THE USE OF ANNUAL NATIONAL ASSESSMENTS BY PROVINCES AND DISTRICTS TO IMPROVE TEACHING AND LEARNING

by

Devadasan Angamuthu Govender

Submitted in partial fulfilment of the requirements for the degree of

Doctor Educationis

in the

Department of Educational Studies

Faculty of Humanities

Tshwane University of Technology, Pretoria, South Africa

Supervisor: Professor A Kanjee

April, 2016
Declaration

I declare that this thesis: The use of Annual National Assessments by provinces and districts to improve teaching and learning submitted to the Tshwane University of Technology has not been submitted by me for a degree at any other University, is my own work and all sources used have been indicated and acknowledged by means of complete references.

_____________________________
D A Govender
Dedication

To my parents, who had little formal education themselves, but taught me the value and importance of education.
Acknowledgement

My gratitude and sincere appreciation is extended to:

My wife, Vasan and our children, Indran, Preshnee and Prinola, for their support, encouragement and patience;

My supervisor, Professor Anil Kanjee, who provided insightful guidance and persuasion to bring the research project to completion;

The Chief Directors, Directors, District Officials and Circuit Managers from the Department of Basic Education and the three Provinces, who willingly participated in the study and for taking time to share their experience and wisdom on the Annual National Assessment Programme in South Africa;

Craig Gibbs for assistance with the arrangement of interviews and

Lesley Abrahams for attending to the layout of the first draft report.
Abstract

The central question of this thesis is: how is information from the Annual National Assessments (ANA) collected, analysed, interpreted and used by provinces, districts and circuits to design and implement interventions intended to improve teaching and learning in languages and mathematics. The study also examines the policy, guidelines, reports, supplementary materials, structures and processes used by the Department of Basic Education (DBE) to facilitate the administration of ANA and the use of ANA information in the education system.

The study makes three primary findings: firstly, that there is awareness amongst Department officials that ANA information has utility value for improving teaching and learning, besides its use to monitor system performance; secondly, that provinces, districts and circuits are beginning to use ANA reports to inform decision-making on training and support of educators and, thirdly, that there is a great need to (a) improve the collection and management of ANA data and (b) increase the technical and educational capacity of users at all levels of the system to consistently analyse and interpret ANA results, together with other data, to make appropriate decisions on interventions to improve teaching and learning.

The case study method was used to collect data from education officials working across four levels of the education system: national, provincial, district and circuit. The theoretical frameworks on the use of data for decision making, developed by Andersen et al (2010), Mandinach et al (2006) and Ronka et al (2010) underpin the empirical investigation.

While the DBE has made remarkable progress in providing administrative leadership, policy guidelines and reports since the formal introduction of ANA in 2011, the study found that (similar to countries using national assessments) the challenge of effective use of ANA information requires, amongst other initiatives, a national vision for data use, a clear theory of action and a national policy for ANA coupled to a programme of capacity building in data use at all levels of the system.
An important finding at the Provincial level is the need for integration and alignment of ANA data use across three key sections or directorates, namely GET Curriculum, Assessment and Examinations and School Management, to further enhance the effective use of ANA information to improve teaching, learning, school management and parental involvement.

The general observation in districts is that the introduction of ANA has changed the planning methodology for school support from a generic approach (one size fits all) to a more targeted approach informed by ANA reports. However, a gap observed at all three districts, is the absence of a District-level ANA Report as envisaged in the education sector Action Plan (DBE, 2010a: 53).

The key finding with regard to Circuit Managers is their expression of powerlessness in providing support to School Governing Bodies (SGBs) and parents in the use of ANA results. Specifically, limited evidence was found of learner performance reports being shared with parents across the circuits. Evidence also suggests that Circuit Managers offer minimal support to principals in data use, due to a lack of appropriate skills, while much more could be done to create and sustain a culture of data use within schools.

Finally, a consistent finding in all three provinces and districts and with the Department of Basic Education (DBE) at the national level, is the gap in, and the strong demand for, capacity building in data analysis and interpretation, leadership in data use and the development of a culture of data use for improving learning and teaching.

**Key words**

Large scale assessment studies, assessment for learning, assessment of learning, leadership in data use, culture of data use, skills capacity in data use, analysis and interpretation of assessment data, data-driven decision making, interventions to improve teaching and learning.
Acronyms

ANA  Annual National Assessment
APP  Annual Performance Plan
CAPS Curriculum and Assessment Policy Statement
CES  Chief Education Specialist
CM  Circuit Manager
DBE  Department of Basic Education
DD  District Director
DDDM Data Driven Decision Making
DDSP District Development Support Programme
DHET Department of Higher Education and Training
DHoA District Head of Assessment
DHoC District Head of Curriculum
DPME Department of Planning, Monitoring and Evaluation
EFA Education for All
EFAL English First Additional language
ELRC Education Labour Relations Council
EQAO Educational Quality and Accountability Office
FET Further Education and Training
FP Foundation Phase
GET General Education and Training
HOD Head of Department
IEP Integrated Education Programme
LOLT Language of Learning and Teaching
MANCO Management Committee
MLA Monitoring Learning Achievement
MTSF Medium Term Strategic Framework
NAEP National Assessment of Educational Progress
NAPE National Assessment of Progress in Education
NDP National Development Plan
NECT National Education Collaboration Trust
NEEDU National Education Evaluation and Development Unit
NEMP National Education Monitoring Project
NSC National Senior Certificate
OECD Organisation for Economic Co-operation and Development
PIRLS Progress in International Reading Literacy Study
QLP Quality Learning Project
READ Russia Education Aid for Development
RSA Republic of South Africa
SA Subject Adviser
SABER Systems Approach to Better Assessment
SACMEQ Southern and Eastern Africa Consortium for Monitoring Educational Quality
SADTU South African Democratic Teachers Union
SASA South African Schools Act
SBA School Based Assessment
SGB School Governing Body
SMT School Management Team
TIMMS Trends in International Mathematics and Science Study
UANA Universal Annual National Assessment
VANA Verification Annual National Assessment
UNESCO United Nations Educational, Scientific and Cultural Organisation
Contents
Declaration .................................................................................................................I
Dedication ................................................................................................................II
Acknowledgement..............................................................................................III
Abstract ..................................................................................................................IV
Acronyms ..............................................................................................................VI
List of tables ..........................................................................................................XII
CHAPTER ONE ......................................................................................................1
INTRODUCTION .................................................................................................1
1.1 Background ......................................................................................................1
1.2 The place of ANA in the Action Plan to 2014 ...................................................4
1.3 Clarification of key concepts ..........................................................................7
1.4 Research problem and purpose ..................................................................10
1.5 Aim and objectives .......................................................................................13
1.6 Research questions .......................................................................................13
1.7 Theoretical framework for the study ............................................................15
1.8 Research methodology and design ...............................................................16
1.8.1 The case study method ...........................................................................16
1.8.2 Sampling .....................................................................................................16
1.8.3 Data collection and analysis ...................................................................17
1.9 The relationship between the Provincial office and districts .........................22
1.10 Threads of institutional support, assessment and curriculum support ..........23
1.11 Theory of change .........................................................................................24
1.12 Significance of the study ...........................................................................26
1.13 Limitations of the study ............................................................................27
1.14 Ethical issues ...............................................................................................27
1.15 Organisation of chapters ...........................................................................28
LARGE-SCALE STUDENT ASSESSMENT .........................................................30
2.1 Introduction ...................................................................................................30
2.2 Assessment system and purpose ................................................................31
2.3 Structure of an assessment system ...............................................................31
2.3.1 Classroom assessments ........................................................................33
2.3.2 Public examinations ................................................................................36
2.3.3 Assessment Surveys ..............................................................................38
2.3.4 School Evaluations ..............................................................................41
2.3.5 Value of different types of assessment ....................................................42
2.4 Features of an assessment system .................................................................43
2.4.1 Principles for an integrated assessment system ........................................43
2.4.2 Quality enablers of an assessment system ...............................................44
2.4.3 Building a more effective assessment system ..........................................45
CHAPTER THREE
DATA-DRIVEN DECISION MAKING AND INTERVENTIONS

3.1 Introduction ............................................................................. 73
3.2 Districts .................................................................................. 73
3.2.1 History of education districts ............................................. 74
3.2.2 Role of districts .................................................................. 74
3.2.3 Attributes of effective districts ......................................... 76
3.3 Data-driven decision making .................................................. 78
3.3.1 Types of data ...................................................................... 79
3.3.2 Selection of appropriate data .............................................. 79
3.3.3 Culture of data use ............................................................. 80
3.3.4 Leadership in data use ....................................................... 81
3.3.5 Resources for data use ...................................................... 81
3.3.6 Skills in data use ............................................................... 83
3.4 Conceptual frameworks for data use ...................................... 83
3.5 Interventions ........................................................................... 87
3.5.1 Types of interventions ....................................................... 88
3.5.2 Interventions in district development programmes in SA: 2000-2008 .................................................. 89
3.6 Conclusion .............................................................................. 92

CHAPTER FOUR
RESEARCH METHODOLOGY .......................................................... 93
4.1 The case study method ............................................................ 93
4.2 Sample for the study ............................................................... 94
4.3 Interviewees and data collection ............................................ 95
4.4 Interview instruments ............................................................ 97
4.5 Collection and data analysis ................................................... 98
4.6 Validity and trustworthiness ................................................... 100
## Table of Contents

4.7 Conclusion .................................................................................................................. 101  

CHAPTER FIVE .................................................................................................................. 102  
RESEARCH FINDINGS ....................................................................................................... 102  

5.1 Introduction and purpose .......................................................................................... 102  
5.2 Data collection and analysis: Province P1 ............................................................... 102  
5.2.1 Provincial interview (Director: Curriculum - Province P1) ............................... 102  
5.2.2 District interviews in D1 .................................................................................. 105  
5.2.3 Interviews with Circuit Managers CM1 and CM2 in district D1 ...................... 114  
5.3 Data collection and analysis: Province P2 ............................................................... 116  
5.3.1 Provincial interview (Chief Education Specialist: Quality Assurance) .......... 117  
5.3.2 District interviews (D2) ................................................................................. 119  
5.3.3 Circuit Managers (CM3 and CM4) in district D2 ........................................... 127  
5.4 Data collection and analysis: Province P3 ............................................................... 128  
5.4.1 Provincial interview (Director: Curriculum - Province P3) ............................ 129  
5.4.2 District interviews (D3) .................................................................................. 131  
5.4.3 Circuit Managers (CM5 and CM6) in district D3 ........................................... 135  
5.5 Findings from the DBE interviews on policy directives ........................................ 138  
5.6 Cross-province findings in provinces P1, P2 and P3 ............................................. 141  
5.6.1 Analysis and interpretation in Provinces ........................................................ 142  
5.6.2 Leadership, coordination and organisation .................................................... 143  
5.6.3 Conditions that promote or hinder effective use of ANA information .......... 145  
5.7 Cross district analysis ............................................................................................ 146  
5.7.1 Structures and processes for ANA data analysis .......................................... 147  
5.7.2 Analysis of ANA data by the Assessment Units .......................................... 148  
5.7.3 Interpretation and use of ANA information by the curriculum units .......... 148  
5.7.4 Conditions constraining effective data use in the districts ....................... 151  
5.8 Cross circuit analysis ............................................................................................... 152  
5.8.1 Use of ANA results by circuit managers to support principals ..................... 153  
5.8.2 Use of ANA results by circuit managers ....................................................... 154  
5.9 Contribution to new knowledge: frameworks, policy and practices .................. 156  
5.9.1 Data-use framework to guide use of ANA information ................................ 156  
5.9.2 Leadership by the province in using ANA and other data ............................. 158  
5.9.3 The use of ANA information at circuit level ................................................. 159  
5.9.4 Student grouping using ANA information .................................................... 160  
5.9.5 On-going training and support in data use .................................................... 161  
5.9.6 Integrated use of multiple data types ............................................................ 162  
5.10 Summary and conclusion ....................................................................................... 163  

