play and development:

- *“Just as we were able to show at the beginning that every imaginary situation contains rules in a concealed form, we have also succeeded in demonstrating the reverse – that every game with rules contains an imaginary situation in a*

concealed form. The development from an overt imaginary situation and covert rules to games with overt rules and a covert imaginary situation outlines the evolution of children's play from one pole to the other.

All games with imaginary situations are simultaneously games with rules, and vice versa. I think this thesis is clear.

However, there is one misunderstanding that may arise, and must be cleared up from the start. A child learns to behave according to certain rules from the first few months of life. For a very young child such rules – for example, that he has to sit quietly at the table, not touch other people's things, obey his mother – are rules that make up his life. What is specific to rules followed in games or play? It seems to me that several new publications can be of great aid in solving this problem. In particular, a new work by Piaget has been extremely helpful to me. This work is concerned with the development in the child of moral rules. One part is specifically devoted to the study of rules of a game, in which, I think Piaget resolves these difficulties very convincingly.

Piaget distinguishes what he calls two moralities in the child – two distinct sources for the development of rules of behaviour.

This emerges particularly sharply in games. As Piaget shows, some rules come to the child from the one-sided influence upon him of an adult. Not to touch other people's things is a rule taught by the mother, or to sit quietly at the table is an external law for the child advanced by adults. This is one of the child's moralities. Other rules arise, according to Piaget, from mutual collaboration between adult child and child, or among children themselves. These are rules the child himself participates in establishing.

The rules of games, of course, they differ radically from rules of not touching and of sitting quietly. In the first place, they are made by the child himself; they are his own rules, as Piaget says, rules of self-restraint and self-determination. The child tells himself: I must behave in such and such a way in this game. This is quite different from the child's saying that one thing is allowed and another thing is not. Piaget has pointed out a very interesting phenomenon in moral development – something he calls moral realism. He indicates that the first line of development of external rules (what is and is not allowed) produces moral realism, i.e., a confusion in the child between moral rules and physical rules. The child confuses the fact that it is impossible to light a match a second time and the rule that it is forbidden to light matches at all, or to touch a glass because it might break: all "don't s" are the same to a very young child, but he has an entirely different attitude towards rules he makes up himself.

Let us turn now to the role of play and its influence on a child's development. I think it is enormous.

I shall try to outline two basic ideas. I think that play with an imaginary situation is something essentially new, impossible for a child under three; it is a novel form of behaviour in which the child is liberated from situational constraints through his activity in an imaginary situation ...

All examinations of the essence of play have shown that in play a new relationship is created between the semantic and the visible – that is between situations in thought and real situations."

Table 15: Popular Play Activities

Sporting Activities	Indigenous Games	Digital Games	Emulating Social Norms
• Soccer • Netball • Skipping • Hide and seek • Tennis • Athletics (mainly running, high jumping) • Cricket • Rugby • Catch • Marbles • Tops	• “Stocking games” • “Skop die ball” • “Mokoko” • “Oli with the ball” • “Ligusha”	• Games on mobile phones • Games on PlayStation include soccer, wrestling, Reign on Otto, Spiderman, High Jack, Cars on 3D, Olympics	• Play school • Dolls • Dress up and make up • Cultural activities like singing, dancing

- “We choose which one of us would be a teacher, the principal and the pupils.” Learners, Randfontein
- “Taking your mothers make up and put in on your face.” Learners, Randfontein
- “My child really loves school because sometimes, you would find that she has put together the younger ones and plays school and she teaches them.” Parents, Joe Morolong

6.2.4. WHAT DO LEARNERS WANT TO BE WHEN THEY GROW UP?

Learners want to be professionals when they grow up from medical doctors to sports people. Parents have similar aspirations for their children; however none of the parents interviewed talked about being a professional athlete as a potential career for their children. Parents want their children's adult lives to be different from theirs; they want their children to have better lives than theirs through professional careers. While their children, like most children, want to have exciting futures. The achievement of these intergenerational aspirations requires individual, family, and collective social effort. An excellent public education system is the first step to "creating equality of opportunity", followed by individual hard work with family support. Within the capability approach a strong public education system coupled with agency will significantly contribute towards intergenerational development and freedom.

Table 16: Learners' Career Aspirations

Professional	Action Careers	Sports Person	Alternative Careers
- Teacher - Doctor - Lawyer - Nurse - Veterinarian	- Fire Fighter - Policeman - Paramedic - Traffic Officer	- Soccer Player - Rugby Player	- Singer - Join the army

- "A policeman then I can go to where we stay and arrest all the bad people who steal other people's things and the ones who beat other people up." Learners, Bushbuckridge

Table 17: Parents' Career Aspirations for their Children

Professional	Action Careers	Sports Person	Alternative Careers
- Doctor - Nurse - Lawyer - Judge - Chartered Accountant	- Surgeon - Psychologist - Principal - Teacher - Engineer	Policeman	Hairdresser

- "We have to motivate the children to study and focus on books because there comes a time when they don't want to study and help them choose good subjects so that they can get to where they want to be." Parents, Bushbuckridge
- "You must make sure that you know what is happening with the education of your child." Parent, Joe Morolong

6.3. Pre-School Admissions Policy

The majority of schools in the study offer Grade R or reception year and all the respondents are in favour of this school readiness year. They believe that it contributes to reducing the repetition rates at foundation phase.

- *“Yes, earlier preparation has many advantages. Children learn to socialize in a school and class environment, which makes it easier for them when they start Grade 1. Also, potential learning problems can be picked up at an early stage and addressed before it is too late.” Circuit Manager, uMthwalume*
- *“It’s best there is school readiness. It would solve our problems. Some children come here and they can’t write, if they are new without having attended a crèche it becomes difficult and you delay other children.” School Management Team, Thabazimbi*
- *“Yes, it helps a lot because when a child reaches Grade 1, the child can already count from 1 to 10, in twos and also five. They know quite a number of things because they also have their own schedule.” School Management Team, uMthwalume*

However, there was contention about early or pre-school enrolment in public primary school. Parents interviewed recognise the value of a crèche in helping their children become school ready as well as a means for child minding. They do however remain sceptical on whether public primary schools can offer this service. For them formal schooling like primary schooling is about real learning and according to them requires more mature learners. Nonetheless there was acknowledgement that wealthier parents are able to offer better learning opportunities in their homes than poorer families, and hence learning maturity is a relative concept. They are also worried that public primary schools may not be able to offer appropriately qualified teachers with the necessary skills to work with very young children.

- *“In fact the lifestyle (and food) that we live also affects their mental capabilities, unlike with kids from the working class.” Parents, Randfontein*
- *“I think we will need teachers who are praying and strong ones not those who insult learners, like the alcoholic ones.” Parents, uMthwalume*
- *“Sometimes it helps because they come out of crèche, they already know how to hold a pencil.” Parents, Joe Morolong*
- *“It will be helpful especially to those who have young kids. Sometimes they find jobs and only to find that they have no one to look after their children.” Parents, Randfontein*

Similarly teachers interviewed were divided on the issue of admitting children younger than five years old to formal schooling. The debates among teachers were dichotomous, one set of teachers felt that it is problematic to enrol young children at formal schools as they do not have the necessary mental structures or the discipline that is required for formal education. The second view was that public primary schools can offer an alternative preschool curriculum for younger children which would contribute to school readiness.

○ <i>"I would like to differ, I have experienced something, with the white schools, they have Grade 000 and Grade R in that way the child is more exposed to a school environment unlike spending time with a granny at home. When they are exposed to school, they are able to learn maybe drawing and so on." Teachers, Randfontein</i> ○ <i>"I wanted to say it depends on the preparations and lessons that they receive when they are in Grade R, they should not get lessons from Grade 1, so they should be taught the foundation of the foundation phase." Teachers, Thabazimbi</i>	○ <i>"When children start when they are younger they do not learn quickly, when they start when they are underage they will become dropouts." Teachers, Randfontein</i> ○ <i>"But if he is under age, he gives us problems because he is not ready yet." Teachers, Randfontein</i> ○ <i>"When children start when they are younger they do not learn quickly, when they start when they are underage they will become dropouts." Teachers, Thabazimbi</i>
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School managers and teachers acknowledge that parents are currently using public primary schools as child minding facilities and enrolling very young children in Grade R. The high retention rates or repetition rates at foundation phase has long-term impact on learners' school careers (Alexander et al 2003). Thus using school for child-minding without offering a curriculum that is appropriate for the developmental stage of preschool learners can be more harmful.

- *"Others you find that they start school very young because their parents are young and they want to go to work and crèches are expensive and they don't earn much money. They don't want to pay baby sitters and as a teacher you have to close your eyes and pretend not to see." Teachers, uMthwalume*

6.4. Teaching a Rewarding Profession

Most teachers interviewed feel tremendous joy in seeing their learners progressing and achieving their goals. It is these basic outcomes that drive teachers and make them want to remain in the profession as well as be part of the profession. Seeing a young person learn and develop and knowing that they have contributed to the individuals' growth is the reason teachers joined the profession. They also see their profession as a means to contribute to community growth, development, and wellbeing. Assisting diverse learners attain the curriculum outcomes provide them with challenges and keep them interested in the profession.

- *"It's good to see children learning something and it makes me feel proud that I have taught them and I am the reason that they know certain things." Teachers, Randfontein*
- *"I enjoy teaching small children because it makes me happy seeing them start from Grade 1 and growing up." Teachers, uMthwalume*
- *"I also want to help my community, because with education you make informed decisions." Teachers, Bushbuckridge*
- *"What I love about teaching is that I have realised that some children panic while learning, either they are slow or they cannot learn. I enjoy teaching those who are slow because I get a challenge in teaching them but in other areas I do not see this challenge." Teachers, Joe Morolong*

A few teachers acknowledged that school holidays are a great perk of the profession.

- *"I would say I love that every holiday we are not at work and during weekends we are home, it is unlike other jobs where you sometimes work on weekends." Teachers, Thabazimbi*
- *"What I like the most is that we have almost 4 leaves per year. Yes, unlike yourself, maybe you get your leave once a year." Teachers, Randfontein"*

Nonetheless teachers in the study are feeling overwhelmed with their roles and responsibilities as well as the context of their work environment. The multiple deprivations their learners face in the home and their environment; the overcrowding of classrooms; the scarcity of quality learning and teaching resources; limited professional development support; changing curriculum demands; lack of parental support; weak physical infrastructure; vulnerable to crime; and being unrecognised by their local community and their employers are 'too much' for teachers. They feel constantly under pressure; to help their learners with social, health and family issues, to meet administration deadlines, to deliver the curriculum, to implement sound assessment practices, to participate in school events, and to be lifelong learners.

- *"Teaching has changed so much over the years, there is so much now that is expected from us teachers, we are nurses, social workers, police, there is a lot of stress on us. And it seems as if we are not appreciated especially by our government. We are expected to do so much, for an example they expect us to do scholar patrol in the morning, where are the traffic officers. If we as teachers have to do that, it seems like things are just being dumped on us. There are cases where you have to be a witness for something that happened, there is so much that we have to do sometimes you feel that you are not enjoying your work and the pay is not even that much for the kind of work that we do." Teachers, Randfontein*
- *"A child comes sick at school and you can see that a child needs special attention. Sometimes you could see that the child is not right emotionally and then you have to step in as a teacher. We take them to the mobile clinic." Teachers, uMthwalume*
- *"Another thing that doesn't make us happy as teachers is not being able to develop and progress." Teachers, uMthwalume*
- *"But in the end teaching has become a burden because of the changing of the curriculum. The curriculum has always given me stress, from OBE, RNCS then CAPS and we do not get the right training." Teachers, Thabazimbi*
- *"Sometimes you can see when a child comes to school that the parent was sleeping when the child came to school - one the child did not bath, their uniform is dirty and they have not eaten, so their burden becomes ours so the education cannot go through to the child and the child does not feel the warmth of the parent." Teachers, Joe Morolong*
- *"Our government takes the modern methods and brings them here where the modern teachings, the parents are equipped and educated, whereas here the parents cannot read or write so how are they going to help their children with school work or cope with what they are being taught." Teachers, Joe Morolong*
- *"And the curriculum today it's OBE and then it's RNCS and in the college we didn't do that, and when they come they just give you a lot of work in 2 days and they expect you to perform in class and I think that's not enough and it's not fair to us as teachers." Teachers, Bushbuckridge*

6.5. What is Happening in Our Public Primary Schools Classrooms?

6.5.1. LEARNING AND TEACHING IN THE CLASSROOM

A very complex picture emerges of learning and teaching in the classroom. While, the DBE has stipulated the content, the pace of content delivery, and assessment of content in the CAPS as well as a daily programme for teachers in the foundation phase (see CHAPTER 2: INTRODUCTION TO THE SOUTH AFRICAN PUBLIC PRIMARY EDUCATION LANDSCAPE; Large Scale Learning and Teaching Interventions, p.48); teachers are struggling with implementation. Teachers complain that the content is too difficult and that the pace is too fast for their learners.

Two dominant teaching strategies are used by teachers in the study to implement curriculum policy,

- first they use behaviourist teaching methods including ‘lecturing’, ‘choral reading’, ‘constant explanations’ and ‘repetition’, etc., and
- second they focus on their ‘top performing’ learners.

These pedagogical approaches that dominates classroom practices does not preclude teachers from using constructivist approaches such as learning from play, collaborative learning, learning by making, etc. There appears to be awareness amongst teachers that learners must be active in their learning process for effective teaching. Hence teachers appear to introduce their lessons or new concepts through constructivist approaches and then resort to behaviourist learning theory. Their preference for behaviourist teaching practices appears to be influenced by their initial training, secondly by their perceptions of their learners as being ‘slow’, and their context of large numbers of learners per class. For example, teachers in the study feel very comfortable with using choral reading as the preferred reading methodology, because they feel that this approach is most suitable for their learners’ aptitude and that it is appropriate in overcrowded classrooms.

- *“I just read the content of what they want us to do and then I go back and teach in the same Bantu education way and then I just assess with all the papers that they provide us so that it looks like I am doing it the way they want me to.” Teachers, Thabazimbi*
- *“I think they have to break down the amount of work that they give us for a term, for instance maybe in Grade 1, we can start with alphabets, we do alphabets, we do that until we know that they are fine, then we do only the consonants, single maybe for first term and then we gradually introduce things.” Teachers, Randfontein*
- *“I think I also blame the system because they are giving these learners very difficult work and some cannot cope with the difficult work that they are given. Like in Grade 1 you find that they are giving them double consonants and at that level they don’t even know a single consonant.” Teachers, Randfontein*

- *"Another thing, just to add on to what she is saying, the level they are giving the kids is very high because you will find that in Grade 1, they are making them do double consonants." Teachers, Randfontein*
- *"And at the very same time we are not shifting holistically from our method which we were taught, when we were still training under the apartheid regime." School Management Team, uMthwalume*
- *"I think it is independence that is most important, they are dependent mostly when they are with us, we need to read everything to them because as we indicated, we don't have enough time to teach them reading, so if we had enough time to teach them reading, they would be independent, they would know, and be able to cope with the assessment. They do grasp, as we are saying, the programme doesn't allow us to stick to one thing." Teachers, Randfontein*
- *"These children need to be taught, they need to be having content delivered to them that - is teaching." School Management Team, uMthwalume*
- *"Sometimes we learn Maths and there are things that we learn to make on our own like I ask them to make a ruler. When we are doing the lesson we then discuss what we are talking about. They are the ones that create those things and it becomes easy for them to understand if it was created by them. If I'm teaching about the land we go out and touch things and feel things. We even make drafts of the things that we saw outside. That makes the child to know things practically not theoretically and that makes them remember more easily when they are on paper." Teachers, uMthwalume*
- *"Sometimes we try teach the learners in groups in the class, because it is easier to manage groups, you have 15 learners per group but it still becomes a problem to control them." School Management Team, Thabazimbi*

Teachers also reported that they are constantly making professional decisions in terms of learning and teaching strategies and classroom practices.

- *"I just mix and match. I take what they want me to do and my experience and I choose and pick what works and what doesn't. I go back to the other curriculums and take from each the parts that I used to be good at, so I will go and say I understood this bit better with OBE and then I will take that and I will look and say with NCS I understood this better and then I will take that part and then mix with the current curriculum and those are strategies that we use." School Management Team, Thabazimbi*
- *"In classes, we have different children and their levels are not the same, you have slow children, middle and outstanding children, so you can't teach those learners who are slow using the method for outstanding children. Those outstanding learners, you just give them instructions and explain those instructions but those who are slow, you need to sit down with them and use a different method and explain to them and sit with them." Teachers, Randfontein*
- *"We don't really stick to their time breakdown because for instance with the home language, we have 90 minutes, which is 1 hour 30 minutes, so the breakdown is 30 minutes for listening and speaking. Well it depends on the days. Say on Thursdays it is listening and speaking for 30 minutes and then 45 minutes is writing, then there is 15 minutes for group reading, so do you see that with reading, the most important one has 15 minutes. So what we do sometimes, when you see that the children are lagging behind, you just don't stick to that you try on other days and say, let me give reading more time so that at least they can learn to read words. Those who are able to read, they can read sentences in story books and those who cannot read you just give them words depending on their level. So I think that their breakdown is not fair because if you look into Mathematics, they say counting is 5 minutes and yet we are counting in IsiXhosa, so you find that 5 minutes is not enough for counting, so you increase the time that they have given you." Teachers, Randfontein*

However overcrowding is the biggest challenge facing teachers and significantly influences their approach to learning. Often they feel overwhelmed with the diversity of learners in their classroom and their different learning needs and that it is easier to lecture and to focus on the top performing learners.

- *"There are some teachers who have many children in their class and they only focus on the bright students." Parents, Joe Morolong*
- *"I think the programme itself is more concerned with the quantity of work more than the quality because at the end of the day, out of the 40 learners that you have, you find that you can be proud of about 8 to 10 of your learners." Teachers, Randfontein*
- *"I think as we have indicated that there is that 10 that excels, when you go into a class, you are sure about them, I think half of the class." Teachers, Randfontein*
- *"From 49 learners you find that 5 or 10 out of that number are the learners who are here to learn and are prepared to do so but the rest...when you take their books to mark you find that they didn't even write the work you gave them to do in class." Teachers, Thabazimbi*
- *"And the other challenge that we have is the number of learners that we have in our classes, they are too many for a teacher to concentrate on. Like the barriers that they have, the different barriers, you cannot sit with a child who has a problem that you have to solve. They are a lot for the individual attention that they have to get. So you end up going with the flow, those who go, go with you and those who get left behind get left behind and the programme still runs. You are checking that by the end of the term, you should have covered everything, so you cover everything not caring if they are following or not." Teachers, Randfontein*

As discussed learners' classroom experiences also include various constructivist learning opportunities. Teachers also use collaborative learning, situated learning, learning by play and learning by doing amongst others. They recognise the value and efficacy of these teaching strategies but resist using them all the time. While none of the teachers talked about their reasons for not making these constructivist approaches part of their daily repertoire; it appears that management of large classes and their perception of having 'slow' learners has created a fear that these methods may be impractical to do all the time. Although teachers are facing constraints that cannot be denied some teachers do seem to prefer the easy way out; i.e. using behaviourist teaching methods of 'chalk and talk' and use their learners poor backgrounds as an excuse for their own limited creativity in their respective classrooms.