CHAPTER SIX .................................................................................................................. 166  
CONCLUSION .................................................................................................................... 166  

6.1 Introduction ................................................................................................................ 166
6.2 Re-statement of research questions ................................................................. 168
6.3 Research design ............................................................................................... 169
6.4 Theoretical and conceptual issues .................................................................. 170
6.5 Key findings and recommendations ................................................................. 171
6.5.1 Use of ANA information by the Provincial Directorate for Curriculum .......... 171
6.5.2 Use of ANA information by the District Assessment Unit ............................. 172
6.5.3 Use of ANA information by the District Curriculum Unit and SAs ............... 172
6.5.4 Interpretation and use of ANA information by the Circuit Managers .......... 173
6.5.5 Recommendations for policy direction by the DBE ....................................... 173
6.6 Suggestions for further research ...................................................................... 175
6.7 Conclusion ....................................................................................................... 176
References ............................................................................................................. 178
Annexure 1: Information leaflet and informed consent form ................................ 204
Annexure 2: Interview instrument for DBE Officials responsible for (a) Assessment and (b) GET Curriculum ................................................................. 208
Annexure 3: Interview instrument for Provincial Director: Curriculum .................. 209
Annexure 4: Interview instrument for District Head of Assessment and Examinations .............................................................................................................. 211
Annexure 5: Interview instrument for District Head of Curriculum and Subject Advisers ........................................................................................................ 215
Annexure 6: Interview instrument for Circuit Manager .......................................... 217
List of tables

<table>
<thead>
<tr>
<th>Table Number</th>
<th>Title</th>
<th>Page number</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.1</td>
<td>ANA mean percentage scores for 2012 to 2014</td>
<td>3</td>
</tr>
<tr>
<td>1.2</td>
<td>ANA outputs and targets from the MTSF</td>
<td>6</td>
</tr>
<tr>
<td>1.3</td>
<td>ANA Time-table</td>
<td>11</td>
</tr>
<tr>
<td>1.4</td>
<td>Case selection</td>
<td>17</td>
</tr>
<tr>
<td>1.5</td>
<td>Line functions and responsibilities for the use of ANA information</td>
<td>18</td>
</tr>
<tr>
<td>1.6</td>
<td>Realised sample</td>
<td>19</td>
</tr>
<tr>
<td>1.7</td>
<td>Research questions, data collection methods and sources of data</td>
<td>20</td>
</tr>
<tr>
<td>2.1</td>
<td>Framework to build a more effective assessment system</td>
<td>46</td>
</tr>
<tr>
<td>2.2</td>
<td>Stages of development of an assessment system: classroom assessment</td>
<td>47</td>
</tr>
<tr>
<td>3.1</td>
<td>Example of data in each category</td>
<td>80</td>
</tr>
<tr>
<td>3.2</td>
<td>Summary of features of three models on data use</td>
<td>89</td>
</tr>
<tr>
<td>3.3</td>
<td>Summary of interventions used in the district development projects in</td>
<td>91</td>
</tr>
<tr>
<td></td>
<td>South Africa from 1995 and 2008</td>
<td></td>
</tr>
<tr>
<td>4.1</td>
<td>Three provinces, three districts and six circuits</td>
<td>97</td>
</tr>
<tr>
<td>4.2</td>
<td>Three districts and subject advisers</td>
<td>98</td>
</tr>
<tr>
<td>4.3</td>
<td>Realised sample of interviewees in three provinces</td>
<td>98</td>
</tr>
<tr>
<td>4.4</td>
<td>Instrument types and research questions</td>
<td>99</td>
</tr>
<tr>
<td>5.1</td>
<td>Comparison of school performance with four levels of system</td>
<td>138</td>
</tr>
<tr>
<td>5.2</td>
<td>Frequency of grade 5 learner scores in performance levels</td>
<td>162</td>
</tr>
</tbody>
</table>
List of figures

<table>
<thead>
<tr>
<th>Figure Number</th>
<th>Title</th>
<th>Page number</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.1</td>
<td>Elements of the research problem</td>
<td>12</td>
</tr>
<tr>
<td>1.2</td>
<td>Interviewees selected from province, district and circuit</td>
<td>21</td>
</tr>
<tr>
<td>1.3</td>
<td>Co-ordination, monitoring and support</td>
<td>23</td>
</tr>
<tr>
<td>1.4</td>
<td>Three key school support threads</td>
<td>24</td>
</tr>
<tr>
<td>1.5</td>
<td>Theory of change to improve learner achievement</td>
<td>25</td>
</tr>
<tr>
<td>2.1</td>
<td>The four elements of a student assessment system</td>
<td>32</td>
</tr>
<tr>
<td>2.2</td>
<td>Tiers of assessment</td>
<td>34</td>
</tr>
<tr>
<td>2.3</td>
<td>Relationship between utility value and assessment types</td>
<td>42</td>
</tr>
<tr>
<td>3.1</td>
<td>Data warehouse and user points at districts</td>
<td>83</td>
</tr>
<tr>
<td>3.2</td>
<td>Andersen et al model for data use</td>
<td>86</td>
</tr>
<tr>
<td>3.3</td>
<td>Mandinach et al model for data use</td>
<td>87</td>
</tr>
<tr>
<td>3.4</td>
<td>Ronka et al theory of action for data use</td>
<td>88</td>
</tr>
<tr>
<td>3.5</td>
<td>Map of area for improvement to intervention actions</td>
<td>90</td>
</tr>
<tr>
<td>4.1</td>
<td>Data analysis process</td>
<td>101</td>
</tr>
<tr>
<td>5.1</td>
<td>Engagement with ANA information by three units</td>
<td>144</td>
</tr>
<tr>
<td>5.2</td>
<td>Flow of ANA data and reports</td>
<td>146</td>
</tr>
<tr>
<td>5.3</td>
<td>Conceptual Framework for data use</td>
<td>159</td>
</tr>
<tr>
<td>5.4</td>
<td>Four data types</td>
<td>165</td>
</tr>
<tr>
<td>5.5</td>
<td>System development in use of ANA information</td>
<td>167</td>
</tr>
<tr>
<td>6.1</td>
<td>Broad areas in education brought together</td>
<td>169</td>
</tr>
<tr>
<td>6.2</td>
<td>Macro-level cycle of ANA</td>
<td>171</td>
</tr>
</tbody>
</table>
CHAPTER ONE
INTRODUCTION

1.1 Background
Since the installation of the new democratic government in 1994, the South African education system has undergone numerous changes, the majority of which were aimed at systemic transformation. Four of the key policy initiatives launched since 2010, and relevant to this study are (a) the Curriculum and Assessment Policy Statement (RSA, 2011a), (b) Teacher Development policy (DBE and DHET, 2011f), (c) Annual National Assessments (RSA, 2008), and (d) policy on the Organization, Roles and Responsibilities of Education Districts (RSA, 2013).

This research study firstly, examines the policy directives given by the Department of Basic Education (DBE) to Provinces on the use of Annual National Assessments (ANA) information, secondly, investigates the use of ANA information by provinces to lead and co-ordinate strategies to improve teaching and learning, and thirdly, explores how districts and circuits analyse, interpret and use ANA results in order to select and implement interventions to improve teaching and learning in schools. The effectiveness of the interventions may be measured in subsequent annual national assessments, provided the assessment instruments are designed to allow for comparison over years. Repeated cycles of intervention, assessment, diagnosis and corrective action are expected to improve teaching and learning, thereby leading to higher levels of learner performance and achievement.

The basic premise of this thesis is that the effective use of Annual National Assessment (ANA) results by the DBE at the national, provincial, district and circuit level in South Africa is likely to result in more informed and, by implication, better decision-making on the type of school support strategies and interventions employed to improve teaching and learning of languages and mathematics in the general education and training (GET) band.

Within the current context of education in South Africa, teachers, principals and district officials in the system are expected to collect and use a range of assessment
data from schools, as well as from external sources such as national, regional and international assessment bodies for educational improvement and monitoring (DBE, 2011b; Howie, 1997; Moloi and Strauss, 2005; Murimba, 2005). However, little is known about the way in which collected information, particularly information on the ANA results, is used when provinces, districts and circuits choose interventions aimed at the improvement of learning outcomes. This study seeks to fill that gap by investigating how ANA results are used, under-used or not used by provinces and districts¹ (including circuits) to design (and implement) interventions for supporting schools to improve learning and teaching.

The central question of this thesis is: how is ANA data collected, analysed, interpreted and used by provinces, districts and circuits to design and implement interventions intended to improve teaching and learning in languages and mathematics in the GET band. In the context of this study, ‘use’ (of assessment data), refers to firstly, the creation of a conducive environment for data utilisation, secondly, the collection, management and analysis of data and finally, the interpretation of ANA information leading to the selection of appropriate school and teacher support interventions that are planned and implemented to improve learning outcomes.

The search for an answer on the effective use of ANA data is crucial and urgent in light of the low levels of learner achievement in languages and mathematics in South African primary schools, especially in schools serving poor learners (Spaull, 2011; Van der Berg, 2008; Chisholm, 2004), and the investment of R150-200 million on ANA (Telephonic confirmation with a DBE official on 17 October 2014). As illustrated in Table 1.1, the learning outcomes in languages and mathematics remain unacceptably low for the country.

¹ Mention of a district will imply inclusion of circuits unless otherwise stated.
Table 1.1 ANA mean percentage scores for 2012 to 2014 (DBE, 2014b: 3)

<table>
<thead>
<tr>
<th>Year</th>
<th>Grade 3</th>
<th>Grade 6</th>
<th>Grade 9</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>HL</td>
<td>Maths</td>
<td>EFAL</td>
</tr>
<tr>
<td>2012</td>
<td>52</td>
<td>41</td>
<td>36</td>
</tr>
<tr>
<td>2013</td>
<td>51</td>
<td>53</td>
<td>46</td>
</tr>
<tr>
<td>2014</td>
<td>56</td>
<td>56</td>
<td>45</td>
</tr>
</tbody>
</table>

During 2010, in a renewed effort to raise education quality in the country, the Ministry of Education and the Department of Basic Education introduced the *Action Plan to 2014* which stipulates input, process and output goals, with milestones and targets, for the period 2010-2014 (DBE, 2010a). ANA is expected to be the tool for monitoring progress in meeting the goals. The Medium Term Strategic Framework for 2014-2019 highlights the central role of ANA in monitoring system performance. Furthermore, the use of regular annual national assessments to track improvements in the quality of teaching and learning is stated as sub-output 3 (DPME, 2013), wherein the following four uses are indicated:

- Feedback to parents with the intention of getting inputs to improve ANA results;
- Incorporation of findings into school improvement planning;
- Use of findings to decide on teacher development initiatives; and
- Identification of schools for support and, importantly, the type of support to be provided by districts.

The Action Plan also highlights the role of districts in raising learner performance. Goal 27 of the Action Plan calls for improving “the frequency and quality of the monitoring and support provided by district offices to schools” to be measured by the “percentage of schools visited at least twice a year by district officials for monitoring and support purposes” (DBE, 2010a: 32). The effective use of ANA information is clearly one of the means to achieve goal 27.

Another key element of the education sector plan is the Annual National Assessments (ANA) which tests learners in Grade 1 to 6 and 9 learners in language and mathematics. While the DBE appears to use the ANA results as progress indicators over the years, it accepts that this is problematic (DBE, 2014b: 15). The limitation on using year on year results for comparisons is due to the use of different
test instruments in each cycle. Schools use ANA results to compare their own performance with their district, province and national results (Curriculum News, 2011).

In practice, the Action Plan and the ANA are intended to exert pressure on the education system to make use of assessment data not only to provide evidence that targets are being met, but to inform strategic decisions regarding the efficient use of human and other resources for addressing the key challenge of improving the quality of education in all South African schools. The next section describes the relationship between the Action Plan and ANA.

1.2 The place of ANA in the Action Plan to 2014

The South African education system is a single, national system with the Department of Basic Education (DBE) responsible for the development of policy and national norms and standards, and the nine provincial governments responsible for education management and governance of schools (Narsee, 2006: 85). Therefore, the DBE sets the national learner achievement targets (percentage or number of learners expected to meet the required level) in the education sector plan, after consultation with provinces. It is the task of the provinces to collectively achieve the national targets by using province-determined education delivery modes (within national policy) and allocated budgets with support from the DBE.

Three categories of learner assessment output goals, indicators and targets are specified in the Action Plan to 2014 (DBE, 2010a). The following three priorities are noted with regard to national and international assessments:

- An annual national assessment (ANA) of learners in language and mathematics in Grades 3, 6 and 9;
- Participation in regional (SACMEQ) and international assessments (TIMSS). Though not used for any indicator in the Action Plan, the data collected through the Progress in International Reading Literacy Study (PIRLS) is important in understanding the goal of improving learning outcomes in grade 5 English.
• Improvement of Grade 12 results (bachelor pass, pass in mathematics and physical science).

The ANA is an important element of the assessment programme in the GET. The DBE envisages the impact of ANA as follows (Department of Basic Education, 2010a: 49):

• Teachers will be exposed to better assessment practices in schools;
• Districts will be able to offer support to targeted schools;
• Outstanding performance will be celebrated;
• Parents will receive reports on how well or poorly their children performed;

Additionally, the DBE envisages that the ANA allows for diagnosis of factors associated with better learner performance and could inform the design of in-service and pre-service teacher development programmes.

The genesis of ANA is found in the Foundations for Learning campaign (RSA, 2008: 6-7), which lays down two minimum expectations in relation to assessment. The first requires schools to assess, track and record learner progress and achievement in key areas of reading, writing and numeracy. The second expectation is that nationally, learners will undergo annual assessments in literacy and numeracy at the end of Grades 3, 6 and 9, with standardised tests being used to measure progress towards achievement of set targets from 2008 to 2011. However, with the introduction of the Action Plan to 2014, the emphasis on the annual assessment changed to include grades 1-6 and 9 in language and mathematics and to continue into the foreseeable future (Motshekga, 2014).

The expectations espoused in the Foundations for Learning Campaign are reflected in the Action Plan for 2014, with specific reference to the output goals for learner performance. The output goals in the Action Plan for the General Education and Training Band (Grades R to 9) are in two key subjects, namely, language and mathematics.
For the regional (SACMEQ) and international (TIMSS) assessment surveys, the baseline target scores for goals 7-9 are: 495 for goal 7, 495 for goal 8 and 264 for goal 9; the targets for goals 7-9 are set by benchmarking with other countries in Southern Africa and in Latin America (DBE, 2010a: 50). Table 1.2 presents the grades, goal number, output goals and 2019 targets set for the national, regional and international assessments in Medium Term Strategic Framework (DPME, 2014).

Table 1.2 ANA outputs and targets from Medium Term Strategic Framework (DPME, 2014)

<table>
<thead>
<tr>
<th>Grades</th>
<th>AP Goal</th>
<th>Output goal</th>
<th>Target to be achieved by 2019</th>
</tr>
</thead>
<tbody>
<tr>
<td>3, 6 and 9</td>
<td>1</td>
<td>Percentage of grade 3 learners who achieve at least 50% for Language and Mathematics in the ANA</td>
<td>75%</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>Percentage of grade 6 learners who achieve at least 50% for Language and Mathematics in the ANA</td>
<td>75%</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>Percentage of grade 9 learners who achieve at least 50% for Language and Mathematics in the ANA</td>
<td>75%</td>
</tr>
<tr>
<td>6 (SACMEQ)</td>
<td>7 and 8</td>
<td>Average score obtained by Grade 6 learners in language and mathematics in the SACMEQ assessment</td>
<td>550</td>
</tr>
<tr>
<td>8 (TIMSS)</td>
<td>9</td>
<td>Average score obtained by Grade 8 learners in mathematics in the Trends in International Mathematics and Science Study (TIMSS)</td>
<td>401</td>
</tr>
</tbody>
</table>

Note: Goals 7-9 seek to go beyond achievement of minimum competency; it is meant for learners who perform exceptionally well and those who demonstrate potential to do well.

For districts to offer high quality ‘support to targeted schools’, the pre-requisite, amongst others, is a thorough analysis of ANA results to identify those schools in need of additional support in specific grades, subjects, sections of the curriculum and for teachers and learners. In essence, the study investigates the expectation that districts engage in deep and thorough analysis of the ANA results in order to arrive at effective school level interventions aimed at raising learner performance, as specified in the guidelines for the interpretation and use of ANA results (DBE, 2012a).

A key expectation regarding the ANA pertains to its current use by schools, circuits, districts, provinces and the DBE, as a means of improving learning outcomes. The multiple uses of the ANA results are highlighted as follows (DBE, 2012a: 5-6):
Providing the DBE with the information needed for the identification of areas where attention is required to improve learning success;  
Assisting provincial and district offices to identify schools in need of resources to improve learner performance;  
Informing government and the public on the attainment of learners in literacy and numeracy  
Providing teachers with information early in the year to help them make informed planning decisions;  
Providing learner performance information to school governing bodies (SGBs) and parents in general to enable them to support schools in improving learner achievement;  
Providing an appropriate benchmark which teachers could use in the development of assessment tasks; and  
Assisting school management teams to select and implement school-based interventions aimed at improving learner performance in language and mathematics.

The next section provides clarification on the meaning of key concepts used in this study.

1.3 Clarification of key concepts
The meaning of key concepts used in this study is explained here to ensure clarity and uniformity of understanding and interpretation:

1.3.1 Education District
The term, 'education district' “is used to refer to an administrative and support unit, led by a district director from a district office closest to schools” (Mphalele, 1999). The education district gets direction from the province and co-ordinates the work of circuits and schools in curriculum implementation (Chinsamy, 2002).

1.3.2 Sub-directorate
A ‘sub-directorate’ is a sub-unit of the district which is usually led by a Deputy Director or a Chief Education Specialist with responsibility for an area of
specialisation (for example, curriculum or examinations and assessment), reporting to the District Director.

1.3.3 Circuit
A ‘circuit’ is a cluster of schools (varies from 25 – 40) led by a circuit manager from a circuit office, established to reduce the span of control of a district office and to provide front-line services to schools. The policy norm is that a district comprises 10 to 12 circuits (RSA, 2013).

1.3.4 School support
‘School support’ is conceptualised as a planned process undertaken by district and circuit officials in response to the needs of schools regarding resource provisioning, teaching, learning, assessment, management and governance. Support pertaining to teaching, learning, assessment and curriculum management is regarded as curriculum support; whilst support relating to learning and teaching support materials (LTSM) provisioning, school funding, management and governance are regarded as institutional support.

Curriculum support could take one of three forms or a combination thereof, namely (a) training in new skills or introduction of new policy, (b) follow-up support to assist with policy implementation and (c) monitoring and support to turn around poor performing schools.

1.3.5 Learner achievement
‘Learner achievement’ refers to the extent to which learners achieve nationally determined academic standards and is generally used as a proxy for education quality. Learner performance in the sector is usually measured in language and mathematics at the exit points (Grades 3, 6 and 9) of specific school phases (foundation phase, intermediate phase and senior phase in the General Education and Training Band (GET) and Grade 12 examination results in the Further Education Band (FET). According to the DBE (2014b), the Annual National Assessments is a tool that measures learner achievement in language and mathematics in the General Education and Training Band, thus providing an indicator of education quality in the system.
1.3.6 District Head of Curriculum
The ‘district head of curriculum’ is the person in charge of the curriculum sub-directorate in the district. S/he reports to the district director.

1.3.7 District Head of Assessment
The ‘district head of assessment’ is the person in charge of the assessment sub-directorate in the district. S/he reports to the district director.

1.3.8 District curriculum official
The term, ‘district curriculum official’ refers to any person who is a member of the curriculum sub-directorate. S/he reports to the district curriculum head and is primarily responsible for supporting schools and teachers in teaching, assessment and learning and often co-ordinates/directs the Subject Advisers in a subject or group of subjects.

1.3.9 Curriculum or Subject Adviser (referred to as the Senior Education Specialist)
A ‘curriculum adviser’ is an official who is a subject or phase specialist (GET or FET) with key responsibilities for supporting teachers in subject content knowledge, pedagogy, use of resources and learner assessment. Examples of Subject Advisers are: the Foundation Phase Subject Adviser or the Mathematics Subject Adviser (Intermediate and Senior Phase) or English Subject Adviser (Further Education and Training).

1.3.10 Systemic reform
In this study, a distinction is made between ‘systemic reform driven at national level’ and ‘systemic reform driven at provincial level’; both types are tri-level. For national systemic reform, the three levels are: (a) the provincial department, (b) districts, and (c) schools. For provincial systemic reform, the three levels are (a) district, (b) circuits and (c) schools.

1.3.11 Strategic Plan
A ‘strategic plan’ sets out the Department’s policy priorities, programmes and project plans for a five year period, as approved by its member of the executive committee (MEC), within the scope of available resources (Department of National Treasury,
The MEC for Education is the political head responsible for the education budget and reports to the Premier of the Province.

1.3.12 Annual Performance Plan
An ‘annual performance plan’ (APP) sets out what the Department of Basic Education or the Provincial Education Department intends to do in the upcoming financial year and during its Medium Term Expenditure Framework (MTEF) to implement its strategic plan (Department of National Treasury, 2010: 7).

1.3.13 District improvement plan
The ‘district improvement plan’ sets out the activities to be implemented by the district in line with the province’s Annual Performance Plan (APP) and its own priorities. It enables officials to plan, co-ordinate and monitor the delivery of support and development opportunities in the schools (ELRC, 2002:14).

1.3.14 Work plans
A ‘work plan’, which is linked to the district/circuit improvement plan, describes what individual staff members (for circuit managers and curriculum officials) expect to achieve and consists of key objectives, action strategies and performance indicators (ELRC, 2002).