- *"At times I let them do practical work - learning through play." Teachers, Bushbuckridge*
- *"Dramatising the story you are telling helps them understand quicker." Teachers, Bushbuckridge*
- *"You can sing and at another time you teach as a game outside so that it becomes easy." Teachers, Randfontein*
- *"You can also do role play, when children see something practically it becomes easier for them as opposed to not seeing it." Teachers, Thabazimbi*
- *"We talk in our class. The teacher says we must stand in front of the class and talk." Learners, Thabazimbi*
- *"We read twinkle twinkle little star." Learners, Thabazimbi*
- *"They teach us how to spell." Learners, Randfontein*
- *"They teach us how to respect mothers and other people." Learners, Randfontein*
- *"We create sentences in English." Learners, Randfontein*
- *"Sometimes we write mathematics." Learners, Randfontein*
- *"We make watches with the papers also." Learners, Randfontein*
- *"We worked in our diary. We wrote, what we do every day." Learners, Western Cape*
- *"A story sum." Learners, Western Cape*
- *"They give us exercises and tell us to use our pens to write." Learners, uMthwalume*
- *"They paste papers and put them in the plastic files, and do all those things." Parents, Joe Morolong*

However, a few parents, school managers, and circuit managers have noted that teachers do not spend sufficient time on task. They are often late in the classroom and do not spend their time in class teaching. In uMthwalume teacher absenteeism is a problem. Teachers are often ill, however none of the teachers or school managers interviewed talked about the nature of the illness.

- *“And the homework when I help the children with it I sometimes expect to see a teacher’s note saying that I have successfully helped the child but I do not see it. That says to me that the teachers have not checked the children’s books.” Parents, Joe Morolong*
- *“Sometimes you find that teachers are in class and doing what they are not supposed to be doing, instead of teaching the children, they will be sitting and telling jokes and things like that.” School Management Team, Thabazimbi*
- *“Another thing is the teachers being in classes on time. The teachers will say that they do not like certain content and get to class late forgetting that they already know the work.” Parents, Joe Morolong*
- *“The other big problem is that some of the Educators are sick, and when they are absent it becomes a problem.” School Management Team, uMthwalume*

Schools in the study are struggling with providing genuine learning opportunities in the classroom for learners with multiple learning barriers and learners with special education needs. The School Based Support Teams are responsible for helping vulnerable learners; a member of the team meets with a learner and attempts to understand the barriers faced by the learner and then tries to find support from the social welfare departments in their local municipality or within the district education system. These teams focus on learners who face multiple deprivations including ‘abuse’, ‘neglect’, ‘marginalisation’, ‘orphaned’, and not only learning disabilities or special education needs. While School Based Support Teams make an effort to support learners, they like their colleagues feel overwhelmed with the task in the absence of adequate training, as well as the lack of support from their respective education district offices and municipalities. The situation is worsened by the large numbers of learners who face some form of barriers to schooling - be it abuse or illness or poverty or learning disability or neglect. School Based Support Teams are the only structure in public schools that are ‘tasked / mandated’ with supporting vulnerable learners; i.e. using schools to offer welfare services to vulnerable learners. However, their effective functioning is severely compromised by limited training, external support, and the high numbers of vulnerable learners in schools in poor communities. Vulnerable learners need a basket of social services close to their homes or their schools that will ensure their physical, emotional, and cognitive wellbeing.

- *“We have a lot of such cases in our schools, so we have to be police, nurses, and social workers and we can’t be all that.” Teachers, Randfontein*
- *“If we see they are not coping we refer them to the SBST, you compile a report and then you fill in the support forms and hand them over to the SBST and they will then do the referrals, they will interview the learner and then do the referrals.” School Management Team, Randfontein*

- *“The other challenge is that the department does not assist us, if they could send us specialists and psychologists in January to assess the children and let the parents know.” School Management Team, Thabazimbi*
- *“We have also adapted the strategy that the male teachers take the boys and talk to them about manly things and also show them how boys should behave and we do the same with the girls and we also give them guidance as to how they can get a life that is full of rewards. We try and mould them from home, school and so we prepare them for the world outside.” School Management Team, Thabazimbi*

It appears that schools are streaming learners within classrooms as a means of coping with the diverse learning needs of learners in the classroom. Repetition and peer learning are the two approach teachers’ use in their classrooms to support learners who they consider ‘slow’.

- *“We dwell on the same topic for so long and then you end up teaching those that understand easily. You group them together and let them work on their own. You can’t have them all in the same group so, you implement peer learning because you are running away from dwelling on the same topic.” Teachers, uMthwalume*
- *“You move with the stronger ones and when they are done with their work then you give them something else to keep them occupied whilst you are busy with the ones who are struggling. You actually group them within the same classroom.” School Management Team, Randfontein*
- *“When you give them the homework you advise them to help each other so it becomes a project that they can do together. When they do it in a group form you get results at least, you can achieve something.” Teachers, Thabazimbi*
- *“We are not allowed to divide them into Grade 3A for the smart ones, 3B for the average ones. You are not allowed to do that but we then do is that we group them in the class, so in each class you will put the ones who understand better and quicker in the one group and the slower learners in another group, you group them according to their performance.” School Management Team, Randfontein*
- *“I spoke to the parent until we came to the conclusion that I will give the child homework every day and he must do it. The child was in group 3 and then he moved to group 1.” Teachers, uMthwalume*

6.5.2. HOMEWORK AND LEARNING IN THE HOME

According to parents and learners interviewed homework includes routine practice as well as completing projects. Routine practice consists of writing, mathematics (doing sums), constructing sentences, reading, drawing, comprehension, spelling, and research. Projects include making models and posters.

- *“The teacher gave us homework to cut a box and paint it blue and green and cut out fish and colour them and paste them on the box.” Learners, Thabazimbi*

Parents, older siblings, older family members, and neighbours help with homework. Some parents appear to be impatient with their children’s homework and a few learners reported that their parents do their homework on their behalf when they are struggling with the answers.

- *“They write on a piece of paper and we copy on our books.” Learners, Thabazimbi*
- *“My mom writes the answers on the paper then I have to write them on my school book.” Learners, Randfontein*
- *“You find the parents’ handwriting in the books.” Teachers, Thabazimbi*

- *“And another thing is that the parents just do the homework for their kids, they don’t help them with it, and they do it for them.” Teachers, Randfontein*

A few learners interviewed acknowledge that they get little help at home with their formal learning. The majority of learners reported that they do their homework and that they get support at home with their homework.

Parents interviewed admitted that they do struggle with their children’s homework, especially with their older children. They feel that they do not have the knowledge to

assist their children with completing their homework. An area of difficulty is the conflict around the appropriate algorithm or methods or content between teachers and parents, i.e. the tension between teachers’ knowledge and parents’ knowledge. Learners want the solutions that will be acceptable to their teachers and not those that their parents suggest. Parents are keen to know more about the curriculum so that they can be more effective in supporting their children’s schooling careers.

- *“M: When you read who helps you read?”*
- *R: No one.*
- *M: If you don’t understand who do you ask?”*
- *R: No one.*
- *M: So if you read and you don’t understand what you reading then you don’t ask anyone to help you?”*
- *R: Then I put the book away.” Learners, Western Cape*

- *“The SS [social sciences] I cannot understand what is happening and the life science as well. Maths I know it is bad because I once helped him and it was wrong so then I saw that I was not fit for it.” Parents, Bushbuckridge*
- *“And also they do different subjects to what we did at school it becomes a challenge helping them.” Parents, Randfontein*
- *“They like saying my teacher doesn’t say that.” Parents, Thabazimbi*
- *“Honestly I do help them but there are certain things that I do not understand that are hard for me to do.” Parents, Joe Morolong*
- *“So, those are the things that she says and sometimes because I did not go to school, you would find that sometimes I do not understand the terminology that she uses. I would then call her aunt and ask her what she means by saying this.” Parents, Joe Morolong*
- *“At least if we had some light in the syllabus that they are studying you find like maths I have a child who is studying Grade 7 and the elder brother is doing maths literacy I can’t to do that. So the problem is that you try to help the child but then what you tell them is wrong.” Parents, Bushbuckridge*

Parents have limited resources in their homes or community to help their children with their homework. Homework often requires conducting research, and none of the communities in the study have libraries or other related public facilities. It appears that many parents rely on the school textbook or notes learners bring from school to help their children with their homework.

- *“Like the questions papers that we have if they hand them out we will be able to help them with their homework. As I said that some things I cannot do but if they come with the memorandum I will be able to help him because I can see what he must do.” Parents, Bushbuckridge*
- *“Even before they start a new chapter, they would give them the questions and tell them to go and research. Where are they going to do that research if there is no library?” Parents, Joe Morolong*

- *"I am able to use the examples in the text book if I understand what is happening. So as you go on you are able to read it and understand then explain it to him."* Parents, Bushbuckridge
- *"Sometimes the books that they fill in; when you look at them you can see that this example is almost the same as that one; you actually compare them."* Parents, Joe Morolong
- *"I wish that if a teacher gives a child homework, he must explain to the child and give him/her examples, not just say to the child, go and your mother will help you at home."* Parents, Randfontein
- *"Because sometimes you find that they gave them things for the bank and then, you have to go to the bank and you do not know what to do. Many things that require the bank to be nearby. So, it becomes difficult to do that research."* Parents, Joe Morolong

However, teachers are reluctant to allow their learners to take their workbooks and readers home because the books are neglected and even sometimes destroyed at home. Furthermore some of the schools have a shortage of textbooks.

- *"Our problem with Grade 1 learners is that you can give them a book to do their homework, but when the book comes back it is not well taken care of, it is a mess and pages are torn, some books come back wet from home so it is better if they work in class."* Teachers, Joe Morolong
- *"No, we must only read in the classrooms and give them back."* Learners, Bushbuckridge

While most respondents do not explicitly talk about the abstract nature of curriculum, (i.e. its contextual distance from their life experiences and the surroundings) or the absence of indigenous knowledge or low emphasis placed on local knowledge, they acknowledge that parents do have knowledge that is valuable to the curriculum and that schools should utilise this knowledge.

- *"I think that there are resources at home but they do not know what to do with them, because I asked them to go and find out what houses are built with and they asked their parents to help and they got the information. They are there but they do not know how to use them."* Teachers, Thabazimbi

The learning resources in the homes vary from nothing (no newspapers, radio, television, toys) to bottle tops to mobile phones, laptops, PlayStation consoles, and satellite television.

- *"Even the newspapers for an example if I say go home and cut some pictures and you ask them if they did their work, they will tell you there were no newspapers at home. That is the kind of environment that is surrounding us and when you look at the child's home there is no way they think of buying a newspaper in town if they do go to town."* Teachers, uMthwalume

Parents interviewed acknowledged that they do not always pay attention to their children's home work because they are tired, not at home, or distracted with other priorities.

- *"Sometimes we are not even at home to help them when they come back home from school."* Parents, Joe Morolong
- *"We do, but not in a good mood. Just when you are watching Generations, they will ask for the help."* Parents, uMthwalume

An interesting finding is that some parents are not sure about the purpose of homework. School managers and teachers reported that parents equate homework to ‘teacher laziness’, i.e. teachers are not fulfilling their responsibilities in the class and making parents do their work.

- *“It even makes us wonder why do we have to help them because they are the ones who have been taught at school, so what were they doing while the teacher was teaching.” Parents, uMthwalume*
- *“Parents tell you that if as an educator you give their child homework you are lazy to work in class.” School Management Team, Thabazimbi*
- *“The parents say teachers get paid so they must teach the kids.” Teachers, Bushbuckridge*
- *“At times you give the kids homework; kids don’t do it, when you ask why it’s not done they tell you ‘Mommy said it’s your responsibility to teach us, not to give us homework’.” Teachers, Bushbuckridge*

Interestingly a few teachers interviewed reported that they give homework to fulfil bureaucratic requirements, while a minority see homework as a means of assisting them in completing the curriculum on time.

- *“We have to indicate in the lesson plan that we did give out homework, whether they do it or not is their choice, and it’s indicated that the homework needs to be done at home not in class.” Teachers, Bushbuckridge*

Learners are also expected to bring teaching and learning resources from their homes such as food ingredients to prepare a meal, old books, newspapers, magazines, artefacts for public speaking (speeches), etc. According to teachers interviewed few learners bring these additional learning and teaching resources from home.

- *“We’ve got show and tell which they must prepare at home and come tell you you’d find two or three out of 43 learners bringing something from home. You have to assess them because it’s in your curriculum.” Teachers, Randfontein*

School managers and teachers interviewed reveal a jaundice view of homework (across all phases), according to them few children do their homework and still fewer complete the projects. Their internal situational analysis reveal disinterest of parents; unfavourable home environment, and their parents’ low literacy levels. They acknowledged that orphaned and vulnerable children are at a disadvantage with homework.

- *“They don’t do their homework. Last year I gave them a project and out of 160 students only 11 completed it and when you ask why they didn’t do it they just because they didn’t feel like it. There is also the issue of the support from the parents at home.” School Management Team, Thabazimbi*
- *“In my class maybe only ten parents will help them but the others don’t help.” Teachers, Randfontein*
- *“Some of them are orphans so you find that there’s no family to advise him or her to do the homework.” Teachers, Bushbuckridge*
- *“And you find that the grandmother does not know English or she does not know how to read.” Teachers, Randfontein*

6.5.3. TEACHERS' SUBJECT CONTENT KNOWLEDGE AND SUBJECT PEDAGOGY KNOWLEDGE

Teachers and school managers interviewed do not acknowledge that they are struggling with subject content knowledge or subject pedagogy knowledge. They accuse the changes in curriculum, content overload in the curriculum, and learners' deprived home and community backgrounds as the problem and these factors are responsible for the chaos in curriculum delivery in the classrooms. The changes in the national curriculum policy since 1998 have also made teachers feel less confident about their knowledge and skills.

- *"I think teachers have belittled themselves and because of this ever changing system they themselves don't have confidence in their teaching." School Management Team, Randfontein*
- *"I think the problem is with the curriculum changing, because you could understand Bantu Education and now a new curriculum comes in so that messes us up. When you have to teach the children with the learning assessments it becomes difficult, so when you teach them maths, they bring out new maths. Even with the workshops, we are busy with CAPS." School Management Team, Thabazimbi*
- *"Yes the content is fine it's just that there is a lot of work but what we are teaching is good for the children to get the skills they need, you know but the amount of work is too much." School Management Team, Randfontein*
- *"I feel that the subject does not cover us, especially the activities for example it is suited for learners who have wisdom." School Management Team, Joe Morolong*
- *"The learners don't care about their education and their parents aren't supportive at all. You will try and organize morning classes so that you can catch up and none of them will show up, instead they will just go and sit in the location and not bother." Teachers, Thabazimbi*

While circuit managers are more vociferous about the teachers and school managers' weaknesses in terms of both subject content and subject pedagogy knowledge.

- *"When I was doing the class observations I found out that some teachers couldn't introduce a lesson, they could not do prior learning, chalk-board organisation is a problem, the handwriting again is a problem. So I'm thinking that maybe something went wrong with the training of educators somewhere and this is causing serious problems because even some of the private companies gave them..., although we might not have publicised the information to the teachers, they gave them tests on the subjects they are teaching and people are performing very badly." Circuit Manager, Thabazimbi*

Teachers were more comfortable to talk about their limited knowledge and skills in computers and using them for learning and teaching, i.e. their lack of technology content knowledge.

- *"If we are taught how to use them [computers], then we are going to use them. There is no one that can remove them while you are using them." Teachers, uMthwalume*
- *"We know nothing about computers ourselves." School Management Team, Thabazimbi*

While none of the teachers and school managers acknowledged weaknesses in their subject content knowledge, their comments and discussions on other topics show that they do struggle with content. For example, basic physics or mathematics does change with a change in textbooks. These are proxy variables of teachers' struggling with subject content and pedagogy knowledge.

- *“When we talk about natural sciences they have no idea what we mean because of the textbooks changing so much.” School Management Team, Thabazimbi*
- *“We were talking about the curriculum. It says next week we have to teach them about the dinosaurs. I don’t even know it, and they say you must mention the types of dinosaurs I learnt about them in Grade 8 but then I can’t tell you exactly when they explain a dinosaur that I know it. The Grade R children talk about it because they watch TV but then I need more content about the Dinosaurs.” Teachers, uMthwalume*

However, often teachers are required to teach subjects and learning areas that they have no specialisation in.

- *“The new learning areas that are just being introduced I never had an interest in them, I ended up teaching it because we lack manpower; it is the first time I teach that area. Hence I am saying I am developing in that learning area which is new to me, that is why I am not confident as yet.” School Management Team, Randfontein*

6.5.4. LESSON PLANNING

It appears that lesson plans or the plans for actual classroom learning and teaching are informed by the curriculum policy, the availability of learning and teaching resources (or constraints of limited learning and teaching resources), and sensitivity towards their learners. Teachers consider the resources available to them when planning their lessons, so if they only have counters their lessons plans will focus on teaching a concept using counters, if they have abacuses than teachers will include this in their lesson plans and their teaching approach will be influenced by the resources. They are also very aware of the diversity of their learners and consider this in planning their lessons.

- *“We take the topic at hand that needs to be taught, when you are in that process you have to look at the level of the children in your class and how you will accommodate all of them. You then look at the duration of time that you will need, so ten minutes will be this section, ten minutes will be another section.” Teachers, Thabazimbi*
- *“The resources, when you do planning you have to use the teaching aids that are available so you know exactly what to teach the children.” Teachers, Thabazimbi*
- *“We do not have enough teaching aids, last week I was teaching the children about weight but I could not continue because we did not have a weighing scale, you talk about the scale and the children have no idea what you are talking about. When you talk about something you need to show them so they can see and understand.” Teachers, Thabazimbi*

Planning is done at an individual level as well as collaboratively with colleagues in the same phase (especially in foundation phase) or teaching the same subject / learning area or Grade. The plans are then checked by their respective heads of department. Collaborative planning is done for a quarter / term, while individual plans are done on a weekly basis.

The pace setters and work schedules also guide teachers in their lesson planning by making milestones in teaching and learning explicit. The recent CAPS offers teachers with detailed lesson plans that ease teachers’ lesson preparation responsibilities. The availability of templates has further helped teachers with planning their

lessons. Their main resources for planning are textbooks, resources on the internet, and curriculum policy documents. Teachers are feeling overwhelmed by the diversity of textbooks on the market and available to them at their schools and their neighbouring schools.