1.4 Research problem and purpose
The introduction of the ANA in South Africa ushered a new era in the use of assessment as an additional systemic education reform mechanism for raising learner performance in language and mathematics. As with any new policy, its success depends primarily on the creation of suitable conditions for implementation and the implementation itself. Four of the key requirements for successful implementation of ANA are: the development of policy and guidelines, supporting an organisational culture for change, developing human capacity and the provision of resources. The time-table for the annual national assessment process which contributes to establishing an organisational culture for the implementation and use of ANA, is shown in Table 1.3.
### Table 1.3 ANA Time-table

<table>
<thead>
<tr>
<th>September</th>
<th>October-November</th>
<th>December</th>
<th>January-March</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANA testing in all</td>
<td>Marking at schools, provincial sample-based moderation and</td>
<td>Release of ANA results and report by the Minister.</td>
<td>Analysis, interpretation and use of ANA results</td>
</tr>
<tr>
<td>schools in nine</td>
<td>verification by a service provider using another sample.</td>
<td>Release of the Diagnostic Report</td>
<td>by provinces, districts and schools.</td>
</tr>
<tr>
<td>provinces. Tests</td>
<td>Compilation of a report by DBE.</td>
<td></td>
<td>Development and review of intervention plans by</td>
</tr>
<tr>
<td>in language and</td>
<td></td>
<td></td>
<td>provinces, districts and schools.</td>
</tr>
<tr>
<td>mathematics from</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>grade 1 to 6 and 9.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

After the release of the ANA report at the end of an academic year (December), provinces and districts are expected to interpret, analyse and use the information to develop new interventions or continue with previous interventions aimed at the improvement of learner performance. In addition to receiving the national report, districts are expected to collect ANA result sheets from schools which contain individual learner results in language and mathematics to establish a comprehensive set of ANA data at the end of each academic year.

The DBE guidelines on the ‘interpretation and use of ANA results’ explains the use of ANA results at four different levels, namely, school, district, province and national (DBE, 2012a). At the circuit level, guidelines cover the analysis of school performance, the identification of under-performing schools and the actions to take in supporting under-performing schools (DBE, 2012a: 16). Curriculum advisers are required to diagnose reasons for poor performance at identified schools and to address subject-related issues through training and support in teaching and assessment (ibid). However, the role of the district office is not specified in the guideline document. This omission leaves district officials without guidance, yet they are responsible for setting the vision for, and providing leadership to, circuit managers and curriculum advisers on school interventions.

Herein lies the research problem, namely, the implicit assumption that teachers, principals, district officials and provincial administrators are able to organise and manage ANA data, undertake the analysis and interpretation, take strategic decisions informed by the data, develop appropriate interventions and then package interventions into district and school improvement plans to improve teaching and
learning. However, in practice, this is not a neat linear process but is mediated by individual and collective interpretation and shaped by organisational and political conditions (Coburn, Honig and Stein, 2009). Furthermore, observations\(^2\) and anecdotal evidence from district officials in Province P1 indicates that there is a ‘skills gap’, particularly with regard to computer skills, manipulation of assessment data and analytical skills to diagnose problems with greater accuracy, which would normally be the basis for selecting a particular set of interventions to raise learner performance. The inadequacy of districts to make good use of assessment information is not peculiar to Limpopo. Several international studies on the use of assessment data by districts reveal the same limitation (Wayman, Cho and Johnston, 2007; Scott, 2002; Underwood, Zapata-Rivera and Van Winkle, 2010; Earl and Fullan, 2003; Kerr, Marsh, Ikemoto, Darilek and Barney, 2006; Lafee, 2002: 6).

The research problem entails the investigation of: (a) policy directives issued by the DBE, (b) the way in which provinces guide implementation of policy on national assessments at district level on the basis of directives from the DBE, (c) the manner in which districts analyse and interpret ANA results, and (d) how interventions are identified / developed to support teaching and learning in schools (See Fig 1.1).

Fig. 1.1  **Elements of the research problem**

---

\(^2\) These observations regarding the skills gap were made by the researcher during the training of district and circuit officials in the period 2010-2012 on district leadership and management, which included a module on data-driven districts and circuits.
1.5 **Aim and objectives**

The aim of this study is to investigate: (a) policy directives and guidelines issued by the DBE on the use of ANA results by provinces and districts as a basis for the development of effective school intervention strategies for improving teaching and learning in schools. Such interventions would generally occur in addition to other interventions, aimed at the improvement of curriculum monitoring, oversight and support.

The specific objectives of the research study are to:

- Identify policy directives issued by the DBE on ANA data use;
- Ascertain the role of the province in the interpretation of national assessment policy and guidelines, and promotion of the use of assessment information;
- Determine the enabling and inhibiting conditions for data use at the provincial, district and circuit levels;
- Investigate how ANA results are collected, organised, and analysed by districts and circuits when deciding on school support interventions aimed at the improvement of teaching and learning; and
- Determine the content and scope of such interventions.

1.6 **Research questions**

According to Punch (2009: 64), the role of research questions is to organize, and give direction and coherence to a research project; to delimit the project, showing its boundaries; to keep the research focused, to provide a framework for the writing up of the project and to point to the data that will be needed. This study uses five research questions and associated sub-questions to do so:

**Research question 1**: What policy guidelines are issued by the **DBE** to provinces on structures, processes and use of ANA information?

**Research question 2**: How do participating **provinces** interpret, co-ordinate and lead the implementation of the national policy guidelines on ANA?

a) Which policies, structures and processes are in place across provinces to enhance the effective use of assessment information, focusing specifically on the ANAs?
b) How does the provincial office lead, organise and co-ordinate the use of ANA data across districts?

c) What are the conditions that promote or inhibit effective use of ANA data in provinces?

Research question 3: How do the selected districts (Assessment Units) analyse ANA data?

a) How do districts collect, organise and analyse ANA data?
b) What systems, structures and processes are in place to facilitate the effective use of ANA results?
c) What conditions promote or inhibit effective use of ANA data in the assessment unit/ sub-directive?

Research question 4: How do the selected districts (Curriculum units) use ANA information to support teachers?

a) How do Subject Advisers and the Curriculum Head interpret and use ANA information to select strategies to improve teaching and learning?
b) How are the strategies used by Subject Advisers to support teachers to improve teaching and learning?
c) What conditions promote or inhibit effective use of ANA data in the curriculum unit/ sub-directive?

Research question 5: How do Circuit Managers support schools in the use of ANA information?

a) How do Circuit Managers support principals in the use of ANA reports and ANA results?
b) How do circuit managers use (disseminate and report) ANA results to mobilise SGBs and parents to support the improvement of learning outcomes?
c) What conditions promote or inhibit effective use of ANA data by circuit managers?

The five questions and sub-questions help to unravel the process wherein ANA data is gathered, analysed, interpreted and used, in deciding on a range of possible
interventions to ultimately improve learning outcomes at the classroom and school levels. The next section provides a summary of the theoretical framework used to guide the study. The framework is explained in greater detail in chapter three.

1.7 Theoretical framework for the study

A theoretical framework is an abstract model which allows the researcher to explore the relationships among variables in a logical and prescribed fashion (Anderson and Arsenault, 2002: 57). It also informs the reader of the study’s substantive focus and purpose (Marshall and Rossman, 2010: 57), in addition to further clarifying the research problem (Ethridge, 2004: 128).

In a paper written by Ronka, Geier and Marciniak (2010), after a review of fifteen case studies published between 2002 and 2009 on data use by districts, the authors propose a theory of action to support data-driven decision making at the level of districts. The theory of action links the conditions necessary for data use to the types of decisions that can be informed by data to improve student outcomes. Another framework proposed by Anderson, Leithwood and Strauss (2010: 294) conceptualises student learning as the dependent variable, influenced most directly by the decisions and actions of school principals and their staffs. The types of evidence available to the school and conditions that influence how evidence is interpreted and used, are the variables that shape the processes used by principals and their colleagues in their decisions and actions. A third framework, proposed by Marsh (2012) places emphasis on raw data that must be organized, filtered, and analysed to become information, and then focuses on how this information should be combined with stakeholder understanding and expertise to become actionable knowledge.

The theoretical framework described in chapter 3 is developed from the above three models for data use to guide this study and adapted to the South African policy context. The framework requires the national office, province, district/circuits and schools (systemic) to undertake planning for administration of ANA, followed by analysis, interpretation and use of the ANA information to decide on interventions.
1.8 Research methodology and design
Cohen, Manion and Morrison (2007: 78) note that a research design is governed by the notion of ‘fitness for purpose’, meaning that the aim of the research determines the methodology and design of the research.

1.8.1 The case study method
This study uses three selected cases as sources for empirical data. Case studies are common in qualitative research because they lend themselves to in-depth inquiry, a process that yields the thick, rich descriptions required in qualitative research. Consistent with Stake (1995), Kumar (2005) and Yin (2009), case study design suited this study because it enables the researcher to:
- identify and describe the processes that lead to particular decisions in the sampled provinces;
- understand what really happens in the sampled province and district and why this is so;
- understand the context in which sampled provinces and districts make decisions; and
- observe closely how people think, feel, behave and relate to each other; in this instance, during decision making processes relevant to the use of the ANAs.

The case study design also creates opportunities for the researcher to delve deeper into the data collected to uncover tensions, complexities, individual and collective capacities, the organisational culture, and agreements or disagreements of officials interviewed.

1.8.2 Sampling
Unlike quantitative research, where random sampling is acceptable, in qualitative research, sampling is more often than not, purposive in nature. Where this is deemed appropriate, snowball sampling – where each participant refers the researcher to someone else who has relevant information on the problem being researched – could also be used. In this study, three cases, that is, – three provinces (P1, P2 and P3) with a district from each (D1, D2 and D3), were purposively selected to cover both rural and semi-rural districts. Two circuits nested in each of the three
districts were selected based on the availability of circuit managers as shown in table 1.4 below.

**Table 1.4  Case selection**

<table>
<thead>
<tr>
<th>Type</th>
<th>Semi-rural</th>
<th>Semi-rural</th>
<th>Rural</th>
</tr>
</thead>
<tbody>
<tr>
<td>PROVINCES</td>
<td>P1</td>
<td>P2</td>
<td>P3</td>
</tr>
<tr>
<td>DISTRICT</td>
<td>D1</td>
<td>D2</td>
<td>D3</td>
</tr>
<tr>
<td>Circuit</td>
<td>C1 and C2</td>
<td>C3 and C4</td>
<td>C5 and C6</td>
</tr>
</tbody>
</table>

**1.8.3 Data collection and analysis**

A case in this study consists of the provincial office, district office and two circuits. It follows that data should be collected at each of these levels. Using purposive sampling, eight officials were selected as interviewees in each Province: the Director: Curriculum at Provincial level, Head of curriculum unit, Head of Assessment Unit and three Subject Advisors at the District level, and two Circuit Managers in the district. The levels at which each of these officials operate is reflected in Table 1.5 below.

*The Director: Curriculum in the provincial office* is responsible for operational decisions regarding curriculum policy interpretation, as well as leading and monitoring of implementation by schools through the district office. These decisions are taken in consultation with strategic leadership from the Chief Director and Deputy Director General: Curriculum at Provincial and National levels. *The Head of curriculum in the district* is tasked with the overall responsibility to support the implementation of curriculum, assessment and other policies at schools within the district, with direction from the Director for curriculum in the provincial office. *The Subject Advisers*, led by the Head for curriculum are responsible for supporting teachers in either a phase (for example, Foundation Phase) or in a subject (for example, Mathematics). *The Head of Assessment in the district* communicates the ANA results and report to the district management and to schools together with the Circuit Manager. *The circuit manager* is responsible for a group of schools within a demarcated area, known as a circuit. The circuit manager’s primary responsibility is to ensure that schools are well managed, resourced and functional and enjoy the support of SGBs and parents at large.
The officials interviewed during the course of this study were selected on the basis of the line functions they served and their responsibilities for ANA (see Table 1.5 for a summary of these). Additionally, two officials from the DBE, that is at the national level, were also interviewed to obtain an understanding of the policy guidelines stipulated to provinces and districts on the structures, processes and use of ANA information.

**Table 1.5 Line functions and responsibilities for the use of ANA information**

<table>
<thead>
<tr>
<th>Level</th>
<th>Official</th>
<th>Responsibility for ANA</th>
</tr>
</thead>
<tbody>
<tr>
<td>DBE</td>
<td>Directorate: Examinations and Assessment</td>
<td>Lead development of policy on and the implementation of ANA in the country.</td>
</tr>
<tr>
<td></td>
<td>Directorate: Curriculum Implementation and Quality Improvement: GET</td>
<td>Lead policy development and implementation of CAPS in the country.</td>
</tr>
<tr>
<td>Province</td>
<td>Director: Curriculum or official responsible for use of ANA</td>
<td>Operationalisation of policy, policy interpretation, leadership to districts, co-ordination, monitoring implementation and outcomes of teaching and learning.</td>
</tr>
<tr>
<td>District</td>
<td>Head of assessment</td>
<td>Provides leadership in the administration of NSC exams, ANA and other assessments. Additionally, he/she is responsible for the analysis of assessment data that may be used by the curriculum and other units.</td>
</tr>
<tr>
<td></td>
<td>Head of curriculum</td>
<td>Provides leadership to Subject Advisers and district curriculum officials in curriculum delivery, which includes interpretation and use of assessment information.</td>
</tr>
<tr>
<td></td>
<td>Subject Advisers</td>
<td>Provide support in interpretation of CAPS, teaching, learning, use of resources and use of assessment information.</td>
</tr>
<tr>
<td>Circuit</td>
<td>Circuit Managers</td>
<td>Support principals to maintain a conducive environment for teaching and learning and ensuring school functionality.</td>
</tr>
</tbody>
</table>

For the purposes of this study, the plan was to interview two DBE officials, three Provincial Directors for Curriculum, three district heads of Assessment Unit, three district heads of curriculum, nine subject advisers (FP, language and mathematics) and six circuit managers, giving a total of twenty six officials. The interview with the Director for Curriculum in Province P2 and the Head of Assessment in district D3 failed to materialise in the first round of interviews. However, a Provincial official in P2, responsible for ANA, including its use, was interviewed at a later date. The larger number of subject advisors and circuit managers being interviewed can be justified.
as they are the ones who work most closely with schools, interacting with principals and teachers on school management and teaching and learning issues on an almost daily basis. The realised sample of 25 officials for the study is presented in Table 1.6.

**Table 1.6**  **Realised sample**

<table>
<thead>
<tr>
<th>DBE</th>
<th>Province P1</th>
<th>Province P2</th>
<th>Province P3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Directorate: Examinations and Assessment</td>
<td>Director: Curriculum</td>
<td>Chief Education Specialist (ANA)</td>
<td>Director: Curriculum</td>
</tr>
<tr>
<td>Directorate: Curriculum (GET)</td>
<td>Head of Assessment Unit</td>
<td>Head of Assessment Unit</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Head of Curriculum</td>
<td>Head of Curriculum</td>
<td>Head of Curriculum</td>
</tr>
<tr>
<td></td>
<td>3 Subject Advisers</td>
<td>3 Subject Advisers</td>
<td>3 Subject Advisers</td>
</tr>
<tr>
<td></td>
<td>2 Circuit Managers</td>
<td>2 Circuit Managers</td>
<td>2 Circuit Managers</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>8</td>
<td>8</td>
</tr>
</tbody>
</table>

In addition to data collected by means of interviews, the available relevant documents and ANA results were analysed. The use of different tools and/or methods of data collection on a specific matter or issue is referred to as the "multi-method approach" (Kohlbacher, 2006). Commonly used in qualitative research studies, this method not only yields a significant amount of data but also creates the opportunity for triangulation - a data analysis process wherein data collected from multiple sources are compared and/or cross-checked to determine the similarity and accuracy of information gathered (Bush, 2007:100). If this process is properly done, the trustworthiness/reliability of qualitative research processes and the validity of the ensuing research findings can be verified.

The units of analysis in this study are the DBE, provinces, districts and circuits. Unlike quantitative research, where data analysis takes place only on completion of the data collection stage, data collection and analysis in qualitative research is iterative in nature.

Table 1.7 below shows the correlation between the research questions, the data collection methods and the sources of data.
<table>
<thead>
<tr>
<th>Research question</th>
<th>Data collection methods</th>
<th>Sources of data</th>
</tr>
</thead>
</table>
| **Question 1**    | Interview the official from the Directorate: Examinations and Assessment  
  Interview the official from the Directorate: Curriculum (GET) | Assessment Policy  
 National Development Plan (NDP)  
 DBE Reports for 2011-2014  
 Guidelines on use of ANA reports  
 DBE Diagnostic reports for 2013 and 2014 |
| **Question 2**    | Interview of the Director: Curriculum at province.  
 NB: Two directors were interviewed in Provinces P1 and P3  
 Document study. | Field notes and document analysis such as provincial policies, circulars, exemplars, annual performance plans and reports. |
| **Question 3**    | Interview of Heads of Assessment Unit.  
 NB: The Head of Assessment in Province C was not interviewed due to his unavailability at the time of the interview.  
 Document study. | Field notes and district unit plans, reports, guidelines and directives to schools. |
| **Question 4**    | Interview of Heads of the Curriculum Unit.  
 Interviews of three Subjects Advisers per district: Foundation Phase, GET EFAL and Mathematics; nine altogether. | Field notes and unit plans, reports, guidelines, minutes of meetings and directives to schools. |
c) What conditions promote or inhibit effective use of ANA data in the curriculum unit?

<table>
<thead>
<tr>
<th>Question 5</th>
<th>Document study.</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>How do Circuit Managers support principals in the use of ANA reports and ANA results?</td>
<td>Interviews of two circuit managers per district; six altogether.</td>
<td>Field notes and unit plans, reports, guidelines, minutes of meetings and directives to schools.</td>
</tr>
<tr>
<td>a) How do Circuit Managers support schools in the use of ANA reports and ANA results?</td>
<td>Document study.</td>
<td></td>
</tr>
<tr>
<td>b) How do circuit managers use (disseminate and report) ANA results to mobilise SGBs and parents to support the improvement of learning outcomes?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>c) What conditions promote or inhibit effective use of ANA data by circuit managers?</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Four of the five research questions listed in table 1.7 are associated with three levels of the system immediately above the school level: circuit, district and province, while question one focuses on the national level. The position of interviewees is further depicted in figure 1.2 and the relationship between the interviewees across the different levels layers is explained in the next section.

Fig. 1.2 Interviewees selected from province, district and circuit
1.9 The relationship between the Provincial office and districts

The DBE is responsible for, amongst others, developing national policy and guidelines on monitoring and evaluation, namely, ANA, monitoring and supporting provincial implementation of ANA and for reporting ANA outcomes to the Minister (DoE, 1996).

Within the South African education system, the layer closest to schools is the education circuit which is a sub-unit of the district. The policy on district organisation specifies that the core function of the district is to co-ordinate, monitor and support schools in, amongst others, teaching, learning, assessment, school management and governance (RSA, 2013). Co-ordination by districts refers to the integration and alignment of programmes driven by national and provincial policies. The district co-ordinates policy implementation and programmes with a focus on school and learner improvement. The provincial office determines the commencement and pace of policy implementation and also reports on progress and barriers to the DBE. In essence, the Province provides overall direction and impetus to work done at districts.

Policy and programme implementation directives are issued by relevant units in the provincial office to districts. Therefore, districts often act on several instructions from the province. Having served as an official in the Provincial office, my observation is that very often the directives emanating from different offices of the province disrupt implementation of district plans due to poor co-ordination across units in the province. Specifically the Public Service Commission report (2008: viii) notes that 70% of districts visited had a challenge with co-ordination and communication. Good district co-ordination assists educators to view programmes as being inter-related and connected to improve school and learner performance. The district acts like a convex lens that receives light (programmes) coming from different units in the province and makes it converge at a focal point, which is the school, if properly co-ordinated. The diagram in figure 1.3 below illustrates this analogy. The diagram shows the routes for the flow of ANA information and directives from three structures in the province through the three structures (district sub-directorates) before reaching schools.
Additionally, one of the important day-to-day tasks of the district is to monitor and support schools on the implementation of interventions based on assessment and other information received from schools. The district and circuit also respond to a range of problems raised by schools, which implies that there is information flow from schools to the district as well.

1.10 Threads of institutional support, assessment and curriculum support
Three discernible strands relevant to ANA, run from the DBE through the Province and district to the schools. These are the assessment, institutional and curriculum support threads. The three strands represent the routes for monitoring and support, communication flow and co-ordination between school, district and provincial officials, as illustrated in figure 1.4.
The districts and their sub-divisions (circuits) interface with schools. Hence, districts and circuits are aptly situated to deliver professional and administrative services and to act as a conduit for upward and downward communication. Districts execute their functions through authority delegated by the Head of Department to the District Directors. The circuit manager is expected to work closely with the Subject Advisers by identifying areas of need and requesting support for his/her school. The next section presents the theory of change that underpins and justifies the use of ANA information to improve learning outcomes.

1.11 Theory of change
The ultimate goal of monitoring and support of schools by districts is to raise learner achievement. Education systems are prioritising the development of assessment systems in pursuit of improving the quality of learning (Sayed and Kanjee, 2013: 373). Specifically, one pathway is the use of ANA results as a basis for deciding on
the most appropriate set of district interventions that will improve learner achievement.

A theory of change (see Figure 1.5) maps out a specific pathway (Weisburd and Snaid, 2005) and outlines the intended components, while clearly specifying the connections among the components (Marion, 2010) for attaining a desired goal. If all the steps of the theory of change are followed within a sound policy context defined by the DBE and the province, there is a high probability that the desired goal of improved teaching and learning could lead to increased learner achievement.

**Fig. 1.5** **Theory of change to improve learner achievement**

Informed by this theory of action, the study argues that:

**If a province/district creates and sustains a culture of data use,** (a) creates a culture of data use, (b) collects and organises ANA information, (c) analyses and interprets ANA results for developing and implementing appropriate interventions to (d) support teaching and learning within schools, **then** learner achievement will improve.

This study investigates all four components of the theory of change: firstly, the conditions or culture for data use; secondly, the management and analysis of data; thirdly, the interpretation and use of assessment data for planning interventions; and fourthly, the implementation of interventions or plans. It must be noted that the study
does not delve into the effectiveness and impact of the implemented interventions. This could easily be another study on its own.

1.12 Significance of the study

The value of the study lies in unlocking the ‘black box’ on the use of ANA data to contribute to both the theory on assessment, and use of assessment as a systemic management and improvement tool. In this regard, the following contributions are especially significant.