- *"We also look at the milestones and use that because we consider that at this Grade this is what they are supposed to cover and sometimes if you don't cover it now, you will cover it next week. Basically we know that this is what we have to cover for this term, how you cover it that depends on you but you know that it must be covered for this particular term. Things like these milestones are some of the tools that we use as HODs." School Management Team, Randfontein*
- *"The thing is pace setters are divided quarterly, into the 4 terms and then as educators we know what we do in each term and then when we do lesson plans, we come together and sit down and then decide so that we all know that in the last term, lesson 3 will be this and that. We sit down and decide on the topics and then discuss on how each should be taught." School Management Team, Thabazimbi*
- *"It is a problem because you would have chosen a book and seen that the information provided is not enough and now you have to refer and then you go to a neighbouring school to see what they do and when you are there, you find that they are using another book. It is not like before where you find that you were using one book for the whole country where you knew that when you had a problem you could go to another school and they would be able to help you as you are using the same book." Teachers, Joe Morolong*
- *"In the Bantu education any child from any high school, will tell you about Drake for mathematics, and wherever you go those were the textbooks that made things easy because we were all the same." School Management Team, Randfontein*
- *"We go on the Internet and see if there is something there to help them and we have the Department books also." Teachers, Western Cape*
- *"CAPS is better because it makes it very clear, it's clear what you should teach with it." School Management Team, Randfontein*

Teachers feel that while lesson plans are useful; they find that it is time consuming. Nonetheless the imposition of collaborative planning appears to contribute to professional development and sharing. Teachers share resources and ideas during their planning sessions.

- *"We waste precious time battling it out with plans. That time could be used constructively in teaching the child." Teachers, Bushbuckridge*
- *"We plan in such a way that when we meet for different learning areas, we plan the different outcomes for each and what we need to focus on. You find that one of us does not understand something but we help each other, we also talk about strategies and how to apply them so that these children understand what we are teaching them, so we help each other." Teachers, Joe Morolong*
- *"Because you find that if you are alone and maybe you don't understand something so my friend will understand it and she will share it with us so it becomes easier that way and the lesson will be complete. But alone it's not that easy." Teachers, Bushbuckridge*
- *"When we are in a group, you say that you know, I was teaching capacity and it seems like I did not reach the kids. So, which method could I use to explain to them whatever I was doing? And maybe somebody in the group would tell you that I did it like this and how about you do it this way." Teachers, Randfontein*

However, nearly all the teachers and school managers reported that they are unable to adhere to their lesson plans and are always lagging.

- *“The problem is time, you find that at times you are on that lesson and you have 30 minutes for that lesson and you find that it has a lot of work that you have to do and you find that time has passed.” School Management Team, Joe Morolong*

6.5.5. COMPLETING THE CURRICULUM

None of the schools in the study are able to complete the curriculum in any given academic year. School managers and teachers justifications for noncompliance with curriculum policy include:

- Distractions by circuits and districts such as unplanned meetings and training workshops
 - Overcrowded classrooms
 - Learners are ill-disciplined
 - The curriculum content is overloaded
 - The curriculum standard is very high
 - Frequent changes to the curriculum
 - Contradictory demands and directives from circuit, district, provincial, and national departments of education
 - Grade 1 learners are not ready for school
 - Learners cannot cope with curriculum demands
 - Their own competence in the subject content knowledge
 - Time for cleaning the classrooms
 - Time for implementing the National School Nutrition Programme
 - Multilingual classrooms
-
- *“I just think the work for the Grade 1’s is too much. The reading is too much because they are ones who prescribe and say teach reading this way and they just give you big words whilst we used to give them short vowel phonics, words like “tata” (father) and “mama” (mother) but right now they are given very big words, like in week 1 in Grade 1, they will just tell the learners to just write this big words which is too much because we have to start them with basic alphabets and then move them to be able to distinguish between consonants and vowels and from there move to simpler words. But right now the words are too much and advanced for the learners. This is also very difficult for the educators because you must teach from the kids who don’t know anything to the ones who have an idea of what you are talking about.” School Management Team, Randfontein*
 - *“The level they are giving the kids is very high because you will find that in Grade 1, they are making them do double consonants and yet the children haven’t even grasped single consonants and you have got to push so that when the coach arrives, he must find that you are up to date and the children are not. We leave children behind and we go very far, when you look back, the children are very far from you, so you can’t even reach them because they are not coping.” Teachers, Randfontein*
 - *“You find that the IQ levels of the children are not high; some are slow so you have to determine what pace you will be using for those who are slow. So you repeat the work which takes you backwards.” Teachers Thabazimbi*

- *"In Grade 1 we can't finish the curriculum because we have to start from Grade R and bring the children up to speed first and yesterday I called a meeting to show the other teachers just how much of the curriculum we still have left and it was a lot."* School Management Team, Thabazimbi
- *"The Department implemented OBE and not long after that it was RNCS. It is now CAPS."* School Management Team, uMthwalume

A minority of teachers and school managers acknowledged that they understand the broader goals of the curriculum policy, i.e. improve the quality of education at school level. For most of the teachers and school managers interviewed they did not grasp the relationship between curriculum policy, classroom practice, and learner performance. They are silent on the learning outcomes of their school. Only one school reported that they offer additional classes to ensure complete curriculum coverage.

- *"But anyway, we are gearing towards a programme, we are trying, although we can see that what the government is doing does not give us enough time to do what we want to do but we have got a programme in place, that we are gearing towards, maybe for next year, to make sure that we make our learners practice creative writing, reading, speech, debate, poetry, whatever. So we think those things may help to improve the quality of learning, more especially on the side of reading and writing and the confidence of learners."* School Management Team, Bushbuckridge

Multi-Grade schools consciously adapt the curriculum to meet their context by streamlining the curriculum and focussing on the core components.

- *"I use my experience as a 19 year teacher, use my experience and sift the curriculum and just take out what I know the learners are not going to use in the next Grade. Otherwise you will never cover the curriculum. So we have to work smart but stay in the curriculum framework because there are certain policies that you know, you can't bypass that policy, the learners have to know this in this Grade and make sure that they know it. And all the other stuff that is not necessary just leave it."* Teachers, Multi-Grade School, Western Cape

6.5.6. LANGUAGES AND THE LANGUAGE OF LEARNING AND TEACHING

Language of learning and teaching is a contentious issue for parents and teachers. Most parents and teachers in the study would prefer that the language of learning and teaching be English. Their argument is that home language or first language is taught very academically at school which is very different from that spoken by learners in their home - especially the technical terms are foreign to learners. Furthermore, most classrooms are multilingual and most learners' homes are multilingual (parents who have different home languages). Another challenge facing home languages is the shortage of teachers who are qualified to teach in specific home languages per province. The current readers and workbooks for home language are badly written with many errors, which are also contributing to making learning and teaching home languages difficult.

- *"You find that for an example let's say in siSwati when you say 'inkomishi' (a cup), you find that the person that has written the book he or she used 'komishi' instead of 'inkomishi'."* Teachers, Bushbuckridge

- *"Ja sometimes it's difficult like a fridge for instance, if you tell a learner xegoetsirisi in Tsonga they can't even understand it, xhegoetsirisi is a fridge, so you can see that this word is a little bit confusing to the learner."* Teachers, Bushbuckridge
- *"You find a child drawing a sheep and they are talking about a cow, these text books were done quickly and are not properly edited, they are full of errors. Yes, they will talk about sweetie and in Sotho we talk of (Moratua)." Teachers, Randfontein*
- *"Home language should be xiTsonga but the subject of learning and teaching should be English, from Grade 1 up to the end."* School Management Team, Bushbuckridge
- *"The Shangaan that they are taught at school is not the one that they speak at home, so they are confused. What is happening, what are these people teaching us?" School Management Team, Bushbuckridge*
- *"Here you find that the father is Tsonga the mother speaks another language, our kids speak what we call 'location language', when you teach them the Tswana in books, they struggle and even at home they can't assist them."* Teachers, Randfontein
- *"And around here it's not easy to find people that are good in isiZulu as teachers. People who may be able to teach isiZulu were trained long ago in colleges where isiZulu was offered."* Circuit Manager, Bushbuckridge

Teachers disapprove of teaching or learning mathematics / numeracy in learners' respective home language as they find the home language is cumbersome. They argue that the technical terms in mathematics are more difficult in their home language than in English. This is further exacerbated by being provided all the planning instruments in English. Teachers do not have the technical language competence to adequately translate these into the respective languages of learning and teaching.

- *"The other thing that frustrates us is teaching Mathematics in the home language, which is isiXhosa that frustrates us a lot. Teaching Mathematics in isiXhosa, everything in isiXhosa, counting, it is very frustrating. We have to do it in that way ... if we could do only Mathematics in English, like counting, you have to understand that a Grade 1 child has to write 'amashumi amabini' – 20... And what they do, they give us planning in English, we have to struggle, we cannot translate, imagine, what are you going to say a geometric shape is in isiXhosa."*
- *"So we are the ones who have to translate into Xhosa."* Teachers, Randfontein
- *"And it's difficult for learners this Tsonga counting in Maths."* Teachers, Bushbuckridge

While the majority of school managers and teachers would prefer the language of learning and teaching to be English, a few teachers recognise the value and efficacy of teaching in the learners' home languages.

- *"Our children struggle with picking up learning areas in other languages and they do not know that language."* Teachers, Joe Morolong
- *"The medium of teaching maybe if we explained things in our mother tongues it will make things better for the learners and they will understand a lot more than they are at the moment. They do understand English when you speak to them but when they see a question in English on the question paper that then becomes a problem."* Teachers, Randfontein

6.5.7. ASSESSMENT PRACTICES AND LEARNER PERFORMANCE

Assessment is becoming part of the learning and teaching routine for schools in the study. School managers and teachers are aware of the value of continuous assessment and they are able to differentiate between formal and informal assessments. The number and nature of formal assessments are now prescribed by the DBE via the CAPS and schools in the study appear to be compliant and seem to try to adhere to keeping proper records of all formal assessment activities and tasks. School managers and teachers reported that all formal assessments are an integral part of their curriculum planning process, hence there are annual assessment plans that summarises all the formal assessment activities per term. While lesson plans accommodate all routine informal assessment activities.

- *"It is easy because they have told us what we need to do." Teachers, Joe Morolong*
- *"Because CAPS [Curriculum and Assessment Policy Statement] and GPLS [Gauteng Provincial Literacy Strategy] gives us what we need." Teachers, Randfontein*
- *"During the planning stage you plan and then maybe after 3 weeks there is an assessment task about the work that you have done then you continue with teaching and then after some time there comes another task. It goes like that until end of the quarter and then the teacher has a file for each quarter and everything you do is recorded there." Teachers, uMthwalume*

Textbooks, department of education database of questions, resources on the internet, and school's own databank of assessments are used to help to set examination questions and other formal assessment tasks including tests and assignments and projects.

Most of the teachers reported that their questions papers are hand written for moderation and later typed.

- *"We submit them hand written and once checked then they will be typed." School Management Team, Joe Morolong*
- *"Sometimes you find the typist is occupied and doesn't have capacity, we hand write the question papers as well." School Management Team, Thabazimbi*
- *"We do not make photocopies all the time because the government does not give us money to buy the paper, so we have to write on the chalkboard." Teachers, Thabazimbi*

External assessments such as the annual national assessment are a huge challenge for schools in the study; both the school managers and teachers feel that the standards are too high. Generally schools in the study performed poorly in the ANA. Their reasons for their learners not meeting the standards in external assessments include:

- ANA takes a random sample of learners which is not reflective of the entire school
- Unfair questions
- English versus home language (learners are not proficient in English which placed them at a disadvantage)

- High learner: educator ratios which makes it difficult to provide individual learners with the necessary support
 - Insufficient teaching time to effectively complete the curriculum
 - Lack of sufficient textbooks
 - Limited learning and teaching resources
 - On-going changes to the national curriculum
 - Unrelated to the formal curriculum
 - Limited parental support
 - Poverty in the homes
- *"The Grade 1 learners must answer questions from a comprehension which is set in that paper, without our help."* School Management Team, Thabazimbi
 - *"The performance is not good at this school, I mean if you have to teach a child who hasn't eaten. There is no way that child can concentrate and do well in their studies."* School Management Team, Randfontein
 - *"ANA is hard because they do random selection and they select 1 child that will represent the whole school and if you know that the child has barriers in class."* Teachers, uMthwalume
 - *"It is difficult because of the fact that you don't get enough time to teach them. It is a problem and before we used to teach things which will be in the assessments but now you must teach a lot of stuff and most of it is not even in the assessments and we also get given the assessments from the department and so you find that when you do give them the assessments some of the things that are there will be things that they didn't master during class, you find that they were things you just touched over them and you did not even emphasis them and that is why it becomes a challenge. I think if we were given enough time to teach the concepts, I don't think it would be a challenge."* School Management Team, Randfontein
 - *"The way they set up the question, we are not used to it. Their languages, the readings are too long. That delays the child and we need to train them about the stories and the paperwork that you are given by the department ends up piling up because you are busy training the children about ANA. The questions from ANA are too long and the stories as well, so the kids need to be properly trained to answer those questions."* Teachers, uMthwalume
 - *"The performance of the children, we are trying hard so that the children pass but there are some of who are not determined to, they are the ones who hold us back."* Teachers, Thabazimbi

Because teachers are unable to complete the curriculum and get their learners to the expected standard, these assessment are considered difficult and inappropriate.

- *"I think ANA, it is challenging but it is fun. The way it was set and the way children enjoyed it but the problem is that it has challenges. If they can give enough chance, maybe give us an opportunity to teach children thoroughly, then when ANA is introduced, we wouldn't have these problems because when you look at their question paper, it is fine for children and it is on the children's level. When you check it, it is good for children, the only thing is that we don't get enough time to teach children things that come from ANA but ANA as it is, I think it is fine."* Teachers, Randfontein

There were a few voices that acknowledge the ANA as an excellent benchmark for assessing their learning and teaching.

- *"I think ANA helps the children and the teachers to be critical and the children to get used to reading. The questions are not hard but they need you to think. I think we have seen how they do it. So, next year when we are setting our tasks we will use the ANA principle so that when October comes the children are used to it."* Teachers, uMthwalume
- *"It's okay especially if your learner practised the comprehensions, because they use the question paper for Grade 12 if they use that story, the whole question paper will talk about it. If I didn't do those strategies, the learners won't be able to write that paper, but doing comprehension and the CD, it's the best, if you take a story tree and tell them to make sentences, that help them."* Teachers, Bushbuckridge

Generally parents interviewed are satisfied with their children's performance in school. They noted their children's strengths and weaknesses; most do not place blame on the school in cases where their child is performing below average or underperforming.

- *"I don't know maybe when they teach him he grasps some things and some things he does not. I don't know he does pass but he is at the bottom."* Parents, Bushbuckridge
- *"EMS is hard for my child. The child tells me that he doesn't understand and they talk in English and he does not understand it."* Parents, Joe Morolong

6.5.8. LEARNING AND TEACHING RESOURCES IN THE CLASSROOM

Teachers have few learning and teaching resources in their classrooms, they mainly use the following basic resources:

- Textbooks
- The Department of Basic Education Workbooks
- Chalkboard
- Wall charts
- Readers
- Counters and related equipment (mainly recycled material like bottle tops)
- Stationery (crayons, exercise books, pens and pencils, scissors, rulers, glue, etc.)
 - *"They read easier when they read from charts because you point to them and they can see the words and they can read much easier from the chart."* Teachers, Randfontein
 - *"We have counting strings."* Teachers, Randfontein
 - *"We have wall charts and now we need different counters, we use counters that they bring themselves like bottle tops. My wish is that we get more teaching aids with nicer tasks like puzzles."* Teachers, Joe Morolong
 - *"Bottle tops or sometimes children have to draw on the floor."* Teachers, uMthwalume
 - *"We are using charts, workbooks."* School Management Team, Bushbuckridge
 - *"They have workbooks coming from the government which are really relevant to them."* Teachers, uMthwalume

Teachers make wall charts and worksheets as well as use recycled material and sometimes resources from the environment like clay.

- *“Even clay if you can find it.” Teachers, uMthwalume*
- *“We create them [wall charts] because the readymade ones are very expensive. We draw and create them.” Teachers, uMthwalume*

Teachers complain about the limited learning and teaching resources in their classrooms and would like beautiful charts, counters, puzzles, more stationery, and sufficient textbooks, readers and workbooks. However, district managers interviewed believe schools in their districts have sufficient learning and teaching resources and that their teachers often underutilise existing resources and that resources are not well looked after.

- *“If we can look after our resources, we can be able to direct the money to following where the need is. The problem is we are not looking well after our resources.” Circuit Manager, Randfontein*
- *“I don’t think so; I just think they’ve got enough resources. I’m saying that because it’s just about willingness. You know like the issue of the textbooks, if you can go to many schools you’d find many textbooks abandoned. It’s just for the teacher to see to it that they utilise the very same textbook although it might be old but it can be utilised for reading.” Circuit Manager, Thabazimbi*

The quote below summarises the general feeling amongst teachers about the shortage of learning and teaching resources.

- *“They should get nicer counters like abacus’s, which will teach them to count in different ways. Like reading, they should bring us big books so that they can paste pictures; sometimes our reading is not readable so it becomes a problem. Sometimes we need books but there is not enough and if we had a projector it will be important. Because our handwriting is small and the children mimic what they see. There is a shortage of these. The government has tried by bringing us books in English but we need them in all the languages that we teach. I have realised that some children cannot write or read in their mother tongue and what I have noticed is that if the child cannot speak or count they will not get past the foundation phase, but our children cannot even speak Setswana. We need more resources in languages and numbers, if they can understand Setswana properly they should be able to catch on to English much easier also and it becomes simple for them. The books and posters would help them, if each educator had them per class instead of sharing, our classrooms have a large number of learners, sometimes you find that there are 40 or 50 learners and the task becomes difficult when we are sharing. If we had these different things we would give them activities to do in groups.” Teachers, Joe Morolong*

6.6. Information Communication Technologies in Education

There was consensus that information and communication technologies are important in education and particularly in schooling. Respondents noted its instrumental role in school management and administration as well as in learning and teaching. All respondents were keen to ensure that learners learn about computers and were equally zealous about using digital technology to learn and to teach.

- *"I think it is okay because most things, even jobs, require computers. It's better if they familiarise themselves with it now." Parents, Thabazimbi*

Teachers, parents, school managers, and circuit managers noted numerous uses of computer technology in education. Currently they are using computers in:

- **Easing administration load:** teachers who use computers in their work appreciate the storage and retrieval functions. These functions have reduced their workload and improved efficiency.
 - *"You see technology helps us with administration, it makes our jobs easier and instead of me writing down the schedules, I just deleting what I don't want to use in the second term and then I just add the marks for the third term and so it becomes very easy to do our work." School Management Team, Randfontein*
- **Improving communication within schools, between schools, between schools and circuits/districts, and schools and parents:** email was exemplified as easing communication between all stakeholders in the schooling system. Short messaging services were also cited as assisting communication with parents.
 - *"Computers, and especially email, are helping education officials, managers in various circuits, and principals to communicate easily." Circuit Manager, uMthwalume*
- **Creating professional worksheets and examination question papers:** teachers now are able to create professional worksheets and examination questions from traditionally handwritten exercises.
 - *"I'm proud to say all the question papers last term were all typed out." School Management Team, Thabazimbi*
- **Making learning and teaching resources:** teachers use computers to make and print flashcards or download pictures from the internet for their wall charts.
 - *"We use the computer only for the words to make the flashcards." Teachers, Randfontein*
- **Improving teachers' content knowledge:** teachers appear to use learning and teaching resources available on the internet to augment their available textbooks and curriculum policy documents.
 - *"We go onto Google and try and find things that are related to that subject matter, things which will help the learners." School Management Team, Randfontein*
- **Child minding or babysitting:** parents value the role of computers in keeping their children occupied and out of the streets or mischief.
 - *"The computer keeps them busy, unlike standing around in street corners and getting up to mischief." Parents, Thabazimbi*

- **Learners enjoy using technology:** there was agreement between teachers, parents, school managers, and circuit managers that they enjoy technology and are motivated when there are opportunities to use computers at school.
 - *“What I have realized with our learners is that when you take them to computer centre even when they are not interested they will rush to go there because they love computers.” School Management Team, Randfontein*
 - *“The kids, when you see them in the computer room they just love it.” School Management Team, Western Cape*

Teachers, school managers and circuit managers also see the value of computers in learning both for teachers and their learners:

- **Professional development on demand:** continuous professional development can be done at any time and in any place. One example is that of using video conferencing as means of saving time and money. Another is accessing the Thutong portal (Department of Basic Education’s portal) and other internet-based learning and teaching resources.
 - *“Modern technology, such as video conferencing, can allow for training of various groups of people in their own areas, thus cutting down on travelling costs and also saving time that is spent travelling.” Circuit Manager, uMthwalume*
- **Making lessons more interesting:** teachers have identified numerous strategies for using technology in learning and teaching, such as letting learners read newspaper stories online and produce summaries, listening to stories, and assessment.
 - *“Technology would make teaching better much easier and more enjoyable. You can go online to online newspapers and let learners read the stories themselves there on the computers and that will also improve the level of reading which will have a good effect on all the other subjects because learners have to read everything in English. So you could also have students reading stories online and get them to write summaries of what they have learnt or even find pictures and get them to create a dialogue.” School Management Team, Randfontein*
 - *“Yes because they can listen to stories and have question and answer session on the computer.” Teachers, Bushbuckridge*
 - *“They also do speed tests.” Teachers, Randfontein*

Teachers prefer mobile devices such as laptops because they can use it at home for planning and administration and they can use in the classroom for learning and teaching. Furthermore, they argued that a computer laboratory is more difficult to integrate into their daily learning and teaching, it requires timetabling, time to get there and settle their learners, and having sufficient numbers to accommodate high learner: teacher ratios that is prevalent in most schools in the study, and multi-Grade classes. Hence computer laboratories in schools are not regularly used in the foundation phase. Teachers prefer laptops with data projectors in their classes. They feel that the combination of laptops and data projectors will enhance their teaching, because currently they write everything on the board which first takes time and second they cannot retrieve it. Some teachers also referred to the efficacy of smart boards.

- *"Time allocation, you are allocated 30 minutes or an hour if you have a double period, so that will not be enough to move to the computer lab. And each child needs a chance to use the computer." Teachers, Randfontein*
- *"Not yet. They are 45 in a class and the computers are only 25 and when you take the 25, what will the 20 be doing in class." Teachers, Randfontein*
- *"Having typed notes will help because we have to retype [rewrite] every time we have a new class for the coming class after them." Teachers, Thabazimbi*
- *"We do use cell phones, if maybe there is something that comes up and you are in class, then you will use your phone for internet, then you search, show them a picture." Teachers, Randfontein*
- *"I have told them I would like to have a smart board linked with the Internet so that if I talk something about a map then I can go to the Internet and show them." Teachers, Western Cape*

Another struggle of managing computer laboratories in school is the lack of dedicated computer technicians to maintain the laboratory. The post provisioning norm does not accommodate for the employment of specialist staff. Circuit managers noted that many of the computer laboratories are seldom used and gathering dust. Their analyses reveal that teachers do not have technological content knowledge and hence teachers do not feel confident to integrate computers in their lesson planning (teaching and learning). Many of the schools in the study also reported that computer laboratories attract criminals and that their schools have experienced theft of computers.

- *"You know many computers were stolen by the cruel community members and were never recovered." Teachers, uMthwalume*
- *"We don't know how to use computers ourselves so it won't be easy teaching the learners, we are still working on that." Teachers, Bushbuckridge*
- *"It's very poor because you'd get these teachers, in most of the schools especially my circuit, have computer sections but if you get there they are dusty, they are not utilised. Because teachers don't have the interest, they've got computer certificates, they were trained but computer is just a phobia. People don't want to use the computer but the learners like it so much but unfortunately some of the labs are closed. They don't have access to use that." Circuit Manager, Thabazimbi*
- *"In some schools the computers are collecting dust like you say and it's teachers that use it to enter exam marks that is all, but the learners are not benefiting." Circuit Manager, Bushbuckridge*

Learners in Grade 3 confirmed that they seldom get an opportunity to use the computer laboratory. Teachers in the foundation phase also noted that their teaching time is structured by the Department of Basic Education and there is no space for taking their learners to the computer laboratory.

- *"Because we will ruin them." Learners, Thabazimbi*
- *"And the teachers don't allow us to." Learners, Bushbuckridge*
- *"Because you know what, they give us lesson plans, for 30 minutes, you teach that, 45 minutes for home language, Maths up to 1:30 and then the children have to go home, there is no time." Teachers, Western Cape*
- *"You know this program of ours is so hectic and the program is laid out for the day and if you don't do your work today it's going to be difficult to try fitting it in tomorrow so you become frustrated." Teachers, Randfontein*

6.6.1. WHAT ABOUT TELEVISION AND RADIO IN EDUCATION?

Television and radio were considered equally important in learning and teaching. Television like the internet opens a window to the world and radio allows learners to listen and imagine a world. Some schools in the study use radio in the classroom and tune into the educational programming offered by the public broadcaster.

- *"Like I was teaching them about the Eskimos the other day and I was telling my learners that the Eskimos build their house with ice and they sleep in those houses and my students were telling me no, that is impossible and if I had an access to the computer then I can show them that it's possible. I can even show them the Eskimos making fire inside these houses." Teachers, Thabazimbi*
- *"In the foundation classes we have radios in the class. We have programmes on SABC where teachers check the time and listen with the children to engage them." School Management Team, Randfontein*

Learners are avid television viewers - they see television as both an entertainment and educational platform. They learn about the world, current affairs, and to speak languages better. They enjoy the international popular children's cartoons on television like Ben 10, Dragon Ball Z, and Pokémon. They are also passenger viewers of local soap operas like 7de Laan, Isidingo, Muvhango, Generations, and Rhythm City and current affairs programming. In terms of general entertainment programming, it appears that 'local is lekker', i.e. they watch mostly local programming such as Stokvel, Chisa; Ekasi, Moferefere Lenyalong, etc.

- *"The Marikana Strike." Learners, Randfontein*
- *"That when it rains you must not play in the rain because there is thunder and lightning." Learners, Randfontein*
- *"We learn English." Learners, Thabazimbi*
- *"On Muvhango when they speak Venda." Learners, Thabazimbi*

6.6.2. WHAT ABOUT MOBILE PHONES IN EDUCATION?

The use of mobile phones in education was contentious. The main concern was the classroom management when integrating mobile phones in learning and teaching. Teachers feared that learners will be distracted and spend their class time on accessing social media and instant messaging services such as Mxit and WhatsApp. Accessing pornography was frequently raised as a concern of using smart phones. Only learners from Western Cape raised the issue of the internet having 'naughty things'. A few teachers also raised the alarm of cyber bullying. These are the reasons that schools in the study used to prohibit learners from bringing mobile phones to school. Parents share these concerns and agree that mobiles phones should not be taken to school. Another concern is theft of mobile phones at schools which teachers and school managers do not want to manage.

- *"He will not study well they [mobile phones] will disturb him." Parents, Bushbuckridge*
- *"They lose concentration and get distracted in class by these phones." Parents, Thabazimbi*

- *"They gossip about teachers sending sms's saying 'just look at this'" Parents, Thabazimbi*
- *"They like playing games on a cell phone." Parents, Joe Morolong*
- *"The learners will do their own thing, listen to music, send sms's on Mxit." Teachers, Western Cape*
- *"And what about pornographic pictures on the cellular phones?" Teachers, uMthwalume*

- *"L: I like computers but I don't like to go in by the internet. Things there are not nice*
- *M: OKAY, IF YOU GO ON THE INTERNET THINGS ARE NOT NICE. WHAT IS NOT NICE?*
- *L: People do naughty things." Learners, Western Cape*

Nonetheless parents, teachers, school managers, and circuit managers do see the value of mobile phones in learning and teaching. They have experienced the positive contribution of mobile phones to learning and teaching. Teachers routinely use their mobile phones in their work. They use the calculator to work out percentages; the calendar for lesson planning, the clock for timing their teaching and learning activities, and the web browser to access the internet.

- *"It is good and it excites children, you can see with phones, the way they are so fast, they like it, they see things that they don't know which are interesting so I think they like it, it is just that maybe most of the time, they don't have access to i." Teachers, Randfontein*
- *"I think we need to move with the times. What can we do because it's contemporary. It's something that is there. I think the department can assist maybe or it can be another way of rather than using a computer the learners can resort to the very same thing because they find it very interesting, in some of the schools especially high schools, if a teacher is asking a question the learners Google a bit. I heard that from some of the teachers and they'd start arguing with the educator saying no it's not a correct answer, the correct answer is like this so you can see they've got an interest in the whole thing." Circuit Manager, Thabazimbi*
- *"Cell phone is important because you can research something on the phone." Parents, Joe Morolong*
- *"Arithmetic using the calculator." Parents, Randfontein*
- *"If they have to do research, they get into the internet." Parents, Randfontein*
- *An interesting finding is that teachers are using mobile phones in their work. They use the calendar to help with curriculum planning, the calculator for calculating and recording learners' performance, to clock to keep time in the classroom, the dictionary, and accessing the internet to source for additional information.*
- *"To set a timer, because in most cases as she says 15 minutes phonics, we set that time with it so that kids know that when it rings, you are finished." Teachers, Randfontein*
- *"I use my cell phone to check the dates and time that this time, if they said per week, how do I distribute." Teachers, Randfontein*
- *"You will have to count me out on this one I was busy calculating percentages using my cell phone. There are no calculators." Teachers, uMthwalume*
- *"We also Google information we need from the internet." Teachers, uMthwalume*
- *"With the foundation phase we do lesson plans weekly, so we use the calendar on the cell phone." Teachers, Thabazimbi*

Parents reported that their children are very adept in using mobile phones and that they are the experts in mobile telephony in the home.

- *"I didn't know how to use a cell phone. My daughter taught me how to use it." Parents, Thabazimbi*
- *"Sibongile also taught me how to use the phone, the boy like repairing things in the house." Parents, Randfontein*

- *“Lesedi is clever. The 11 year old one she knows how to work on a PC and I haven’t taught her. She writes down for me how to log on.” Parents, Randfontein*
- *“My daughter is in high school, he has taught me that there are tablets (technology) and they have different brands. Also she has introduced us to WhatsApp.” Parents, Randfontein*

Learners appear to use a range of functions that mobile phones offer. They reported using mobile phones to:

- Calculate (calculator)
 - Call family and friends (voice calls)
 - Send messages
 - Download music (store and retrieve information)
 - Take pictures (Camera)
 - To share music between phones (Bluetooth)
 - Send PCMs (Please call me)
 - Play games
 - Browse the internet (Google)
 - Chat (Mxit, Facebook, Blackberry Messaging)
-
- *“Games are fun and they keep us busy.”*
 - *“I like the songs. I can listen to them whenever I feel bored.”*
 - *“I like the games, music and Maths. Because music and games are fun and Maths is my school work.”*
 - *“Doing my sums and games. Because it’s cool.”*
 - *“I like the camera. Because I can take pictures.”*
 - *“I go on Mxit.”*
 - *“I go on Facebook.”*
 - *“Sometimes I chat with my friends on BBM (Blackberry Messaging).”*
 - *“I also make videos” Learners, Randfontein*

The ownership of mobile phones by learners in Randfontein seems high and hence they talked at length from their personal experiences, while mobile phone ownership by Grade 3 learners in the other communities in the study was less widespread. Nonetheless the majority of learners interviewed had used a mobile phone.

6.7. What is Happening in our Schools?

6.7.1. HOW ARE SCHOOLS FUNCTIONING?

The picture of school management is both byzantine as well as complex. While teachers and school managers talk passionately about collegiality and openness in their respective schools they simultaneously contradict this by accusing each other of non-performance. Similarly circuit managers provide contradictory reviews of schools in their respective circuits. Teachers and school managers accuse their respective circuits of offering minimal support or addressing their challenges.

- *“There is no sense of ownership of the work that I am doing as the principal. And for me, it is a challenge, and I think it is a national problem that we do have. Compare the principals of the old and the principal of now by the way of talking, the way you dress, and the way you do your work. You would never see a principal coming late to school during the olden days. But today, it has become a norm.” Circuit Manager, Randfontein*
- *“Most of the principals are no longer interested. They want to be in the circuit office, they want to be at the district level. They even write letters to us to say I’m interested can’t you give me a job in the circuit. They are no more interested in becoming principals. People get jobs after two years or one year and they’d say no I’m no longer interested to be at school.” Circuit Manager, Thabazimbi*
- *“We are the ones helping the district office and it’s never the other way around.” School Management Team, Thabazimbi*
- *“I am actually disappointed about the support from the government that’s in all spheres, people working for the government are not productive, most of them are not productive because you find that you are told that there are people that will come and support you in your school, don’t worry, and you can struggle for six months without getting hold of that person so we at times become discouraged.” School Management Team, Bushbuckridge*
- *“Okay the one thing that I do not like is the attitude of teachers sometimes, when you go to other schools you find that the teachers do not get along that is the one thing that irritates me that should you move to another school you will find attitude. Not having teamwork hurts me because it creates a mess.” Teachers, Thabazimbi*

An interesting finding is none of the school managers, circuit managers or teachers interviewed see school management in terms of delivering a quality curriculum, offer learners genuine learning opportunities, and facilitate high learner performance. These are the fundamental outcomes of a school system. School managers appear mainly to focus on their bureaucratic responsibilities such as monitoring and reporting and putting in place systems and processes. Hardly any of the school managers interviewed talked about their professional duties of providing professional development support to teachers, helping teachers to offer quality learning and teaching, successfully delivering the curriculum, and assisting learners achieve their goals.

- *“It is to oversee the educators’ school work and monitor how they do it.” School Management Team, uMthwalume*
- *“Let me summarise, there are systems in place so the duty of the school management team is to make sure all the systems are operational.” School Management Team, Randfontein*

While the criticism of respondents not overtly talking about delivering a meaningful and quality curriculum, teachers and school managers in poor communities as in the schools in the study spend a lot of time on mitigating the impact of poverty on their learners. They act as social workers, police officers, primary health practitioners, food servers, donors and then teachers.

- *"A child comes sick at school and you can see that a child needs special attention. Sometimes you could see that the child is not right emotionally and then you have to step in as a teacher." Teachers, uMthwalume*
- *"The social services that we render to the people, to the school, to the learners and the parents." School Management Team, Joe Morolong*
- *"As we are teaching, we identify the reserved learner's, where you can see that they have problems like maybe they haven't eaten, others don't have clothes. Like it was winter and it was cold, there were educators who made sure those children got school uniform, they even involved NGO's who had uniforms for them." School Management Team, Randfontein*

The poverty in their school communities and the weak support they receive from their circuits and districts is contributing to low morale and lack of motivation amongst teachers and school managers.

- *"There is a very low, low morale. Even with the officials." Circuit Manager, Randfontein*
- *"Nothing, not even the Department of Education supports us, every time we cry about the workload, overcrowding and shortage but they do not come to address us for us to feel secure about our situation. Our teachers complain about the workload and we pass on the complaints to the department but no one comes to say they are trying; there is no motivation from the department." School Management Team, Thabazimbi*

Both circuit managers and parents have observed that school management fear to make decisions, which does not help with effective school management.

- *"And some people do not want to be seen unpopular; they do not want to take an unpopular stand; so, there is a lot of compromise. I am, not saying it is a give and take, it is a compromise on the values of teaching." Circuit Manager, Randfontein*
- *"I think the leadership is not united, there is no common understanding, there is an HOD, deputy and the principal, but in terms of pushing the goal which is the education for kids, it seems like they are not equipped and even if they say that they are calling a person to equip them, they are afraid of taking their stand. They are afraid of making decisions." Parents, Randfontein*

Classroom visits are done quarterly by heads of department as a means to monitor and provide teachers with the support that they may require. This process is complementary to the Integrated Quality Management System. While the reports on classroom visits are ambiguous in the interviews, these visits are contributing to ensuring learning and teaching in classrooms.

- *"When visiting a teacher for a lesson, they have to have a lesson ready to present for that class and then you observe if they are using the teaching aids correctly and if they are able to follow the lesson through. You then check the lesson plans, the children's books and then you also check if the teacher does mark the registers and you also check if the teacher is keeping accurate records of the kids - we do them quarterly." School Management Team, Thabazimbi*

- *"I think with the class visits that we are doing, we are able to pick up if the educator is not teaching in accordance to his planning so it helps us a great deal because at home, if you only are going to clean when a visitor is coming, it could be picked up that the house is dirty but if a teacher is able to do that thoroughly on time, you can also see that, it is normal, it usually happened before but now it is so minimised because of these things that we are doing, class visits, checking of the work, the class work books, everything, so that is making the standard pick up." School Management Team, Bushbuckridge*

Teachers, school managers and circuit managers share the context of their schools and the under resourcing and lack of support at length, however, the notion of internal and external accountability of schools were never considered an issue. Functioning schools or 'resilient' schools all have strong internal accountability systems.

6.7.2. WHAT ABOUT PROFESSIONAL DEVELOPMENT?

The Integrated Quality Management System (a 360° performance management system) is the key policy instrument that schools in the study use to identify the professional development needs of their teachers. Using the data from the Integrated Quality Management System schools and education districts formulate professional development plans for the year ahead. However, it appears that these plans are never realised and teachers and school managers receive ad hoc professional development support from their respective provincial departments of education.

- *"IQMS [Integrated Quality Management System] helps the educators in that it develops them. Let's say for example I teach a subject but I do not know other approaches or strategies and all those other things. They will come and observe you and it is not like they judge as such and advise that here try one two three and they look at my strengths and we sit down to identify weaknesses and see how we can plan to help me as it has a committee. So after the observation we sit down and do a cost evaluation to see what we can help each other with. It runs yearly so next year we must see that those weaknesses have improved." School Management Team, Joe Morolong*
- *"Development is a continuous thing, by now, which is the last term we will be developing the plan for next year, within that year plan we will slot in the development strategies that we will delve into. The SMT will identify weaknesses, within those weaknesses we will see if this will be handled by the school or the Department of Education in the district because of the human resource structure that they have." School Management Team, Randfontein*
- *"We are only having these workshops which come and go." School Management Team, uMthwalume*

School managers' reported that they offer developmental support through their on-going monitoring of teachers work, while acknowledging that formal professional development programmes are non-existent in their respective schools or districts. Similarly teachers confirmed that at school level they support each other through curriculum committees. Similarly school managers and principals rely more on the joint meetings as learning opportunities. School managers noted that they have very little in their budgets to support formal professional development. Hence, formal professional development is the personal responsibility of teachers

and school managers. The provincial departments of education do offer bursaries for teachers to continue their education.