*Firstly*, the study contributes to the current dearth of information on the ways in which provinces and districts analyse and use assessment information when making decisions on interventions related to the monitoring and support of schools (Coburn and Turner, 2012: 99). Of particular significance is the sampling methodology used in the study, to explore a theme (use of ANA information) across four levels of the education sector, namely, DBE, provinces, districts and circuits; which is different from the commonly used approach of investigating a theme at a single level, usually the school level. An example of a multi-level study may be found in Molale (2004) and examples of studies that focus on one level may be found in Gallie (2007) – school level and Ramparsad (2004) – district level.

*Secondly*, the findings of the study contribute to the scholarship on the use of assessment information, specifically in the context of developing nations, as required by policy makers and practitioners to determine the ‘state of knowledge’ in the field of district management and leadership. *Thirdly*, the theoretical model proposed in this study (Chapter 5) could, if used by district officials, lead to an improvement in structures, systems and processes within districts regarding the development of interventions aimed at the improvement of learner performance. *Fourthly*, the implementation of recommendations made in this study could result in the more effective use of ANA information by participating districts in their efforts to support schools towards the improvement of learner performance. *Finally*, the findings and recommendations of this study contribute to the larger debate in South Africa regarding the effective use of data from large-scale assessment studies, and in particular the value and use of the ANAs.
1.13 Limitations of the study

The study is not, however, without limitations. Key amongst these, are the following: Firstly, good management decisions require a range of diverse data and information. This study is about the use of one type of information only, namely results for large-scale assessment surveys (i.e. ANA). Clearly this cannot be the only data source: it must be complemented with other, relevant data.

Secondly, the insights gained from the study do not provide the basis for generalisation. Nevertheless, the study brings to the fore findings that may serve as a point of departure for more extensive studies in the future. The proposed model in Chapter 5 should be used cautiously and adjusted according to the contexts of different districts as it is based on a study of only three out of eighty six districts in the country.

Thirdly, the study does not demonstrate the direct connection between data use and improved learning. This study does not show the correlation or non-correlation between the use of ANA information as one variable (keeping other critical variables constant) and learner achievement; as the outcome of improved learner achievement is a function of a complex set of interconnected variables. It simply delves into the process of data use by districts and circuits, linking this to the enablers and barriers (conditions) that could be a strong contributory factor for the improvement of learning outcomes.

1.14 Ethical issues

The use of the case study method requires researchers to be immersed in the work of people. For participants (education officials) to be forthcoming with information there has to be relationships of trust with the researcher. Following Lichtman (2010), engagements with research participants were structured in terms of the following principles: firstly, consent for the research was obtained from the District Directors and the departmental conditions attached to approval were followed. The ethical principles of research specified by Tshwane University of Technology were adhered to.
The next step was to approach purposively-identified potential research subjects, who were informed that participation in the research is voluntary. The purpose of the study, the time required for interviews and the possible benefits and liabilities of participation were explained to prospective participants during the first meeting. They were assured that what they said would remain confidential and that they could withdraw from the study at any time, without any negative consequences to them should they do so. They were also assured that their identities would not be revealed. They were then free to decide whether or not they wanted to participate in the study.

My observations, experience and perceptions while working in eight districts, two provincial offices and in the DBE for over a decade will, to an extent colour my judgement and approach. Therefore, I made every attempt to remain detached during interviews and data analysis in order to ensure objectivity and fidelity in communicating the views of the respondents and not what I feel or think.

Finally, extreme care was exercised to ensure that data was analysed in a manner that avoided misinterpretations or fraudulent analysis, while reporting of all results was done to ensure confidentiality.

1.15 Organisation of chapters
The thesis is presented using the following chapter breakdown:

Chapter 1: Introduction
The first chapter explains what the study is about and why there is a need for such a study. The research problem and research questions as well as the research design and methodology are articulated. This is followed by an explanation of the theory of change that informs the study. The chapter concludes by outlining the limitations of the study and noting of ethical considerations.

Chapter 2: Large scale student assessment
This chapter locates national assessments within the assessment system of a country’s education system. The literature survey examines national assessment practices in the United States, Ontario in Canada, England, New Zealand, Uganda,
Zambia and South Africa. The chapter also points out that the high-flying South East Asian countries do not make use of national assessments but rely on international assessments to monitor their education systems. Finally, the implications of the findings of the literature review for SA are explained.

Chapter 3: Data driven decision making by districts

This chapter links the three concepts of education districts, data-driven decision making and interventions to improve learning and teaching, as a basis for the study’s conceptual framework.

Chapter 4: Research methodology

The chapter outlines the following four aspects of the research design and methodology: use of the case study method; interview instruments; data analysis and trustworthiness of the study.

Chapter 5: Research findings

This chapter explains the research findings by providing analysis of data collected from each of the three provinces. In addition, cross provincial, cross district and cross circuit analyses depict commonalities and differences in the use of ANA information. The chapter makes six core proposals to improve the use of ANA information by provinces and districts in order to impact teaching and learning.

Chapter 6: Conclusion

This final chapter provides a summary of the findings, recommendations, reflective comments on the study and the conclusion.
CHAPTER TWO
LARGE-SCALE STUDENT ASSESSMENT

2.1 Introduction
Any student assessment system, coupled to the national curriculum, is a critical sub-system of a country’s national education system; in fact, it could be regarded as the core of an education system. According to Wolff (1998) and Flockton (2012: 1), nations across the world believe that the use of an effective assessment system to identify obstacles to learning progress creates opportunities for improvements in the type, depth and breadth of education.

While developing countries are making progress in expanding access to basic education, all countries are constantly searching for reforms that could leverage education quality. Since the 1990s, education quality is no longer measured exclusively in terms of inputs (expenditure on personnel, teacher preparation, resources and infrastructure) but also in terms of outputs that measure learner acquisition of appropriate knowledge, skills, behaviour and attitudes (Kellaghan, 2004: 2-3). By implication, this kind of measurement requires a comprehensive, integrated and balanced assessment system (Darling-Hammond and Wentworth, 2010) which uses a range of assessment types to generate information for use by stakeholders at different levels for particular purposes (comprehensive); aligns assessment tasks closely with the curriculum (integration) and promotes assessment for, of and as learning (balance).

Large-scale student assessment surveys take three forms, namely, national assessments (for example, the ANA in South Africa), regional assessments (for example, the SACMEQ in Anglophone Africa) and international assessments (for example, TIMSS).

The subject of this thesis is the use of ANA results by Provinces and districts in the Republic of South Africa. In this chapter, the literature on assessment systems in general, as well as on national student assessment is summarised, analysed and related to the study. The literature review in this chapter focuses specifically on four aspects, namely:
The purpose, structure and development of more effective assessment systems;
National student assessments in the USA, UK, Canada and Latin America;
National assessments in Uganda, Zambia and in South Africa; and
Assessment in ‘high-flying’ East Asian countries.

The final section of this chapter examines the implications of insights gained from the literature review for this study.

2.2 Assessment system and purpose
There is general agreement that the concept and definition of a student assessment system is a combination of policies, structures, practices, tools and processes implemented, and/or supported, by educators, school managers, administrators and policy makers (Kanjee, 2012: 526; Clarke, 2012b: 1; Braun, Kanjee, Bettinger and Kremer, 2006: 7). Such a system serves the primary purpose of obtaining evidence of learning to: inform teaching and learning, determine student progress from grade to grade, measure achievement, and provide partial accountability information (Kanjee, 2012; Darling-Hammond and Ducommun, 2010:1).

2.3 Structure of an assessment system
Kanjee (2012: 526) defines an integrated assessment system “as a group of interrelated or interdependent policies, practices, structures and processes implemented by stakeholders at the different levels of the education system to obtain and apply evidence about learner performance for certifying or improving learning”. In practice, the generic structure of an assessment system consists of four elements, namely (a) classroom assessment, (b) public or external examinations, (c) national regional and international assessments and (d) school evaluations such as Whole School Evaluations and evaluations conducted by the National Education Evaluation and Development Unit (NEEDU) in South Africa (Kanjee, 2012; Kellaghan and Greaney, 2003; Clarke, 2012a; RSA, 2011b). The results generated by the four elements can be used by persons at different levels of the education system, to make decisions aimed at improved learning outcomes through policy and practice. In South Africa, the only public examination is the National Senior Certificate written at
the end of schooling, in Grade 12. In addition to this public examination, there is a yearly national assessment, referred to as the Annual National Assessment (ANA). The ANA currently assesses the language and mathematics ability of all Grade 1 to 6 and Grade 9 learners. The Minister announced that ANA will be introduced in grades 7 and 8 as from 2015 and the sector will use Umalusi (the quality assurance body) as well as the National Education Evaluation and Development Unit (NEEDU) to strengthen the assessment of learning trends in the education sector in the coming years (Motshekga, 2015). South Africa also participates in the SACMEQ (regional survey) and in TIMSS and PIRLS (international surveys).

An assessment system comprises four elements, firstly, classroom assessment, secondly, public examinations, thirdly, assessment surveys which include national assessments, regional and international assessments and finally, evaluations. The relationship between these elements is graphically illustrated in Figure 2.1 below. The focus of this study is on the use of national assessment results by provinces and districts to improve learning outcomes.

**Fig. 2.1 The four elements of a student assessment system**

A discussion of the four elements that make up a national assessment system follows in the next section.

---

3 Obtained from Kanjee (2012)
2.3.1 Classroom assessments

Classroom assessment comprises on-going or continuous assessment (i.e. assessment for learning) during teaching, seatwork, oral and practical work, homework, projects, short tests and quarterly tests. Some of these assessments are categorised as formative or summative. The on-going assessments, which serve a primarily developmental purpose, are formative, whereas unit and periodic assessments are essentially summative. The primary purpose of formative assessments is to diagnose learning barriers so as to plan and re-teach concepts and skills that learners find difficult to understand and master.

Formative classroom assessment is designed to provide information (feedback) to students so that the gap between where they are and where they need to be relative to a standard may be closed (Orlich et al, 2010: 331; Council for Alberta Teaching Standards, 2006). According to Irons (2008: 19), feedback may be verbal or written but it should enable learning. Formative assessment allows for greater risk taking, experimentation, discussion and development and is well-suited for use in the early stages of learning (Irons, 2008: 19). Black and William (1998: 148), having conducted a comprehensive review of research literature on assessment, came to the conclusion that formative assessment is an essential component of classroom assessment and that its development and use can raise standards of achievement, particularly for low achievers.

Summative classroom assessment provides a summary of achievement at a particular point in the learning process. The results of summative assessments are recorded and reported to students, parents and, where applicable, to the public (Harlen, 2006: 104). Formative assessment, which is low stakes, is unsuitable for aggregation. However, summative assessments, which are usually of higher stakes as there are sanctions and rewards attached, especially for students, is amenable to aggregation and disaggregation for analysis of patterns in performance trends over time.

Formative assessment is useful for providing information on how to adjust instruction in a lesson or in the short-term, but it fails to provide information on student progress in meeting a larger number of standards at the end of a unit or at the end of a school
term. Moreover, formative assessments, on their own, do not have predictive value; but when aligned with summative assessments, they provide teachers with a sense of learner performance in the future (Ainsworth, 2010: 139). This shortcoming of formative assessment is addressed by interim assessments, administered at the end of a school term to track progress and to predict performance in end-of-year or annual national assessments. Interim assessments, sometimes also referred to as cycle tests, are assessments undertaken between the daily assessments and annual examinations (see Figure 2.2).