- *"We hold regular meetings so that we help each other where we are struggling and where they don't understand we try and help show them how they can manage those areas." School Management Team, Thabazimbi*
- *"We are motivating each other to enrol with universities, so that we can get more and more information, we can keep up with the recent developments, the changes that are there." School Management Team, Bushbuckridge*
- *"We don't have any plans to develop educators professionally, it all depends on the individual educators and now a day's it's very difficult for educators because even if you upgrade yourself, you are just given more responsibilities but your salary doesn't match those responsibilities." School Management Team, Randfontein*

6.7.3. WHAT ABOUT PARENTAL PARTICIPATION IN SCHOOLS?

Newsletters, letters, phone calls and short message service are the main means schools use for communicating with parents. In all schools in the study learners' quarterly report cards are only handed over to parents. Hence, parents must visit the school at least four times a year. In addition there are parents meetings convened by the schools governing bodies; however teachers and school managers complain that attendance is low. Schools also have special events that encourage parental participation. Parents are also informed of their learners' low attainment or misbehaviour and teachers expect parents to attend these teacher, parent, learner conferences, again teachers complain that parents don't bother attending these conferences.

- *"Four times because when the reports are out they call us." Parents, Thabazimbi*
- *"We come in March, June. We also take advise from the teachers to improve our children's performance." Parents, uMthwalume*
- *"When they have a market, like now the Grade R's have a market every week." Parents, Western Cape*
- *"They contact me when there is a problem with my child's work." Parents, Joe Morolong*
- *"Like Friday the schools were closing we expected reports we got notices that reports will be available when schools open." Parents, Randfontein*
- *"I would say that since they have started with exams, they normally write letters to tell us that we must buy pencils, pens, rubbers, ruler and sharpener for a child so that a child would not have a problem when he writes exam. So, they normally do that by writing a letter and explaining all that." Parents, Joe Morolong*
- *"If he [learner/child] is not doing well they will call you again so they will give him a letter to give you." Parents, Bushbuckridge*

Parents interviewed acknowledged that parental participation in their children's school is often neglected for two reasons, first parents are working far away from their children's school and second parents are not able to engage with teachers because of their low literacy levels.

- *"Some things that cause parents not to come like we are different as people. Some parents do not have particular things like a parent who did not do sub A has a problem. So they just take the children there and they know that the children get what they require there but they do not bother about school matters. They do not find out about the child's progress they do not ask about how the child is coping at school and when they have to look at the*

child's books they do not know what to do because everything is written on paper and they have a problem understanding." Parents, Joe Morolong

Parents reported that they do contribute to the school in the form of cleaning, cooking, and fundraising.

- *"Normally, I used to come because I was called, but during the time of cleaning because when the schools open, we clean them." Parents, Joe Morolong*

Teachers and school managers' experiences are that in the main parents of their learners do not care about the school and their children's education. They are aware that parents often do not live with their children and that some learners live in child-headed households. They are also sensitive to the low literacy levels amongst some of their learners' care givers and parents. Nonetheless they feel beaten and exhausted by the lack of parental support.

- *"The problem with this school, most of the parents stay at the hostel, some parents stay at Zenzele, squatter camps, some stay on farms, so these children come from those kind of situations, so when you call the parent, you find that the child has given the parent the letter that you are calling her, the parent will take the letter and put it in the bin. For instance the last time, we gave him a letter to give to the parent, the parent came for something else, I ask him if he gave his mother the letter, he said, 'I couldn't give it to you because you were drunk'." Teachers, Randfontein*
- *"It is difficult to work with them as they don't get involved, just as they have mentioned. Parents are not involved, most do not work and most of the people here are from the rural areas. Some of them are not able to come to the schools. When they are called to the schools some of them can't read or write. So when we call them to interact with them regarding the performance of the learners they themselves can't read or write for them to understand that their children are not performing. We have a problem. " School Management Team, Joe Morolong*

Parents also feel exasperated by their poverty; they argue that they have little resources to make learning conducive in their homes; they live in shacks, are unable to get recycle material (bottle caps, cardboard boxes, etc.), and have little money.

- *"It's worse, I live in a shack there's just no space." Parents, Randfontein*
- *"Like things for arts, in most cases, you have to go out and look for them, you have to look for bottle caps, boxes and at times it is hard to get those things." Parents, Thabazimbi*
- *"We can't do much, we are too poor." Parents, Western Cape*

6.7.4. WHAT ABOUT SOCIAL PARTNERS?

The national state is the major social partner of schools in the study, the private sector and civil society offer sporadic support. The national school nutrition programme provides all quintiles 1 to 3 primary and secondary schools with one meal a day (see Section 6.7.4). The South African Social Security Agency gives uniforms for orphaned and vulnerable learners at the beginning of each academic year and the Community Work Programme provides people to help with cleaning, gardening, and in some schools administration assistance and teacher assistance. Unlike the free uniform programme that reaches all schools, the Community Work Programme is a small scale intervention to provide employment opportunities (8 days per month) to a pre-determined number of unemployed people in selected communities. Local municipalities appear to offer minimal support to schools in their jurisdiction. In Gauteng the provincial education department is implementing the Extra School Support Programme where 13 000 part time workers will offer primary school learners one hour supervised homework and one hour supervised recreational activities after school every day. In addition, Western Cape through Khanya Project and Gauteng through the Gauteng Provincial Literacy Project provides schools in the study with additional support, especially learning and teaching resources and professional development for foundation phase. In the Joe Morolong, schools tap into the provincial department of health's home-based care programme for additional support.

- *"We have a home based care that we are working with, most of the time when we have problems we call them. They come to help for example; they will call the parents to come to the school, so that they ensure that the learners come to school. When we have problems such as children not having uniform because the parents are not buying it or when children do not eat well, or when children do not bath, we let them know and inform them and they take over." School Management Team, Joe Morolong*
- *"The home work assisting teams also helps us a lot because they are helping the learners with their school work." School Management Team, Randfontein*

An interesting finding is teachers in Gauteng appreciate the provincial literacy programme however; they are frustrated with the demands of the programme. Their main objection is the amount of work (curriculum coverage) they need to complete every month and that their 'slow' learners are left behind.

- *"The advantage is that GPLS helps us, with maths, we teach 3 groups at the same time, you can notice when you have attended the workshops, if you haven't attended them you won't know. They work well, the same thing but on a different level, there is an improvement every time, if they do away with GPLS they are going to kill the country." School Management Team, Randfontein*
- *"Because CAPS and GPLS give us what we need." Teachers, Randfontein*
- *"... level they [Gauteng Provincial Literacy Programme] are giving the kids is very high because you will find that in Grade 1, they are making them do double consonants and yet the children haven't even grasped single consonants and you have got to push so that when the coach arrives, he must find that you are up to date and*

the children are not, we leave children behind and we go very far, when you look back, the children are very far from you, so you can't even reach them because they are not coping." Teachers, Randfontein

The South African Police Services appear to be very supportive of schools in the study, they visit the school and teach learners about personal safety as well as partner with the school to reduce vandalism and theft of school property.

- *"The police taught us that even if your uncle gives you sweets you must not go into a house with them alone, you just run away."* Learners, Bushbuckridge
- *"We had a problem of a mother staying with 4 kids and the child was injured and he was beaten by the mother's boyfriend, so we have someone at the police station who deals with such problems."* Teachers, Randfontein
- *"There are some meetings that they attend maybe with the SAPS [South African Police Services]."* School Management Team, Joe Morolong

The private sector including state owned enterprises gives once-off donations, supply schools with promotional gifts, and through competitions or supporting non-governmental organisations and private companies to assist schools. Faith-based organisations and other community-based organisations do not appear to be actively involved in the public schools in the study. Only one school referred to 'church people', who came to evangelise (teach them about the bible and Jesus).

- *"I think it is an NGO as well, they depend on funds, so towards after school, they come and they feed them so that when they get home, at least they have had something to eat."* Teachers, Randfontein
- *"ESSP yes, who are helping kids with homework. They help kids with homework."* Teachers, Randfontein
- *"We have people from Sunday Times who normally drop off papers for us, and when you look at the Sunday Times they have a lot of activities in terms of education."* School Management Team, Randfontein
- *"There is this other one, the one where the children were collecting Albany plastics. Yes, we got some money from Albany, it is going to be used to buy something for the school."* Teachers, Randfontein
- *"We only get help from people like Mpower [private company providing school improvement interventions], the department never comes in to help us."* School Management Team, Thabazimbi
- *"You can get these by going to the Centre there and take what you will be using. If it is a thermometer you need, and then you go and get the thermometer. They are supplied by Experico."* Teachers, Thabazimbi
- *"For maths fortunately we always have people from the Maths Centre always available."* School Management Team, Thabazimbi

Once of donations such as drum majorettes outfits, computer laboratory, Omo t-shirts and shorts, stove and fridge appear to be more prevalent.

- *"We have a sponsor from the mayor's office, when they came here and they saw that our kids' uniform is shabby. So, they helped us by sponsoring the majorettes' uniform in 2010."* Teachers, Randfontein
- *"Eskom gave the school computers."* School Management Team, uMthwalume
- *"Here at school is that they have something called the Soul buddies club."* Teachers, uMthwalume
- *"Our classes were built by the NGO's from outside, so that is support."* Teachers, Thabazimbi

Interestingly many corporations also visit schools as part of their respective educational campaigns. For example ABSA visited schools as part of their financial literacy campaign, ESKOM to create awareness about the dangers of electricity, and Dettol to teach learners about good hygiene practices.

- *“Before you eat you must wash your hands.” Learners, Randfontein*
- *“They teach us not to touch electrical cables.” Learners, Bushbuckridge*

6.7.5. NATIONAL SCHOOL NUTRITION PROGRAMME

The National School Nutrition Programme has made a significant contribution to learning and teaching, while it is only one meal during the school day, learners, parents, teachers, and school managers appreciate the programme. In addition to alleviating hunger amongst learners, the programme also reduces bullying, improves learner attendance, and contributes to the efficacy of HIV/AIDS treatment of infected learners. Table 18 shows a weekly menu in the Limpopo Province.

Table 18: National School Nutrition Programme for Limpopo Province

Days	Meal Plan	Menu	Dry Portion Size
Monday	Bean stew with pap and veg	Stewed Beans	40g
		Maize Meal	60g
		Pumpkin / Butternut / Squash	60g
Tuesday	Pilchard stew with rice and cabbage	Pilchard Stew	50g
		Rice	60g
		Cabbage	60g
Wednesday	Lentil or split pea stew with samp and fruit	Lentil or Split Pea Stew	40g
		Samp	60g
		Apple, Banana, Orange	1 medium
Thursday	Bean stew with pap and cabbage	Stewed Beans	40g
		Maize Meal	60g
		Cabbage	60g
Friday	Soya mince stew with samp and veg	Soya Mince Stew	40g
		Samp	60g
		Pumpkin / Butternut / Squash	60g

- *“We did have other children who didn’t bring lunch tins and I don’t know what they would have done.” Learners, Bushbuckridge*
- *“Those Grade 7’s were going to take our food more.” Learners, Randfontein*
- *“Some would take the younger ones lunch tins and eat those.” Learners, Randfontein*
- *“It helps us a lot. There are children that are on treatment and those children eat a lot. HIV/AIDS treatment, they eat a lot so they must eat more often than the other children. The feeding scheme is really helping us.” Teachers, uMthwalume*

- *"Sometimes they think that there is food at school and not at home the learner is able to come to school." School Management Team, Joe Morolong*
- *"As long [as] they have food they will come to school." School Management Team, Thabazimbi*
- *"But especially it's the food because they have nothing to eat at home." School Management Team, uMthwalume*
- *"Here they want to go to school because a lot of them get food at school and there's always something to eat here every day that's why a lot of them come to school." Parents, Western Cape*

The National School Nutrition Programme is understaffed at school level and teachers are often required to help with operational issues such as dishing out which adversely affects their learning and teaching time. Most of the schools do not have fully equipped kitchens to support the programme and improvise using existing facilities. None of the schools have 'dining halls', so classrooms are used by learners to eat their meals, further reducing learning and teaching time.

- *"I think the government needs to change something there because as they were dishing up the food, they are doing it during the school time and at times you find that the educator is teaching, they have to dish up food to the learners, he has to leave whatever he is doing and he cannot cover what he wanted to cover, while at the same time, the department will come and say we didn't cover the syllabus but the department does not know whether dishing up food was part of something that has consumed the time of educators." School Management Team, Bushbuckridge*
- *"If we can get a hall built because the kitchen is combined with the boardroom and at times there's a briefing and things in the kitchen have to be shifted and this disturbs people in the boardroom." Parents, Randfontein*
- *"The classes here are clean so they should take them out of the classes and they should go to the dining hall during break and they should dish up the food there and sit on chairs and eat properly." Parents Bushbuckridge*

There were only some learners and parents who complained about the food provided by the programme. These parents would like to see the bones removed from the tin fish and a bigger a variety on offer. The learners who did not eat the food offered by the National School Nutrition Programme felt it was for those learners who do not bring lunchboxes to school.

- *"I don't eat that food. It is only for the children who do not have food at school." Learners, Randfontein*
- *"They never give them meat." Parents, Randfontein*
- *"What I wanted as a parent I wanted my children to be served juice and water and a fruit as well as maybe apples or bananas as well." Parents, Joe Morolong*

6.8. Children's Barriers to Schooling

Parents, school manager, and teachers interviewed noted numerous barriers to children's schooling, these include:

- **Poverty in the home and community:** communities in the study suffer multiple deprivations; lack of basic services, high levels of unemployment, severe alcohol and drug abuse, crime amongst others which is adversely affecting learners successful participation in school.
 - *"Our communities are very poor and you will see children come to school with torn clothes and some don't even have school uniform and then the school helps them because there is the social programme which gives children free uniform. Some of them have to walk long distances to get to the school, but they come because at least they get a plate of food, but there is a high level of poverty here." Teachers, Randfontein*
- **Low levels of literacy of parents and caregivers:** many parents in the study are unable to monitor the quality of education that their children are getting and hence to hold school accountable because of their own low literacy levels. They are also unable to offer homework support to their children or contribute to informal learning related to the formal school curriculum.
 - *"Because the parents can't read they can't help them. Most of them don't read." School Management Team, Western Cape*
- **Young parents:** the increase in teenage pregnancies over the last decade has resulted in many young parents who feel ill-equipped to visit their children's school and actively participate in their children's education.
 - *"Most of these parents are young kids themselves." Teachers, Thabazimbi*
 - *"The parents are very young as well; most of the parents are very young." Teachers, Randfontein*
 - *"Some of them come to school dirty, those parents are young. Some of the kids come to school wearing the same shirt from Monday to Friday and you can see by the collar and you can just imagine." Teachers, Randfontein*
 - *"Another thing that affects the children is that their parents are young and you find that the parent is also still at school." Teachers, Randfontein*
- **Orphaned children and child headed households:** schools in the study reported that a significant number of learners live in child-headed households due to the death of both parents or simply neglect by parents. Learners from child-headed households get little support in their homes to help them prepare for school or to adequately fulfil basic schooling norms such as cleanliness, punctuality, etc. They also had a lot more responsibilities in their homes such as taking care of younger siblings.
 - *"A lot of learners don't have parents, those who have parents you find that there's 2 of them in school and one doesn't come and when you ask she'll tell you that my sister said I must stay with my siblings." Teachers, Bushbuckridge*
- **Unavailability of support to learners with special educational needs:** schools in the study are overcrowded and none of the schools have teachers specifically allocated to learners with special educational needs, i.e. learners with learning disabilities. As such learners' performance in school is compromised and often resulting in dropping out of the school system.

- *“What I see as a challenge is that the teachers are like their parents when they are at school so now these challenges are that when the child is a slow learner they cannot be patient they sometimes shout and call them by names. So the child takes those things that they tell him to heart and is no longer happy in class.” Parents, Bushbuckridge*
- **High Educator: Learner ratio:** overcrowded classrooms prevents teachers from offering learners individual support, encouraging teaches to use behaviourist teaching strategies, and pushing teachers into focussing on their top performers.
 - *“In our community it’s less schools, the learners are more than schools that promote clustered classrooms, and teachers can’t reach all of them.” Parents, Thabazimbi*
- **Schools are far from children’s home:** in some schools in the study, learners have to travel or walk long distances to school. Most schools in the study do not offer free transport to learners; hence learners walk the long distances to school (as far as 10km one way).
 - *“The problem of children living far from school, you find that they have to travel far, and they do not have transport to go home, it could deter them because they think about the distance of walking home.” Teachers, Thabazimbi*
 - *“Our learners travel from very far plus minus 10km by foot they don’t have transport. You see you can’t even say let’s wait an extra 30 minutes or an hour for an extra class as there is no transport as these learners have to leave by foot. You can’t have morning classes either as they come to class late every day.” School Management Team, Joe Morolong*
- **Negligent teachers:** parents in the study reported that teachers are not fulfilling their duties. It is interesting to note that parents often made excuses for teachers’ disregard of their responsibilities.
 - *“Teachers sit outside during school hours they don’t teach these kids.” Parents, Randfontein*
 - *“Unless they are trained and I think that is the reason that causes teachers to be lazy because they are not equipped for their job.” Parent, Randfontein*
 - *“It can be different things, at times the reason is that teachers are overloaded and those that do not enjoy their work, who are always looking forward to knocking off.” Parents, Randfontein*

School managers also expressed their concerns about teachers’ carelessness regarding the duties.

“The attitude of some teachers they don’t care about their work” School Management Team, Thabazimbi

- **Not enough food to eat:** many learners in the study are dependent on the national school nutrition programme for their daily intake of food according to learners, parents and teachers interviewed.
 - *“So they come to school without eating and they cannot focus at school because they are hungry.” Parents, Joe Morolong*
 - *“You find that at times when you are trying to teach the child is sleeping, you find that maybe last night the child didn’t sleep, at times some of the learns come dizzy and you can pick up that this child slept without eating anything, some faint, so we are really working in a difficult situation. So you would then have to find food for them.” Teachers, Joe Morolong*
 - *“There is a lot, yesterday we had an emotional case. A child would slept without food and went to school without food.” Parents, uMthwalume*
 - *“Many of the children in our schools struggle because they come from poor families and they come to school hungry. Some of them, the feeding scheme is the only meal they get because there is no food at home and it makes them come to school.” Teachers, Randfontein*

- **Neglect and abuse:** learners are living with grandmothers who cannot provide adequate support or they live with extended families who offer less care or with parents who are neglectful and careless towards their children's wellbeing.
 - *"The mother drinks she does not care about the children when she's gone she does not care what the children are eating and what is happening with them. I am talking from personal experience, there is this woman who always leaves the children behind and the children are then bullies and they do not go to school and all that" Parents, Joe Morolong*
 - *"The small ones, on a Monday morning, they stay at home then they come to school on Tuesday and I say where were you yesterday? No, my clothes were dirty." School Management Team, Western Cape*
 - *"Some of the children are being abused because the parents are working they are not there for them. The neighbour is busy abusing the child and you call for the parent but the parent never comes." Teachers, uMthwalume*
 - *"The family structure, poverty, alcohol abuse. I picked up now lately in instances of neglect, times of child abuse. I hope that will not become a major concern, but I'm starting to pick it up." Teachers, Western Cape*

6.9. Challenges Facing Public Primary Schools in Poor Communities

Circuit manager, school managers, and teachers reported the following challenges that they face:

- **Loosely coupled education system** which is adversely affecting both policy implementation and enhancing the quality of learning and teaching. Teachers appear to work independently of management and school managers seem to work independently of their circuits resulting in weak reporting, limited sharing, restrained dialogue, and compromised data on schooling performance. This asymmetric information is further eroding accountability within schools and accountability in the wider school system.
 - *"The department structure cannot communicate; the upper structure cannot communicate with the lower structure. It's becoming very difficult. I'm sure you saw the Limpopo textbook issue; you can't get the correct data from them (principals). The principals need the educators' assistance to get the correct data for the department so sometimes you find that you're getting incorrect data." Circuit Manager, Thabazimbi*
- **Migration to urban centres** which is resulting in a reduction in learner enrolment in rural public schools. The post provisioning norm only uses learner head count to allocate resources, hence schools lose teachers contributing to higher learner: educator ratios in rural public schools. Higher learner: educator ratios also inadvertently results in teachers being assigned to teach subjects / learning areas other than their specialisation, further compromising the quality of learning and teaching or the school reducing its curriculum, particularly in high school.
 - *"Migration patterns (people moving away from rural areas to urban areas, primarily for work opportunities) result in dropping enrolment figures in some rural schools. The knock-on effect from this is fewer teachers allocated to those schools, which in turn increases the teacher to pupil ratio and creates a heavier workload for those teachers. In some instances, this results in demoralised teachers." Circuit Manager, uMthwalume*
 - *"Now the post establishment will drop. And if it goes on like that you find that a certain number of learners that are there, the subjects are offered in all the streams and the educators that are there the number is too low relative to the subjects. Now because of the low number, the management will go to you and say, in matric you have agricultural science. Can you assist here because we don't have an Agricultural science teacher and you agree and that is not what you're qualified for?" Circuit Manager, Bushbuckridge*

- **High Learner: Educator ratios** which places enormous stress on teaching, continuous assessment, and offering learners individual support. As such teachers are often unable to meet the diverse needs of their learners. Learners seldom receive individual attention.
 - *“There is no individual attendance because there are a lot of them, so we work the best we can. If a learner cannot do their work it becomes a problem because we cannot attend to them.” School Management Team, Thabazimbi*
- **Bad road infrastructure** which contributes to learner and teacher absenteeism during the rainy season. Teachers who live far from schools are unable to travel to their schools due to road erosion.
 - *“You can hardly drive on the roads like yesterday; some of the Educators had a problem due to the heavy rains and bad roads.” School Management Tea, uMthwalume*
 - *“When it rains and the rivers are full the kids don’t come to school. There can be 10 or 9 in class so you cannot teach that number of children.” Teachers, Bushbuckridge*
- **Limited opportunities for intensive professional development as well as continuous professional development:** while schools are implementing the Integrated Quality Management System, the core of the system remains unfulfilled i.e. offering teachers and school managers’ genuine development support. This lack of professional development support has genuine ramifications including lowering accountability standards, reducing teacher morale, and encouraging self-interest behaviour.
 - *“We do have workshops. This is how it works, they take you and then when you come back you must pass on the knowledge to the other teachers. They train you to train others. You go for 1 week and then come back to teach and bearing in mind that you are teaching educated people and you know they will grasp easily. It is just an overview but in class we don’t do an overview we teach thoroughly. You find people teaching Grade 1 and they don’t get thorough explanation during the training.” School Management Team, uMthwalume*
 - *“The department has included Grade R in the curriculum but then they are not as supportive as they should for an example we started CAPS in January but then I got the training for CAPS in June or July.” Teachers, Bushbuckridge*
 - *“I think we need a lot of training and the training has to be continuous, we have an educator who has been in this team for 2 years and they have never been trained to lead that particular field not that you get appointed and then you are left like that to sort yourself out. You are expected to support and hand things in on certain due dates, you are expected to do all those things but you have not even been trained. The department has to give us training.” School Management Team, Randfontein*
 - *“I think we need a lot of training and the training has to be continuous, we have an educator who has been in this team for 2 years and they have never been trained to lead that particular field not that you get appointed and then you are left like that to sort yourself out.” School Management Team, Randfontein*
- **Shortage of quality learning and teaching resources** which impede teachers from being creative and giving learners the full spectrum of learning opportunities. Few schools have the variety of resources that will allow learners to explore and to construct knowledge meaningfully at an individual or in collaboration with their peers.
 - *“Children, even with our kids at home, they like to visualise, see things happening, if there could be TVs, videos that go with specific lessons, so that they could be able to see it happening, they cannot forget easily when they see it, if those resources could be available.” Teachers, Randfontein*
 - *“The challenges we face mostly are the teaching aids and receiving them because if we do not have the resources we can’t teach.” School Managers, Thabazimbi*
- **Weak parental participation in school:** many parents do not fully participate in their children’s schooling which is frustrating to teachers. While teachers acknowledge the challenges faced by parents they feel that

often it is sheer neglect on the parents' part. This low parental participation affects all areas of the school from effectively delivering the curriculum to school governance and management.

- *"Some do not care, and even the hygienic part of it, some of the parents are not so much committed in carrying the responsibility, their parental care." Teachers, Joe Morolong*

- **Sporadic learner attendance:** while learner attendance in all the schools in the study is high, a significant number of learners attend school intermittently which is negatively affecting their performance as well as teachers' learning and teaching plans.

- *"You find that other parents don't bring children to school. The child only comes to school when he/she feels like coming to school and that is not good to us as teachers. There is nothing as painful as seeing a child that is supposed to be starting Grade 1 but you have to fail him/her because of the attendance. The child becomes affected by that and will be left behind for the rest of his life." Teachers, uMthwalume*
- *"You will find that the child is not here for 2-3 days, I have to worry why the child is not coming to school, you find that some parents do not care about the child's education." Teachers, Joe Morolong*
- *"Another thing that I see as a problem is the HIV / AIDS disease. Children are getting sick and they become absent at school. The mother passes on and father passes on and there is no one to look after the child." Teachers, uMthwalume*

6.10. What Kinds of Support do our Public Primary Schools Require

Public primary schools in the study face multiple deprivations from inadequate infrastructure to limited parental support. Here is a summary of areas that learners, parents, school managers and teachers prioritised for support during the interviews:

- **Cleaning staff:** learners are generally responsible for cleaning their respective classrooms. The schools have on average two cleaning support staff responsible for the common spaces including toilets, offices, and the playgrounds. While the community work programme provides additional support staff for gardening, cleaning, and administration to some schools, the schools have limited control over the management of these additional resources and hence cannot deploy them optimally to meet their unique priorities. Teachers use learning and teaching time to clean their classrooms.
 - *"We sweep the classes." Learners, Thabazimbi*
 - *"My child comes home and tells me that the smell was so bad they could not use that toilet." Parent, Bushbuckridge*
 - *"Schools are allocated general workers; if they pass away or retire they don't fill that post and there are schools without general workers and admin clerks. So in terms of the human resource, there's a problem and classroom furniture it's a challenge." Circuit Manager, Bushbuckridge*
- **Adequate professional development support from the circuits/districts:** it appears that circuit and districts officials see their role as monitoring policy implementation at schools instead of offering developmental support and professional development that will enhance quality of learning and teaching, and improve learner performance. Schools in the study are all no-fee schools so there is no additional budget to accommodate professional development at school level. While provincial departments of education offer

bursaries for reading formal qualifications, teachers often do not have the time or the resources to register for a full qualification.

- *"They are not just subject advisors per-se, they are fault finders, they are not here to support but to find mistakes, even if we can go through their reports rather advising you to do things better, they will come and note your mistakes instead."* School Management Team, Randfontein

- **Learning and teaching resources:** schools have very few learning and teaching resources, especially electronic and specifically digital learning resources. In the main the schools in the study use textbooks and charts. These are also in short supply. Schools with computer laboratories criticise the high learner: computer ratio and the difficulties of scheduling usage across the Grades. Nearly all schools in the study have no library and few had access to the internet.

- *"And the TV. We will watch cartoons and learn how to speak English."* Learners, Thabazimbi
- *"Radio because there are stories they teach from the radio at 10am on the radio."* Teachers, Bushbuckridge
- *"Even this thing of Thutong, we go onto the internet we get onto the website Thutong on the internet there is a lot of information that even helps in the classes, but we can't access it."* School Management Team, Joe Morolong
- *"I wish they can provide children with computer studies."* Parents, uMthwalume

- **Mobile digital devices:** very few teachers in the study has access to a computer or internet in their homes and many are convinced that mobile digital devices, especially laptops may help them with both preparation as well as teaching in the classroom. Computers in a laboratory according to teachers in the study are stationary and cannot be easily integrated into their lessons.

- *"If you had a laptop now and there is everything on the internet that you can show them other than postponing and having to go and draw at home or get a picture to show them tomorrow."* Teachers, Randfontein
- *"We are able to use them [computers in laboratory] but they are not in our classes, like when you want to use it at that point in time."* Teachers, Randfontein

- **Physical infrastructure:** the schools in the study have insufficient classrooms and a few have basic administration blocks. Schools would like to have a decent kitchen to accommodate the national school nutrition programme, a hall to host school and community events, library, science and technology laboratory, more toilets, and administration block to manage resources, records, etc.

- *"There were some books that we received but these books, we don't have a library to set them up in, so that we can control the learners and also teach them on what to do when they are at the library. The books are stored in the storeroom so the accommodation does not allow the children to be allocated chairs so that after school you can ask them to go there and to refer to those books so that you can show them how to utilize the books at the library."* SMT, Joe Morolong
- *"We use the two classrooms with the partitions we use that as a hall, when we have parents meeting those two classes cannot accommodate the parents. Our number is 998, parents cannot fit in there."* SMT, Randfontein
- *"We have too few toilets at our school."* Teachers, Bushbuckridge
- *"Technology, there's a part where they teach them how to cook but there are no stoves so how can they teach the children how to cook if they can't show them how to."* Parents, Thabazimbi

- **Basic Services:** learners have limited access to basic services in their communities such as water, primary health care, and electricity. The deprivation of these basic services compromises learners' wellbeing and their effective participation in schooling.

- *"The children are suffering from bilharzia infection in boy's private parts and when they want to pee they want to do it now. You see the child that has a problem but then you can't pin point where exactly the problem is, you notice a sudden change to the child and if there was a clinic nearby, you could take the child there just to make sure where the problem lies." Teachers, uMthwalume*
- *"The fact that there is no running water, it means some of these kids come to school without having washed in the morning and they come with empty stomachs as well, the environment they come from doesn't help in their learning." Teachers, Randfontein*
- *"They don't have TV's. The thing is there is no electricity around this place." Teachers, uMthwalume*
- *"There are times when there isn't any water." Learners, Thabazimbi*
- *"We haven't had water in the school for 3 weeks now and this is a problem because we start having a lot of smells from the toilet then we have to finish school early because it is unbearable." School Management Team, Thabazimbi*
- **Furniture:** schools in the study report insufficient furniture. Learners are sharing desks and chairs, making classroom management more difficult and compromising effective learning.
 - *"Chairs. We share a chair." Learners, Thabazimbi*
 - *"Most of our classes, if you can have a look at them, they are not up to standard and furniture is a problem, really learners are struggling, they are fighting, quarrelling when it comes to furniture." School Management Team, Bushbuckridge*
- **Support orphans and vulnerable children:** there are many children in the schools in the study who are orphaned, very poor, and are on antiretroviral treatment, these children require support that the school is unable to provide such as school uniforms, food at home, etc. Schools in the Joe Morolong appear to work with the local home-based care programme to help their learners. Generally orphaned and vulnerable children need urgent support.
 - *"They take HIV AIDS tablets you must eat before taking them, there's no food at home they get breakfast at school at 10am they must eat again when they get home so that they can take the tablets, there's no food at home." Teachers, Bushbuckridge*
- **Remedial and additional support for learners who are struggling:** there was consensus by both teachers and principals interviewed that a significant number of their learners require remedial support and that the public school system does not offer this. Hence the repetition rate is high or learners progress without the necessary foundational competence to perform in higher Grades.
 - *"So, they must change and have a class for slow learners and they must have a special teacher for them who would be able to open their minds." Parents, Joe Morolong*
 - *"You could see that the learner is not supposed to be here at all, he is just writing stuff and he is repeating the Grade so it was unfortunate because we are not in a position to help that child and the parents are illiterate and it is obvious the learner will end up on the road, lingering." School Management Team, Bushbuckridge*
- **Playground and sports facilities:** there was a general plea for sports and recreational facilities. A decent playground is urgently required in the schools in the study. Presently learners play on dirt ground that is uneven and rocky. Bullying is rife in the schools in the study and young learners want to have a separate play space where they are safe from older learners.
 - *"A park, I will swing." Learners, Randfontein*
 - *"A place where the younger children can play and they must make the same for the older children but it must be on the other side." Learners, Bushbuckridge*
 - *"There are stones in the school yard kids throw the stones at each other." Parents, Thabazimbi*

- *“At times we try and ask other schools if we can use their sports facilities so that our kids can have a chance to play and they refuse.” Parents, Thabazimbi*
- *“Mine doesn’t like the place where they are playing because the ground is not smooth, they fall and hurt themselves.” Parents, Randfontein*
- *“A ball and a field where we can play.” Learners, Thabazimbi*
- **Review of the Post Provisioning Norm:** while the post provisioning norm established in the late nineties was aimed to facilitate equity and transparency in educator provisioning in public schools, i.e. using learner: educator ratios as means of determining the number of educators per school. This formula is not sufficiently sensitive to the unique needs and contexts of small schools particularly multi-Grade schools and rural schools that want to offer a wide curriculum. According to schools in the study the post provisioning norm does not accommodate for specialists such as librarians, computer technician, etc. Furthermore, most schools in the study are understaffed, where the learner: teacher ratio is as high as 60:1. The goals of the post provisioning norm does not translate into equity as poor schools cannot afford additional teacher post that can be paid from school fees.
 - *“My wish is I told them there must be a multi-Grade policy, in South Africa there isn’t a multi-Grade policy. In the policy there should be this thing the teacher ratio should differ from the mono-Grade classes.” Multi-Grade Teachers, Western Cape*
- **Improvement in school security:** schools in the study are victims of burglaries and trespassing.
 - *“What doesn’t make us happy is people getting in our school and doing things that are not making us happy.” Teachers, uMthwalume*
- **Parental support:** teachers and school managers complained about the lack of support that they receive from their parents and understand the constraints parents face. There is a dire need to create awareness amongst parents that schooling is a three-way responsibility, the school, the learner, and the parent.
 - *“If the parents could become more involved because when they are asked to attend school meetings they do not come to see their children’s books, even if you write a letter for them to come see you concerning a problem with their child, they do not come.” Teachers, Thabazimbi*

6.11. Conclusion

The picture of learning and teaching in South African public primary schools presented in this chapter may seem bleak and the context of learning and teaching can leave you feeling exasperated or just beaten. Nonetheless on the positive side, schools are meeting minimum bureaucratic requirements such as improved teacher and learner attendance, stricter monitoring of curriculum delivering, benchmarking performance using the annual national assessment, collaborative planning, functioning school based support teams, implementing both formal and informal assessments, and positive disposition towards using constructivist teaching and learning strategies. Social support programmes such as the national school nutrition programmes, free uniforms, and no school fees are removing some of the barriers children face in terms of their education. Some provinces are engaged in

mass campaigns to support their schools in improving learner performance. These are all positive actions towards creating high performing schools with strong internal professional accountability systems.

Teachers, learners, parents, school managers and circuit managers in the study are extremely optimistic of the role of mobile devices in learning and teaching. While the literature shows that often teachers focus on learning about technology instead of learning with technology; this study revealed that teachers see the value of digital technology in helping learners to learn or learning with technology.

However, the objective conditions of shortage of classrooms and classroom furniture and the overcrowding in classrooms must be addressed urgently because all gains and any new intervention will be diluted because of these structural constraints in primary public schooling.

7. CHAPTER 5: COMMUNITY PERCEPTIONS OF EDUCATION

This chapter summarises the findings from the larger CDI Community Capability Study on the education dimension and is presented in ten sections:

- Value of Education
- Important Knowledge, Skills and Values
- Places of Learning and Education
- Learning and Education as a Personal and Collective Resource
- Learning and Education as Agency
- Technology as a Resources in Learning and Education
- Changes in the Learning and Education Landscape
- Continuing Learning and Education
- Barriers to Continuing Learning and Education
- Future Perspective

7.1. Value of Education

Generally communities in the study recognise the instrumental value of education. They see education as a “key to success”, i.e. education is a means to gaining knowledge, skills, and values that can be harnessed to improve their livelihoods. Equally important to communities in the study is the notion of education as a tool for personal empowerment and enlightenment. Their experiences have highlighted that ‘illiterate’ people are undermined and exploited. Education is also seen as a means for intergenerational mobility. There is recognition that the economy is changing and requires higher levels of knowledge, skills and values. Education is also seen a tool for moulding socially acceptable behaviour and hence gender stereotypes.

The concept of lifelong learning or continuing education is part of the sample communities’ perception of learning and education. The idea that at no time in a person’s life does she stops learning appears rooted in the way communities’ view learning and education and their lived experiences.

The high unemployment rate in the communities participating in the study, particularly amongst young people who have completed their schooling has created some doubt about the usefulness of education in securing work or improving young people's employment opportunities.

7.2. Important Knowledge, Skills and Values

Respect for oneself and for people around you is the most valued quality across all communities participating in the focus group discussions. Respect is considered the bedrock of learning and education; as such genuine learning takes place in environments that foster respect and in individuals who are respectful. Communities in the study placed higher value on "soft skill" than "hard skills". Technical skills that would relate directly to employment are considered secondary to those skills that will enhance an individual's relationship within society such as respect and being presentable. In other words shared communal values and cohesion within the community is paramount. An interesting finding is the absence of numeracy or mathematical literacy skills as a priority skill or a necessary competence to be able to live meaningful lives.

7.3. Places of Learning and Education

Communities across the provinces identified five common places where learning and education is gained, namely: home, school, work, community, and church. Hospitals and clinics, libraries, and prisons were also listed as places of learning and education. A small minority of respondents linked mass media (radio, television, newspaper, and billboards) to learning and education. Similarly a small number of respondents referred to ICT (mobile phones, computers) as tools to access learning and education.