Perie et al (2007) distinguish between three tiers of assessment – summative, interim and formative – in terms of their intended purposes, target audience and use of information. Whereas Clune and White (2008) define interim assessments in terms of scope only, that is, as assessments that test a slice of the curriculum narrower than national assessments but broader than daily and weekly assessments, Perie, Marion, Gong and Wurtzel (2007) distinguish national assessments from other forms of assessment in terms of two variables - frequency of administration and curriculum coverage. The use of these two variables as differentiation criteria is illustrated in Figure 2.2, with curriculum coverage (scope) represented on the vertical axis and frequency of testing on the horizontal axis.

**Figure. 2.2 Tiers of assessment** *(Adapted from Perie, Marion and Gong in Bulkley et al, 2010:118)*

Perie, Marion, Gong and Wurtzel (2007) define interim assessments and the purpose/s they serve as follows:
They occur between formative and the end-of-year summative assessment;
They evaluate student knowledge and skills covered within a limited time-frame (quarterly);
They are designed to inform decisions at classroom, district and provincial levels;
They can be meaningfully aggregated and reported;
Their timing is largely controlled by policy and managers rather than by teachers;
They are useful for predicting student success or failure (predictive);
They are used to diagnose gaps in student learning (instructional); and
They serve as basis for the evaluation of a programme or pedagogy (evaluative).

In South Africa, interim school-based assessments administered three times per year are usually developed by schools, districts or provinces. The interviews in Province P1 show that the Provincial office sets quarterly tests (grades 3, 6 and 9 in languages and mathematics) which are printed at district level, while in Provinces P2 and P3, each district sets its own quarterly tests. The use of interim assessments is gaining popularity because of the need to predict and improve learner performance in the end-of-year examinations, especially in the NSC and in the ANA in South Africa. This need arises from the expectation that the DBE has on provinces, districts and schools to meet the performance targets stipulated in the Action Plan to 2014. Interim assessments are often used by districts to track progress, monitor performance and provide appropriate support to schools identified as poorly performing in ANA and NSC examinations.

However, a survey conducted by Bulkley, Olah and Blanc (2010) in the US shows that there is little evidence that interim assessment leads to increased student achievement but they do not discard the possibility that it could. According to these authors, there are two ways in which interim assessments could contribute to improved learner performance, a) they could lead to greater student learning by fostering formative assessment practices on the part of teachers; and b) interim assessment data could be used, in addition to teachers, by agents such as
principals, district officials and provincial officials to increase organisational learning. In practice, this suggests that such agents, for example district officials, need to create regular opportunities for teachers to meet, analyse, diagnose problems, decide on interventions and compare results of previous actions.

2.3.2 Public examinations

Not only are public examinations regular, well-established annual occurrences in most countries but they also share the same characteristics (Greaney and Kellaghan, 1995: 1). In most cases, they are nationally or regionally controlled, aligned to a national syllabus, and use paper and pencil tests to assess knowledge and skills. They are also formal in nature, taken on prescribed days under controlled conditions.

The purpose of public examinations, according to Kellaghan (2004: 5) is to:

- control the disparate elements of the education system by ensuring that schools teach to the same standards;
- allocate scarce educational benefits in an objective and unbiased way to students selected for further education;
- fulfil a certification function which gives students access to employment and higher education;
- influence teaching methods, content and assessment;
- serve an accountability function, when results are published; and
- give international mobility for study and work if taken at the end of secondary schooling.

Various researchers (Braun, Kanjee, Bettinger and Kremer, 2006; Kellaghan and Greaney, 2003) have, however, identified a number of shortcomings in the public examinations of developing countries, some of which are:

- The questionable quality of the data collected through the use of unreliable instruments or mediocre administration procedures, which leads to systemic inefficiencies and cynicism among stakeholders;
- The weakness of communication, dissemination and use of examination data for systemic improvement;
• The inadequacy or complete lack of information provided by examinations on whether learners have acquired the skills required to function effectively in a society;
• The considerable advantage for learners who are more familiar with the language of instruction and modes of assessment, resulting in examinations inadvertently promoting inequity; and
• The high stakes attached to public examinations with resultant unwanted consequences such as a narrowing of the curriculum, ‘culling’ (holding back learners who may do poorly), and undue emphasis on test preparation and exclusive focus on teaching content usually tested in examinations.

In their review of education and assessment systems in a number of developing countries, Braun and Kanjee (2006) found that Brazil, Chile, Mauritius and Jordan have introduced systems at different levels that make use of examination results to (a) improve policy formulation and implementation, (b) identify and support low performing schools, (c) develop diagnostic assessments and (d) identify weaknesses in the performance of learners.

In South Africa, the public examination, called the National Senior Certificate (NSC), is written at the end of Grade 12. The NSC is currently managed by the DBE in consultation with the nine Provincial Education Departments. The Provincial heads are responsible for administration, marking and internal moderation, while Umalusi (the Quality Council for GET and FET) takes responsibility for the standardisation and certification of examination results.

Since 2009, reports on the national senior certificate examination results are published early in the following year. The NSC reports consistently highlight three important points, namely, that (a) the examination provides the education system with valuable diagnostic information that should provide feedback on teaching and learning, (b) the report identifies problematic areas that need attention and makes recommendations on how to address these and (c) curriculum and subject advisers are required to study, communicate and discuss the contents of the reports with teachers in subject groups.
2.3.3 Assessment Surveys

Since the 1980s, decision-makers and policy makers in education have attached increasing importance to the development of a coherent system of monitoring and evaluation of educational achievement, especially pupil learning outcomes (Greaney and Kellaghan, 1996: 2). This trend was given greater momentum at the World Education Forum in 2000 through the adoption of the EFA goal number 6 which calls for an improvement in “all aspects of the quality of education … so that recognized and measurable learning outcomes are achieved by all in literacy, numeracy and essential life skills.” (UNESCO, 2000). The result has been a significant increase in the conducting of national assessments and/or participating in regional and international assessment surveys (Sayed and Kanjee, 2013; Benavot and Tanner, 2008).

In Africa, the Monitoring Learning Achievement (MLA), the Southern African Consortium for Monitoring Education Quality (SACMEQ) and the Programme d’Analyse des Systèmes Educatifs de la CONFEMEN (PASEC) are three examples of regional assessments that have been conducted since 1990 (Kellaghan and Greaney, 2004). However, as is the case in South Africa, a number of countries also develop and use their own national assessments.

National Assessments

A national assessment may be defined as an exercise designed to describe the level of achievement, not of individual students (as in examinations) but of either a whole education system or of a clearly defined part of it - for example Grade 3 (Kellaghan, 2004: 6). For the first time in a democratic South Africa, post-1994, such a national assessment was conducted in 2001 and 2004. In a programme titled ‘systemic evaluation’, a sample of learners was tested in grade 3 literacy, numeracy and life skills in 2001 and in grade 6 language, mathematics and science in 2004 (Kanjee, 2007). The systemic evaluation results highlighted two realities, namely, (a) that education quality is poor as indicated by the extremely low levels of performance, and (b) that there is significant correlation between learner performance and education inequalities between the economically advantaged and disadvantaged (Kanjee, 2007: 479-488).
National assessments vary by grades tested, subjects tested, format (sample or census) and frequency across countries. In South Africa, national assessments are conducted from grade 1 to 6 and 9, in languages and mathematics, on a census basis every year. In the USA, the NAEP is sample based and done every four years. In Chile, the national assessments are census based, written by grades 4, 8 and 10 in mathematics, Spanish language and social and natural science (Ramirez, 2012:4).

The annual national assessment (ANA) in South Africa, formally introduced in 2011, demonstrates a fine trade-off between cost, effort and benefits. The DBE leads the development of the test instruments in languages (11 official languages in Grades 1-3, English and Afrikaans in Grades 4-6), and Mathematics in Grades 1 to 6 as well as in Grade 9. The DBE also accepts responsibility for the printing and delivery of test papers with marking memoranda to the 86 districts in the country. Test administration, usually done in September according to a prescribed timetable, is the responsibility of districts and school. Marking is done by teachers, while first level moderation is done at school level and second level remarking is done at centres under the control of the province. The mark schedules of all schools are sent to the provincial centre where learner scores are captured by school and district. This process is referred to as Universal ANA (UANA). Another parallel process called Verification ANA is undertaken by an external Service Provider appointed by the DBE to conduct independent testing, marking, moderation and writing of the ANA report.

Results are released by the Minister in December, after which each province is expected to communicate and disseminate the report to schools and SGBs.

**Regional and international assessments**

International (and regional) assessments, in contrast to national assessments, involve measurement of the educational outcomes of education systems in several countries, usually simultaneously (Greaney and Kellaghan, 1996: 25). These assessments are planned and implemented by organisations, such as the International Association for the Evaluation of Educational Achievement which conducts the Trends in International Mathematics and Science Survey (TIMSS) and Progress in International Reading Literacy Study (PIRLS), Organisation for Economic Cooperation and Development (OECD) which conducts the Programme
for International Student Assessment (PISA), and United Nations Educational, Scientific and Cultural Organisation (UNESCO), which conducts Monitoring Learning Achievement (MLA) in Africa and co-ordinates Laboratorio Latinoamericano de Evaluación de la Calidad de la Educación (LLECE) in South America, SACMEQ (Southern African countries) and PASEC (Franco-phone countries). These assessments are based on the curriculum areas that are common in participating countries and target a particular grade or age. As is the case with national assessments, international assessments include the collection of background information from learners and teachers in particular, to better interpret and understand learning outcomes within a particular context. Schleicher (2010: 488) explains the potential use of international assessments for policy and practice as follows:

- Existing policy may be enhanced or new policy developed by promoting relevant good practices from high performing countries;
- The input-process-outcomes chain when compared to student performance has the potential to make participating countries aware of similarities and differences in education systems;
- International assessments have the potential to help set targets, establish milestones, predict trajectories and plan delivery chains, and gauge the pace of educational progress relative to high performance; and
- International assessments have the potential to trigger education reform due to pressure from the public, media and political parties.

While there are potential advantages in international assessments for participating countries, one needs to also note the problems associated with such assessments. These are summarised by Kellaghan and Greaney (2003) as follows:

- It is difficult to design an assessment tool that adequately accommodates cross-country curricula;
- It is necessary to translate instruments into one or more languages, especially to cater for cultural and linguistic variations;
- Samples from populations may not be equivalent due to retention rates and students in special programs;
• The main focus in international tests is ranking based on the average scores of learners;
• rankings may be misleading if the statistical significance of mean differences in achievement is ignored; and
• One cannot assume that the relationship between inputs, processes and outcomes is the same in participating countries.

2.3.4 School Evaluations
Kanjee (2012) notes that school evaluations provide the avenue within which results from classroom assessments, examinations and assessment surveys can be used to improve the quality of learning and teaching in schools. In South Africa, school evaluations are conducted through two processes: the National Education Evaluation and Development Unit and Whole School Evaluations. The formation of the National Education Evaluation and Development Unit (NEEDU) arose out of the resolution of the 2007 ANC conference (ANC, 2007), followed by an investigation on the matter by the Ministerial Committee which recommended in its report (RSA, 2009), the establishment of NEEDU as a structure at arms-length to the Education Department, but reporting to the Minister. According to the NEEDU Bill (RSA, 2011b), the function of NEEDU is to identify the factors that inhibit or advance school improvement through evaluation visits to schools, districts, provinces, and the National Department. Therefore, the scope of NEEDU, may include, on the one hand, learner evaluations and school evaluations; and on the other hand, evaluation of the quality of school support provided by districts, province and the national department.