An interesting finding is that most respondents consider the workplace as providing hard technical skills. However the high levels of unemployment means that access to these skills is limited. The limited places of learning and education reported by communities in the study may reflect the lack of access to a diverse range of learning opportunities and alternative paths to qualifications promoted in the National Qualifications Framework.

It is worth noting that a few respondents across the communities in the study had participated or are currently participating in learnerships. However, it's remarkable that they do not refer to learnerships as means of learning and education. Nonetheless respondents are positive about learnerships for the following reasons: are free; offers a stipend, exposure to world of work and increases networking opportunities, exposure to career

opportunities; and employment opportunities. Similarly, a few respondents noted that they gained new knowledge, skills, and values from participating in public works programmes and in the community work programme.

7.4. Learning and Education as a Personal and Collective Resource

Education is a resource that contributes to individual advantage as well family and community well-being. Education allows individuals to:

- Function in society
- Socialise confidently with diverse people
- Find information when needed
- Make informed decisions
- Understand their nature and individuality
- Be independent and less reliant on family
- Earn a livelihood
- Be motivated and not despondent
- Take control of their lives

There was consensus across the communities participating in the focus group discussions that their families value education. The older participants who are illiterate reported that they try their best to enable their children to get an education. The general view is that education is a means to move out of poverty. Family members who are considered educated are perceived as a resource to the family, they are called upon to mediate family disputes. The educated members in communities are the social network that communities draw upon for work opportunities.

There are tensions around education as a community resource and the community's perceived value of education. Generally there is agreement across all the communities participating in the focus group discussions that education and learning is perceived positively in their communities. However, it appears that in most communities in the study, people who are considered educated do not contribute to the well-being of their respective communities and their development actions are centred on their personal and family lives. Furthermore, people who have achieved a level of success often move out of the community to suburbs or wealthier parts of the township. This migration appears to further reduce "community capital".

7.5. Learning and Education as Agency

In the global context, the skills set in communities participating in the study are very small. Respondents' competencies included household chores, basic literacy, functional literacy, domestic work, cooking, baking, agriculture, gardening, hair styling, construction experience, sales experience, child-minding, and minimum palliative care experience. This set of skills allows them to survive financially (mainly through survivalist micro enterprises and casual work) in the severe conditions they live in as well as to engage in their communities' cultural, political, and social life.

Basic literacy skills have enabled respondents to be independent, in that they are not dependent on others to read, write or sign on their behalf. They also are able to seek and apply for work, engage critically with the media, and express themselves better. Their literacy skills also allow them to gain new competencies such as driving, contribute to the family affairs, volunteer in their respective community, and earn a subsistence living.

An interesting finding is the significant number of individuals across the communities in the focus group discussions that are doing volunteer work in their respective communities. In the majority, they are young with some secondary schooling. Both older and young community volunteers consider volunteerism as a means to gaining new skills, future employment opportunities, feel worthy, and feel personal reward in doing something meaningful for their respective community.

Those individual respondents who are able to create a subsistence living from their competencies were few and in most cases they gained the confidence from experiences in the home and support from home.

7.6. Technology as a Resource in Learning and Education

The majority of respondents see technology in terms of artefacts and mainly products in ICT such as radio, television, satellite television, facsimile machines, mobile phones, computers, software packages, the internet, and social network platforms. These artefacts have made their lives easier especially in keeping in contact with family and accessing information. Both young and older respondents feel positive of the technology. The convergence of technology has also reduced the costs of finding information and 'reduced time', which is greatly appreciated. In general, communities in the study mainly use the ICT mentioned to access information, to search and apply for work, and to use social networks, namely Facebook, Twitter, WhatsApp, MXIT. The smart mobile phone with internet access is frequently mentioned as a means to access the internet and in particular the Google search engine. However, none of the respondents talked about using this technology for continuing

learning or education. It also appears that mobile phones are more prevalent than television and radio sets in the communities in the study.

7.7. Changes in the Learning and Education Landscape

Communities in the study talked at length about the changes in the schooling system, but little about the wider education landscape. In terms of schooling they agree that there are tremendous strides in increasing access to education, especially for poor communities. They appreciate the no school fee policy, the national school nutrition programme, free transport, and free uniforms for vulnerable children. This has ensured that children in their communities remain longer in school than before, i.e. they receive more years of schooling now. Furthermore they noted the improvement in learning and teaching resources in public schools, especially the access to photocopiers, printers, laboratory equipment, and library books.

7.8. Continuing Learning and Education

Communities across the study are keen to continue their learning and education. Older respondents who are not literate want to attain basic literacy, i.e. reading and writing. However few respondents articulated their immediate learning and education needs or interests. It also appears that respondents are unaware of the diverse career paths or employment sectors. The isolation of these communities coupled with high levels of unemployment may be contributing to their limited knowledge of career possibilities or livelihood opportunities.

7.9. Barriers to Continuing Learning and Education

The main barrier to continuing learning is access to learning and educational institutions. While there is a growth in the number of private learning and educational institutions, there are few public institutions in the communities in the study. The lack of a matric certificate is also considered a barrier to continuing education. Many young respondents who have not completed their secondary schooling reported that their continuing learning opportunities are limited because they need to first attain the national senior certificate.

Some older respondents who have access to adult basic education and training opportunities in their area are sceptical of its direct benefits to their lives. They feel that the curriculum does not meet their needs as older people. They would prefer basic literacy complemented with vocational skills. Furthermore older respondents'

feel that their personal circumstances are also a barrier, i.e. their home and family responsibilities, especially child rearing and earning an income make it difficult to continue formal education.

7.10. Future Perspectives

All respondents across the focus group discussions were positive about their futures. They have seen tangible positive changes in their personal lives as well as in their communities. These positive changes are attributed to the increase in public goods and services such as free schooling, social grants, public works programmes, learnerships, improvement in the physical infrastructure in their communities including building parks, clinics, etc. Nevertheless they are worried about their dire financial state and hope for work that is long term. Securing permanent employment will provide them with the necessary resources to plan for their continuing learning and education. In the meantime, they will continue to seize all opportunities that facilitate securing work and steady employment.

7.11. Conclusion

Universal access to primary schooling has increased the average basic and functional literacy of communities in the study. These skills and related knowledge and values have allowed individuals and the communities to make ends meet or survive in their dire circumstances. While there is a vicious cycle of poverty, dropout from school, unemployment, gangsterism/alcohol and drug abuse in the communities in the study. The literacy and educational levels are providing the psychological scaffolding to remain motivated and active in searching for opportunities to improve their livelihoods and overall wellbeing.

Communities in the study are deprived of lifelong learning due to the lack of public continuing education institutions in their vicinities, high transport costs, and that tertiary institutions are not free. Limited work opportunities are further isolating communities and reducing their capability to gain knowledge, skills and values to be part of a global economy.

There are four conversion factors that influence learning and education in communities in the study. First the pro-poor policy of government in terms of schooling has enabled young people to remain in school for more years. Public institutions, and programmes are also contributing to continuing learning and education, namely services such as health, libraries, correctional facilities (or prisons), and learnerships and public works programmes. Second the high value of learning and education by family and communities has encouraged

respondents to participate in learning and education opportunities. Third the general improvement in basic and functional literacy has assisted respondents to access learning and education opportunities. Fourth self-efficacy to continue to learn and improve their qualifications is an important conversion factor.

In the main respondents believe that a steady income is their main chance of doing and being what they reason to value. Currently, the majority of respondents see government as responsible for employment creation in their locale rather than being personally responsible or the responsibility of other social partners.

8. CHAPTER 6: CONCLUSIONS, RECOMMENDATIONS AND POSSIBLE INTERVENTIONS

8.1. Conclusion

There are five major challenges facing public primary schools in South Africa; first high teacher-to-learner ratio or overcrowding, second shortages of classrooms and quality learning and teaching support materials, third the dominance of behaviourist teaching practices based partly on the assumption by teachers that their learners from poverty stricken homes are 'slow', fourth inadequate support to schools and their learners to mitigate the impact of poverty in their communities, and fifth lack of coherent and continuous professional development for teachers and school managers.

Notwithstanding these genuine 'structural' limitations teachers and school managers are actively involved in helping their learners to overcome the burden of poverty. However, they are exasperated with the neglect facing their learners and feel overwhelmed by the demands placed on them by the on-going curriculum policy changes. Their confidence in their knowledge about expected curriculum outcomes appear to be waning. However, they are reluctant to engage in critical self-reflection on the quality of learning and teaching that they are currently offering their learners. They blame their learners' background for low performance and refuse to acknowledge their weak subject content and subject pedagogy knowledge.

On the positive side, teachers in foundation phase enjoy their work and are committed to being a positive influence on their learners. They want to see their learners reach their full potential and want to be proud of their learners. Teachers and school managers are very pleased with their schools in meeting minimum bureaucratic requirements such as improved teacher and learner attendance, stricter monitoring of curriculum delivering, collaborative planning, functioning school based support teams, implementing both formal and informal assessments, and applying of the Integrated Quality Management System. Furthermore teachers have a positive disposition towards using constructivist teaching and learning strategies albeit sporadically. However, benchmarking performance using the annual national assessment is a thorn as they find the standard unfairly high.

Similarly parents are enthusiastic about their children's education and see schooling as a means of securing a good education. However they too face serious limitations especially the lack of money and their low literacy levels. They have welcomed the state's intervention in mitigating some of the barriers facing their children's

education such as no-fee schools, free uniforms for orphan and vulnerable children, and the national school nutrition programme. They are keen to understand the curriculum and to help their children to successfully complete school. Currently parents appear unable to judge the performance of their learners and whether their children's schools are offering quality learning and teaching.

Teachers and school managers are currently using digital technology in the various functions of their schools. They use computers in administration, creating learning and teaching resources, and accessing the internet to enhance their lesson plans, especially augmenting the content in textbooks. They use their mobile phones to calculate, access the internet, keep time during teaching and learning, and plan their curriculum delivery using the calendar application. They are resistant to integrating computer laboratories in their learning and teaching repertoire. They find the computer laboratory time consuming to use for learning and teaching and inflexible for classroom use, while they are very receptive towards using mobile devices such as laptops and data projectors. None of the teachers mentioned tablets as part of the digital technology available to them. Furthermore they all noted the enthusiasm their learners have towards computers and digital technologies in general. Teachers are quick to admit that their learners have a better understanding of the applications available on mobile phones. Learners use their mobile phones to calculate, chat, take pictures, make videos, download music, share music, access social networks and play games.

It is encouraging that teachers and school managers openly talk about their lack of technological content knowledge and are keen to learn about technology as well as to use technology in their learning and teaching. Hence this provides a unique opportunity to provide teachers with digital resources for learning and teaching.

8.2. Recommendations

The logical or sensible recommendations emerging from the findings are to address the five major challenges facing public primary schools in South Africa, namely; overcrowding, shortages of classrooms and quality learning and teaching support materials, behaviourist teaching practices, poverty in their communities, and coherent and continuous professional development for teachers and school managers. While recognising that all five challenges are structural or systemic in nature; social partners can contribute to alleviating these challenges particularly in meeting schools learning and teaching support material needs, building teachers confidence in using constructivist approaches to teaching and learning, and assisting teachers in improving their technological content knowledge. Thus the following recommendations emerge from the findings of the study:

- Consider the use of mobile digital devices such as tablets and mobile phones to enhance the functioning of schools and to support the delivery of the curriculum. Teachers, school managers, learners and parents are comfortable with the use of mobile phones and are already using the functions and a few applications available to them. Teachers are already imagining the various ways mobile digital devices can be manipulated to support learning and teaching. Accessing the internet as part of their repertoire, saving and retrieving their work and less reliance on writing on the chalkboard, retrieving and amending their lesson plans, sharing their lesson plans as well as conducting assessments are some of the uses they already envisage. It may appear as a cliché, but the time is right now.
- Consider the use of mobile digital devices such as tablets and mobile phones to enrich learners' home learning environments. Take home mobile digital devices can allow learners to continue their learning in their homes with friends and family. Furthermore as learners are aware of their learning needs they can manipulate mobile digital devices and the resources available to meet their learning needs and learning styles.
- Consider the use of mobile digital devices such as tablets and mobile phones to accommodate diverse learners in a classroom and to facilitate both individual and collaborative learning. This may assist teachers and learners in multi-grade classrooms and to make inclusive education a reality in all classrooms in all schools.
- Consider the production of digital learning and teaching resources for learner's home languages for foundation phase. Fluency in home languages at an early stage is an investment in learners' competence to learn. Currently only textbook publishers and a few non-governmental organisations are creating learning and teaching resources and even fewer are offering digital learning and teaching resources or applications. Most interventions using information and communications technology for learning and teaching in schools are not focussing on content creation and are drawing on the content produced by Mindset. There appears to be a shortage of quality learning and teaching resources in African languages, including readers, workbooks, and fun activities.
- Consider offering teachers and school managers an intensive in-service training programme that centres on gaining technical skills in using information and communications technology and exploring the role of digital mobile technology in the classroom to enhance learning and teaching. Classroom support is a critical element to the adoption and adaption of change in the 'grammar' of learning and teaching, in other words in assisting teachers from moving away from the entrenched behaviourist teaching practices. Furthermore the availability of technical support is a necessary condition for successful adoption of technology in classrooms.
- Consider providing parents with resources to make sense of curriculum policy, expected learning and teaching outcomes per grade, and ways in which they can help their children with meeting the demands of formal schooling.
- Consider a means of allowing learners, teachers, and parents to be part of producing education resources that are meaningful to their own lived experiences. Digital mobile technology facilitates the creation of multi-media resources easily and cheaply which can be shared.

8.3. Suggested Intervention based on Global trends

In 2010 Hawkins listed the following 10 global trends in information and communications technologies in education¹³:

- **Mobile Learning.** New advances in hardware and software are making mobile “smart phones” indispensable tools. Just as cell phones have leapfrogged fixed line technology in the telecommunications industry, it is likely that mobile devices with internet access and computing capabilities will soon overtake personal computers as the information appliance of choice in the classroom.
- **Cloud computing.** Applications are increasingly moving off of the stand-alone desk top computer and increasingly onto server farms accessible through the Internet. The implications of this trend for education systems are huge; they will make cheaper information appliances available which do not require the processing power or size of the PC. The challenge will be providing the ubiquitous connectivity to access information sitting in the “cloud”.
- **One-to-One computing.** The trend in classrooms around the world is to provide an information appliance to every learner and create learning environments that assume universal access to the technology. Whether the hardware involved is one laptop per child (OLPC), or – increasingly -- a net computer, smart phone, or the re-emergence of the tablet, classrooms should prepare for the universal availability of personal learning devices.
- **Ubiquitous learning.** With the emergence of increasingly robust connectivity infrastructure and cheaper computers, school systems around the world are developing the ability to provide learning opportunities to learners “anytime, anywhere”. This trend requires a rethinking of the traditional 40 minute lesson. In addition to hardware and Internet access, it requires the availability of virtual mentors or teachers, and/or opportunities for peer to peer and self-paced, deeper learning.
- **Gaming.** A recent survey by the Pew Internet and American Life Project per the Horizon Report found that massively multiplayer and other online game experience is extremely common among young people and that games offer an opportunity for increased social interaction and civic engagement among youth. The phenomenal success of games with a focus on active participation, built in incentives and interaction suggests that current educational methods are not falling short and that educational games could more effectively attract the interest and attention of learners.
- **Personalized learning.** Education systems are increasingly investigating the use of technology to better understand a learner’s knowledge base from prior learning and to tailor teaching to both address learning gaps as well as learning styles. This focus transforms a classroom from one that teaches to the middle to one that adjusts content and pedagogy based on individual learner needs – both strong and weak.
- **Redefinition of learning spaces.** The ordered classroom of 30 desks in rows of 5 may quickly become a relic of the industrial age as schools around the world are re-thinking the most appropriate learning environments to foster collaborative, cross-disciplinary, learner centred learning. Concepts such as greater

¹³ <http://blogs.worldbank.org/edutech/node/544>

use of light, colours, circular tables, individual spaces for learners and teachers, and smaller open learning spaces for project-based learning are increasingly emphasized.

- **Teacher-generated open content.** OECD school systems are increasingly empowering teachers and networks of teachers to both identify and create the learning resources that they find most effective in the classroom. Many online texts allow teachers to edit, add to, or otherwise customize material for their own purposes, so that their learners receive a tailored copy that exactly suits the style and pace of the course. These resources in many cases complement the official textbook and may, in the years to come, supplant the textbook as the primary learning source for learners. Such activities often challenge traditional notions of intellectual property and copyright.
- **Smart portfolio assessment.** The collection, management, sorting, and retrieving of data related to learning will help teachers to better understand learning gaps and customize content and pedagogical approaches. Also, assessment is increasingly moving toward frequent formative assessments which lend itself to real-time data and less on high-pressure exams as the mark of excellence. Tools are increasingly available to learners to gather their work together in a kind of online portfolio; whenever they add a tweet, blog post, or photo to any online service, it will appear in their personal portfolio which can be both peer and teacher assessed.
- **Teacher managers/mentors.** The role of the teacher in the classroom is being transformed from that of the font of knowledge to an instructional manager helping to guide learners through individualized learning pathways, identifying relevant learning resources, creating collaborative learning opportunities, and providing insight and support both during formal class time and outside of the designated 40 minute instruction period. This shift is easier said than done and ultimately the success or failure of technology projects in the classroom hinge on the human factor and the willingness of a teacher to step into uncharted territory.

These ten trends in the use of information and communication technologies in schools and in classrooms do offer a glimpse of hope in addressing the ‘structural’ challenges facing public primary schools in South Africa. While recognising that information and communication technologies are not a panacea to delivering high performance quality learning and teaching they do offer meaningful solutions to accommodate the multiple deprivations facing schools in poor communities, especially allowing learners, parents and teachers to both access and use quality learning and teaching resources as well as produce and share quality learning and teaching resources that reflect their lived experiences. The access to electricity in deep rural areas and informal settlements and the high cost of electricity may be significant barriers to using mobile digital technologies. The availability of cheap solar technology may resolve these barriers. Similarly the cost of connectivity can be settled through reverse billings. Table 19 presents possible interventions using mobile technology.

Table 19: Possible Intervention in Education Using Digital Technology

Participants or Partners in the Interventions	Nature of Intervention	Description of Intervention
Learners	Resources to facilitate self-learning and peer learning	Curriculum resources that will augment their textbooks, provide additional information, test their understanding and encourage them to apply their knowledge and skills
	Active participants in the creation of learning and teaching resources	Learners are adept with technology and sensitive to their learning needs, it may be useful to allow them to be joint producers of learning and teaching materials
Educators	Intensive professional development support in technological content knowledge	Teachers urgently require technical knowledge about technology (knowing how to use it) as well as ways in which they can use it in their classrooms
	Lesson planning applications	Lesson planning is time consuming and teachers appreciate the templates provided, however an application will be more efficient and allow storing, retrieval and easy sharing
	Applications to adapt the curriculum to meet their classroom needs	South African classrooms are diverse and teachers need to meet diverse needs of their learners as well as comply with the curriculum. An application that can assist teachers in adapting their curriculum content to their class will contribute to enhancing teachers professional decision-making
	Active participants in the creation of learning and teaching resources	Schools are located in diverse communities with different lived experiences. Teachers are creating their own learning resources and can be helped to share their resources with other schools in similar cultural, geographic and socio-economic circumstances
	Applications to create classroom resources such as posters, flashcards, worksheets, tests, examinations	Applications that will allow teachers to make 'professional' worksheets, tests, posters, etc. will go a long way in making classrooms learner friendly
Parents	Easy guide to curriculum policy	Easy guides to understanding the curriculum and the cognitive levels per grade
	Homework tips	Techniques to help parents support their children with home
	Learning resources in the home	Easy to make and use learning resources for the home

REFERENCES

1. Adam, L., Butcher, N., Tusubira, F. F., Sibthorpe, C. (2011). *Transformation-Ready: The Strategic Application of Information and Communication Technologies in Africa: Education Sector Study*, ICT Development and Associates
2. Barker, A., Krull, G., Allison, B. (undated). *A Proposed Theoretical Model for m-Learning Adoption in Developing Countries*, Department of Information Systems, Rhodes University, South Africa, downloaded on the 22nd October 2012 from <http://mlearn.org/mlearn2005/CD/papers/Barker.pdf>
3. Berger, G., Sinha, A. (2012). *South African Mobile Generation: Study on South African Young People on Mobiles*, UNICEF, New York, downloaded on the 19th October 2012 from http://www.unicef.org/southafrica/SAF_resources_mobilegeneration.pdf
4. Bernstein, B. (1999). Vertical and Horizontal Discourse: An Essay, *British Journal of Sociology of Education*, Volume 20, Number 2
5. Bladergroen, M, Chigona, W., Bytheway, A., Cox, S., Dumas, C., van Zyl, I. (2012). Educator Discourses on ICT in Education: A Critical Analysis, *International Journal of Education and Development Using Information and Communication Technology*, Volume 8, Issue 2, pp 107-119
6. Blum, N., Diwan, R. (2007). *Small, Multi-grade Schools and Increasing Access to Primary Education in India: National Context and NGO Initiative*, CREATE, downloaded on the 22nd October 2012 from http://www.create-rpc.org/pdf_documents/PTA17.pdf
7. Bovee, C., Voogt, J., Meelissen, M. (2007) Computer Attitudes of Primary and Secondary Learners in South Africa, *Computers in Human Behaviour*, Volume 23, pp1762-1776
8. Boyce, C., Neale, P. (2006). *Conducting In-Depth Interviews: A Guide for Designing and Conducting In-Depth Interviews for Evaluation Input*, Pathfinder International
9. Brown, B. (2010). *Multi-grade Teaching: A Review of Issues, Trends and Practices for Teacher Education in South Africa*, Centre for Education Policy Development, Johannesburg
10. Brown, J. S., Collins, A., Duguid, P. (1988). *Situated Cognition and the Culture of Learning*, Systems Technology Corporation
11. Chigona, A, Chigona, W. (2009). Capability Approach on Pedagogical use of ICT in Schools, *The Journal of Trans disciplinary Research in Southern Africa*, Volume 6, Number 2, pp.209-224
12. Chigona, A., Chigona, W., Kayongo, P, Kausa, M. (2010). An Empirical Survey on Domestication of ICT in Schools in Disadvantaged Communities in South Africa, *International Journal of Education and Development Using Information and Communication Technology*, Volume 6, Number 2, pp. 21-32
13. Christie, P. (2001). Improving School Quality in South Africa: A Study of Schools that Have Succeeded Against the Odds, *Journal of Education*
14. Christie, P., Butler, D., Potterton, M. (2007). Report to the Minister of Education Ministerial Committee on Schools that Work, Department of Education, Pretoria

15. Corallo, C., McDonald, D. (2001). What works with Low-Performing Schools – A Review of Literature on Low-Performing Schools, US Department of Education, (downloaded on the 3rd June 2010 from http://eric.ed.gov/ERICDocs/data/ericdocs2sql/content_storage_01/0000019b/80/19/e2/6a.pdf)
16. Dalvit, L, Sieborger, I., Thinyane, H. (2011). *A Tale of Two ICTEd4D Projects*, downloaded on the 28th October 2012 from <http://www.formatex.info/ict/book/42-48.pdf>
17. Department of Basic Education. (2010). Strategic Plan 2010-2013, Pretoria
18. Department of Basic Education. (2011). National Education Infrastructure Management System Reports May 2011, Pretoria
19. Department of Basic Education. (2011). National Policy Pertaining to the Programme and Promotion Requirements of the National Curriculum Statement Grade R-12, Pretoria
20. Department of Basic Education. (2011). Report on the Qualitative Analysis of ANA 2011 Results, Pretoria
21. Department of Education. (2008). Foundations of Learning Campaign, Government Gazette No.30, Pretoria
22. Development Bank of Southern Africa. (2008). Education Roadmap: Focus on Schooling System, Downloaded on the 12th April 2012 from <http://www.dbsa.org/Research/Education%20Roadmap/A%2010%20point%20plan%20for%20education.pdf>
23. Diamond, J., B., Spillane, J. P. (2002). High Stakes Accountability in Urban Elementary Schools: Challenging or Reproducing Inequality, Institute for Policy Research Working Paper, Northwestern University, downloaded on the 20th July 2010 from <http://www.northwestern.edu/ipr/publications/papers/2002/WP-02-22.pdf>
24. Donner, J., Shikoh, G. (2009). New Paths: Exploring Mobile-Centric Internet Use in South Africa, Pre-conference workshop at the International Communication Association Conference 3, Chicago, downloaded on the 19th October 2012 from http://mobileactive.org/files/file_uploads/final-paper_donner_et_al.pdf
25. Drost, A. W., Magau, L. T., Mdekazi, J. N. (1999). *Final Report: An Investigation of Multi-grade Classroom Practices in the Free state Province of South Africa, 1998*, Human Sciences Research Council, Pretoria
26. Education for All (EFA) Global Monitoring Report. (2012). Youth and Skills: Putting Education to Work. UNESCO Publishing
27. Education Policy Consortium. (2011). *Research Report: Teaching Literacy and Numeracy in Multi-grade Classrooms in Rural and Farm Schools in South Africa*, Centre for Education Policy Development. Johannesburg
28. Elmore, R.F (1997). Investing In Teacher Learning: Staff Development And Instructional Improvement In Community School District #2, New York City, National Commission on Teaching and America's Future
29. Fleisch, B. (2012). System Reform and Primary Literacy, Department of Basic Education Conference, Durban

30. Fleisch, B., Taylor, N., duToit, R., Sapire, I. (2010). Can Workbooks Improve Learner Performance? Findings of the Randomised Control Trial of the Primary Mathematics Research Project, University of Witwatersrand'
31. Fullan, M. (2000). The Return of Large Scale Reform, *Journal of Educational Change*, Volume 1, Number 1
32. Gangwal, R., Kapur, P. (2009). Learning through Teaching: Peer-Mediated Instruction in Minimally Invasive Education, *British Journal of Educational Technology*, Volume 40, Number 1, pp.5-22
33. Gasperini, L. (2000). The Cuban Education System: Lessons and Dilemmas, The World Bank downloaded on the 30th October 2012 from http://www-wds.worldbank.org/external/default/WDSPContentServer/WDSP/IB/2000/10/21/000094946_0010130548138/Rendered/PDF/multi_page.pdf
34. Gauteng Department of Education. (2010). Gauteng Primary Literacy Strategy 2010-2014
35. Hardman, J. (2005). Activity Theory as a Framework for Understanding Teachers' Perceptions of Computer Usage at a Primary School Level in South Africa, *South African Journal of Education*, Volume 25, Number 4, pp258-265
36. Hopkins, D., Harris, A. (1997). Understanding the School's Capacity for Development: growth states and strategies, *School Leadership and Management*, Volume 17, Number 3, pp 401-411
37. Jordaan, Van A., Joubert, J. (undated). Training of Teachers in Poor Rural Areas Through a Multi-grade Intervention to Achieve Millennium Development Goals: Our Experience of Using ODL as a Tool for Building Capacity and What Lessons Can Be Learned, Cape Peninsula University of Technology, Western Cape, downloaded on the 22n October 2012 from http://wikieducator.org/images/f/ff/PID_708.pdf
38. Joubert, J. (2010). *Multi-grade schools in South Africa, Overview of a Baseline Study Conducted in 2009*, Centre for Multi-grade Education, Cape Peninsula University of Technology, Western Cape
39. Khan, W. (2006). *School Improvement in Multi-grade Situation: An Innovation of the PDCC*, Aga Khan University, Karachi
40. Kitzinger, J. (1994). The Methodology of Focus Groups: the Importance of Interaction between Research Participants, *Sociology of Health and Illness*, Volume 16, Number 1, pp 104-121
41. Kitzinger, J. (1995). Introducing Focus Groups, *BMJ*, Volume 311, pp299-302
42. Kline, R. (2002). A Model for Improving Rural Schools: Escuela Nueva in Columbia and Guatemala, *Current Issues in Comparative Education*, p170-181
43. Kreutzer, T. (2009). Assessing Cell Phone Usage in a South African Township School, *International Journal of Education and Development using ICT*, Volume 5, Number 5, pp
44. Kreutzer, T. (2009). Generation Mobile: Online and Digital Media Usage on Mobile Phones among Low-Income Urban Youth in South Africa, University of Cape Town, downloaded on the 19th October 2012 from <http://tinokreutzer.org/mobile/MobileOnlineMedia-SurveyResults-2009.pdf>
45. Leach, J. (2005). *Do New Information and Communications Technologies have a Role to Play in Achieving Quality Professional Development for Teachers in the Global South?*, Open University, downloaded on

the 24th October 2012 from <http://www.open.ac.uk/deep/Public/web/publications/pdfs/JLeach2005-CJv16n3.pdf>

46. Leach, J., Atef, A., Shumi, M., Power, T. (2006). *Deep Impact: An Investigation of the Use of Information and Communication Technologies for Teacher Education in the Global South: Research the Issues*, Department of International Development, London, United Kingdom
47. Little, A. W. (1995). *Multi-grade teaching: a Review of Practice and Research*, serial No. 12. Overseas Development Administration, London
48. Little, A. W. (2004). *Learning and Teaching in Multi-grade Settings*, Background paper prepared for the Education for Global Monitoring Report 2005, UNESCO
49. Little, A. W. (2006). *Multi-grade Lessons for EFA: A Synthesis*, downloaded on the 22nd October 2012 from <http://siteresources.worldbank.org/INTINDIA/4371432-1194542398355/21543238/extractsfromEFAandMGTChapter14ALvs2.pdf>
50. Mahruf, M., Shodela, C., Banks, F. (2010). *Teachers' Professional Development Through the English in Action Secondary Teaching and Learning Programme in Bangladesh: Experience from the UCEP Schools*, *Procedia Social and Behavioural Sciences*, Volume 2, pp 5483-5494
51. McEwan, P. J. (2008). *Evaluating Multi-grade School Reform in Latin America*, *Comparative Education*, Volume 44, Number 4, pp 465-483
52. McKinsey & Company. (2012). *Transforming learning through m-Education*,
53. McKinsey. (2011). *Transforming Learning Through m-Education*, downloaded on the 11th April 2012 from http://mckinseyonsociety.com/downloads/reports/Education/mEducation_whitepaper_April%201_vFINAL.pdf
54. McLaughlin, M., W., (1998). *Listening and Learning from the Field: Tales of Policy Implementation and Situated Practice*, [in *International Handbook of Educational Change* Ed Hargreaves et al} Kluwer Academic Publishers, Great Britain
55. Microsoft Partners in Learning. (2010). *Innovative Teaching and Learning Research: 2011 Findings and Implications*, downloaded on the 30th October 2012 from <http://www.itlresearch.com/images/stories/reports/ITL%20Research%202011%20Findings%20and%20Implications%20-%20Final.pdf>
56. Mitra, S., Rana, V. (2001). *Children and the Internet: Experiments with Minimally Invasive Education in India*, *The British Journal of Educational Technology*, Volume 32, Issue 2, pp. 221-232
57. Morgan, M, Gobbs, S., Maxwell, K. (2002). *Hearing Children's Voices: Methodological Issues in Conducting Focus Groups with Children Aged 7-11 years*, *Qualitative Research*, Volume 2 , Number 1, pp 5-20
58. Motala, S. (2001). *Quality and Indicators of Quality in South Africa Education: A Critical Appraisal*, *International Journal of Education Development*, Volume 21, pp.61-78
59. Mushed, M., Chijoke, C., Barber, M. (2011). *How the World's Most Improved School System Keep Getting Better*, McKinsey and Company

60. Naismith, L., Lonsdale, P., Vavoula, G., Sharples, M. (2005). Technologies and Learning, Futurelab Series, Report 11
61. Nonyane, J., Mlitwa, N. (undated). ICT Access and Use in Rural Schools in South Africa: A Case Study in Mpumalanga Province, Faculty of Informatics and Design, Cape Peninsula University of Technology
62. O'Day, J., (2002). Complexity, Accountability, and School Improvement, Harvard Educational Review, Volume 72, Number 3
63. Papert, S., Harel, I. (1991). Constructionism, Ablex Publishing Corporation, downloaded on the 26th October 2012 from <http://namodemello.com.br/pdf/tendencias/situatingconstructivism.pdf>
64. Pelgrum, W. J. (2001). Obstacles to the Integration of ICT in Education: Results from a Worldwide Educational Assessment, Computers & Education, Volume 23, Number 2, pp163-178
65. Piaget, J. (1964). Part 1: Cognitive Development in Children: Piaget Development and Learning, Journal of Research in Science Teaching, Volume 2 Number 3, pp176-186
66. Power, T., Prithvi, learners. (2009), Is there a role for mobile technologies in open and distance language learning? An Exploration in the Context of Bangladesh, In: 8th International Language and Development Conference, 23-25 June 2009, Dhaka, Bangladesh
67. Rahimi, S. R., Beer, C. D., Sewshurran, K. (2012). The Conceptual Difficulties in Implementing e-Learning in Post-Apartheid South Africa, International Journal of Information and Education Technology, Volume 2 Number 6
68. Saito, m. (2003). Amartya Sen's Capability Approach to Education: A Critical Exploration, Journal of Philosophy of Education, Volume 37, Number 1, pp17-33
69. Samoff, J., Ndebele, M., Sabatini, E. M. (2011). 'Going to Scale' Nurturing the Local Roots of Education Innovation in Africa, EdQual RPC, University of Bristol, United Kingdom
70. Slay, H., Sieborger, I., Hodgkins-Williams, C. (2007). An Investigation into the Use of Interactive Whiteboards in South African Schools, IADIS International Conference Interfaces and Human Computer Interaction 2007, downloaded on the 26th October 2012 from http://www.iadis.net/dl/final_uploads/200710L003.pdf
71. Statistics South Africa. (2011). Census 2011: Key Results, Pretoria
72. Taylor, N. (2011). A Five-Year Plan for South African Schooling: A Report Commissioned by the National Planning Commission, Joint Education Trust, Braamfontein
73. Taylor, N. (2011). The National School Effectiveness Study – Summary for the Synthesis Report, Joint Education Trust, Braamfontein
74. Taylor, S. (2011). Uncovering Indicators of Effective School Management in South Africa Using the National School Effectiveness Study, University of Stellenbosch, Department of Economics
75. Valk, J., Rashid, A. T., Elder, L. (2010). Using Mobile Phones to Improve Educational Outcomes: An Analysis of Evidence from Asia, *International Review of Research in Open and Distance Learning*, Volume 11, Number 1

76. van der Berg, S., Moses, E. (2011). Southern and Eastern African Consortium for Monitoring Education Quality Brief: Policy Brief, SACMEQ
77. Victora, C., G., Adair, L., Fall, C., Hallal, P. C., Martorell, R., Richter, L., Sachdev, H., S. (2008). Maternal and Child under-nutrition: Consequences for Adult Health and Human Capital, *Lancet*, Volume 371, pp.340-57
78. Vygotsky, L. (1926). Educational Psychology, *Voprosy Psikhologii*, Number 6, downloaded on the 25th October 2012 from <http://www.marxists.org/archive/vygotsky/works/1926/educational-psychology/index.htm>
79. Walker, M. (2006). Towards a Capability-Based Theory of Social Justice for Education Policy-Making, *Journal of Education Policy*, Volume 21, Number 2, pp 163-185
80. Welsch, T. (2012). Teacher development: What Works and How Can We Learn from this and Maximise the Benefits?, South African Institute for Distance Education
81. Western Cape Department of Education. (2006). WCED Literacy and Numeracy Strategy 2006-2016: A Strengthened, Co-ordinated and Sustainable Approach
82. Wilson-Strydom, M, Thomson, J. (undated). *Understanding ICT Integration in South African Classrooms*, SchoolNet
83. World Wide Worx. (2012). *Mobility 2012: The Mobile Internet in South Africa 2012 Executive Summary*, Johannesburg
84. Zheng, Y. (2009). Different Spaces for e-Development: What can We Learn from the Capability Approach, *Information Technology for Development*, Volume 15, Number 2, pp. 66-82

APPENDIX 1: IN-DEPTH INTERVIEWS

The following list of partners / stakeholders and education experts were interviewed (listed alphabetically):

Partner / Stakeholders (alphabetical)	
Angela Schaerer (Microsoft Foundation)	Maruis Conradie (Vodacom Ventures)
Danie Kok (SAP)	Merryl Ford (Meraka)
Deputy Minister Surty (DBE)	Mickey Mashale (Vodacom Education)
Imraan Patel (DST)	Mthombeli Tengimfene (Vodacom Foundation)
Jackie Rakitla (MultiChoice)	Prof Jackie Naude (THCE)
Jacques de Vos (Geomed)	Rensie van Rensburg (Meraka)
Kobus Roux (Meraka)	Sagren Moodley (DST)
Marco Gagiano (Vodacom Research)	Vis Naidoo (Microsoft Foundation)
Education (alphabetical)	
Bertus Matthee (READ)	Paula Gains (Molteno)
Brahm Fleisch (Division of Educational Leadership and Policy Studies WITS)	Peter Beretta (Umoya)
Bruce Brown (Education Department Rhodes University)	Peter Moodley (Wits)
David Harrison (Murray Trust)	Sarah Howie (University of Pretoria)
David Kramer (SciBono)	Servaas vd Berg (Stellenbosch University Department of Economics)
Janet Thomson (Schoolnet SA)	Sharanjeet Khan (MCPT)
John Bradley (RADMASTE)	Stephanie Burton (UP Research and Postgraduate Education)
Linda Marshall (UP – Computer Sciences)	Steve Marquard (UCT Centre for Educational Technology)
Lynn vd Elst (MIET)	Tessa Welch (SAIDE)
Mark Abrahams (UWC)	Thandi Chaane (Siyakha)
Martin Mulcahy (Department of Science and Technology)	Tim Keller (Umoya)
Martin Prew (Centre for Policy Development)	Veronica McKay (UNISA)
Masenya Dikotla (Molteno)	Yvonne Reed (Wits)
Merlyn Mehl (Triple L Academy)	Zubeida Desai (University of the Western Cape)