Another national evaluation process called Whole School Evaluation (WSE) seeks to evaluate the performance of a national sample of schools using national criteria to obtain a snapshot of the performance of schools. The WSE process collects comprehensive data on the quality of teaching and learning and on the educational standards achieved in the system (RSA, 2001). According to Steyn (2002), WSE aims to help schools measure the extent they are fulfilling their responsibility and improving their performance through self-evaluation and school development planning. With interest in the use of a strengthened Whole School Evaluation process
(DBE, 2015:12), there is an opportunity to intersect ANA data with WSE data to identify ‘high risk’ schools and the specific areas for support.

2.3.5 Value of different types of assessment

From the preceding discussion of the different types of assessment, two critical uses, amongst others, emerge: firstly, they could serve as the basis for the strategic allocation or reallocation of resources; secondly, they could serve as frame of reference for the introduction of new policy or the improvement of existing policy. The utility value of assessment results as a basis for improving teaching and learning is highest when school-based assessments are used, becoming progressively lower as we move towards international assessments, as illustrated in Fig. 2.3. The utility value of school-based assessment is, however, lowest in the area of policy improvement, with the value increasing as one moves towards international assessments. Figure 2.3 also illustrates that high-stakes assessments serve policy makers well in planning and resource allocation, while low-stakes assessments serve teachers well in improving instruction to increase learning.

Fig. 2.3 Relationship between utility value and assessment types

Given the high cost of conducting national assessments and participation in international assessments, decision-makers have to carefully calculate and compare
the benefits that would accrue from investing in assessments as opposed to directing investment into resources such as textbooks and professional development. A decision to undertake national assessments should consider, amongst other factors, the following (Santiago, 2013):

- Political will, support and pressure to improve learning outcomes;
- Funding to conduct national assessments for the coming years;
- Legal mandate;
- Commitment from stakeholders: Unions, Business and parents; and
- Capacity to conduct large scale assessments.

The discussion thus far centred on the four types of assessment normally found in an assessment system.

### 2.4 Features of an assessment system

This section states the principles for an integrated assessment system and then deals with three themes in relation to assessment, namely, (a) principles, (b) quality enablers for an integrated assessment system, (c) how to build a more effective assessment system and (d) the model to evaluate an assessment system.

#### 2.4.1 Principles for an integrated assessment system

Darling-Hammond and Wentworth (2010: 35) observe that high achieving assessment systems in European and East Asian countries are underpinned by the following key principles:

- Assessment is not viewed as a separate, disjointed element of the education system, but highlights assessment for, of and as learning;
- Feedback to students, teachers and schools is used to shape future learning;
- Teachers are involved in the development of curriculum and scoring of national assessments; and
- Student learning in higher-order skills is advanced through the use of a wide range of instructional and assessment strategies.
2.4.2 Quality enablers of an assessment system

Clarke (2012b) argues that the effectiveness of an assessment system depends on the quality of the information generated for decision-making by different stakeholders (parents, students, teachers, district officials and policy makers). Kanjee (2012: 527) cautions that the development of an effective assessment system is, however, a complex and long-term undertaking that requires high investment in human capacity and supporting technology. Clarke (2012a: 9) identifies three main drivers or determinants of assessment information quality, namely an enabling context, system alignment and assessment quality. According to Clarke, the quality driver relating to an enabling context includes at least the following:

- Assessment policies;
- Political and administrative leadership in the implementation of assessment programmes;
- Public engagement through the use of assessment data;
- Institutional capacity and arrangements for the planning and conducting of assessments, as well as for the analysis and use of assessment results;
- Availability of sufficient and stable funding; and
- Availability of competent staff in the assessment unit.

System alignment is evident if there is:

- A clear connection or link between the learning goals, curriculum, pre- and in-service training, development programmes and the four assessment activities described earlier (classroom, exams, national/regional/international assessments and evaluations); and
- Work in other education units (for example, school management unit in the province or district) are aligned to the assessment system in ways that enables these units to use assessment information in the provision of quality education.

Finally, assessment quality is reflected in the:

- Psychometric quality of assessment questions and moderation procedures;
- Quality of analysis, interpretation, reporting and use of assessment results; and
• Technical quality of assessment, with specific reference to its reliability (i.e. the accuracy of the assessment information) and validity (i.e. the extent to which the tests measure intended learning outcomes) and comparability.

The above suggests that it is possible to build a more effective assessment system when there is an enabling context, system alignment and assessment quality is assured. The next section describes how the three quality enablers could be used to build a more effective assessment system.

2.4.3 Building a more effective assessment system

A World Bank initiative, called the Systems Approach to Better Education Results (SABER), provides a framework for and a model on how to build a more effective assessment system (Clarke, 2012a). The framework consists of a matrix of indicators informed by standards, research, theory and practice, while the model illustrates the progressive levels of development (latent, emerging, established and advanced) of an assessment system. Together, according to Clarke (2012a), these two could be used to improve assessment systems in all education contexts. The framework and the model are explained below.

The framework, summarized in Table 2.1, depicts how the four types of assessment, when used in an integrated, balanced and comprehensive manner, may be progressively developed into an assessment system within an enabling environment. That is, an environment in which the alignment between the assessment system and other sub-systems allows for the use of assessment information underpinned by quality assessment methods and processes. The broad indicators for each of the quality drivers of the assessment system are listed in Table 2.1. Moreover, the broad indicators may be reframed into finer-grained indicators at any level of the education system in order to give practical guidance to teachers and managers.

An assessment policy developed within the parameters of the framework will include, amongst others, directives on cross-linking the four assessment types, the uses of assessment data, and methods for ensuring alignment between assessment, curriculum, textbooks and teacher development.
Table 2.1 Framework to build a more effective assessment system

<table>
<thead>
<tr>
<th>Quality drivers</th>
<th>Assessment types</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enabling contextual factors</td>
<td>Classroom assessment</td>
</tr>
<tr>
<td>Assessment policies</td>
<td>• Political and administrative leadership</td>
</tr>
<tr>
<td>• Institutional capacity and arrangements</td>
<td>• Funding</td>
</tr>
<tr>
<td>System alignment</td>
<td>• Assessment link with intended curriculum or standards, taught curriculum and teacher development</td>
</tr>
<tr>
<td>• Assessment and use of results by curriculum and other units in the system</td>
<td></td>
</tr>
<tr>
<td>Assessment quality indicators</td>
<td>• Psychometric qualities and moderation</td>
</tr>
<tr>
<td>• Analysis, interpretation, reporting and use of assessment results</td>
<td></td>
</tr>
<tr>
<td>• Technical qualities</td>
<td></td>
</tr>
</tbody>
</table>

Source: World Bank in Clarke, 2012a

As illustrated in Table 2.1, the framework relates the three assessment types with the three quality drivers of an assessment system. By implication, these drivers could be used to make the assessment system stronger and more coherent so that it could yield reliable assessment information for decision making.

2.4.4 Model to evaluate the assessment system

The assessment component of the SABER programme, developed by the World Bank with funding from Russia Education Aid for Development (READ), seeks to support developing countries to improve their assessment systems in their efforts to improve the quality of learning and student achievement. One of the ways in which this could be done is to use Clarke’s (2012a) theoretical model and process for the improvement of assessment systems. The model described in this section also explores a methodology that could be used to evaluate the developmental level of an assessment system. In her paper on assessment systems, Clarke (ibid) describes a four-step approach that could, if a country chooses to use it, strengthen its assessment system. The first step, according to Clarke, is to design a model of an ideal assessment system applying the framework in Figure 2.1 to each of the assessment types described earlier. In designing this model, descriptors should be framed for each of the four stages (latent, emerging, established and advanced) in

---

4 Marguerite Clarke is a Senior Education Specialist at the World Bank
the development of an assessment system in relation to the dimensions of the three quality drivers, namely, enabling context, system alignment and assessment quality. Clarke (2012b) defines latent as the beginning stage, emerging as on the way to meeting an acceptable minimum, established as acceptable minimum standard and advanced as best practice. Table 2.2, with only classroom assessment indicators shown, serves as an example.

**Table 2.2 Stages of development of an assessment system: classroom assessment**

<table>
<thead>
<tr>
<th>Quality drivers</th>
<th>Latent</th>
<th>Emerging</th>
<th>Established</th>
<th>Advanced</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enabling context</td>
<td>There is no system level document that provides guidelines for classroom assessment</td>
<td>There is an informal system-level document that provides guidelines for classroom assessment</td>
<td>There is a formal system-level document that provides guidelines for classroom assessment</td>
<td>There is a formal system-level document that provides guidelines for classroom assessment, understood and used widely</td>
</tr>
<tr>
<td>Dimensions</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Assessment policies</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Political and administrative leadership</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Public engagement</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Institutional capacity and arrangements</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Funding</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Competent human resources</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>System alignment</td>
<td>There is no official curriculum or standards document</td>
<td>There is an official curriculum or standards document, but does not clearly specify what students are expected to learn and at what performance level</td>
<td>There is an official curriculum or standards document, that clearly specifies what students are expected to learn but does indicate at what performance levels</td>
<td>There is an official curriculum or standards document, that clearly specifies what students are expected to learn and indicates at what performance levels</td>
</tr>
<tr>
<td>Dimensions</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Assessment link with intended curriculum or standards, taught curriculum and teacher development</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Assessment and use of results by other units</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Assessment quality</td>
<td>There are no requirements for use of classroom assessment to support student learning</td>
<td>There are limited required uses of classroom assessment to support student learning</td>
<td>There are adequate uses of classroom assessment to support student learning without parental engagement</td>
<td>There are adequate uses of classroom assessment to support student learning with parental engagement</td>
</tr>
<tr>
<td>Dimensions</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Psychometric qualities and moderation</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Analysis, interpretation, reporting and use of assessment results</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Technical qualities</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Adapted version: World Bank in Clarke, 2012a

As a second step, tools from the SABER programme to collect data on the assessment system currently in place, have to be developed or adapted to suit specific contexts. The third step is to compare each of the assessment types of the existing assessment system with the generic profile illustrated in Table 2.2 with a view to identifying areas for further development. The fourth, and final, step involves the planning and implementation of processes that will strengthen or improve the ability of the assessment system to generate relevant information needed by decision makers to improve learning.
2.5 National assessment systems in selected countries outside South Africa

Kellaghan and Greaney (2001a: 87) define a national assessment as an exercise to measure individual learning attainment in a subject at a specific grade level, after which the data is aggregated to obtain the achievement level of students in the education system for the grade and subject concerned, while Kanjee (2012: 526) offers a definition of assessment surveys as “an external process undertaken to obtain evidence on the performance of an education system (or part thereof) by assessing learners, teachers, school heads and education officials as well as evaluating the functioning of structures and programmes within that system”.

The national assessments provide policy and decision-makers with information about the state of the education system so that improvements in the quality of education may be made through policy (Kellaghan and Greaney, 2003: 34). In addition, most countries also use the assessment data from national assessments to improve teaching practices (Meckes and Carrasco, 2010; Ravela, 2005; DBE, 2011a).

While examinations and classroom assessments are established forms of assessment, national assessments are relatively new, especially in the developing countries, where it became popular after 1990, probably due to the EFA goals agreed to in the same year and re-affirmed in 2000 (Kanjee, 2007: 475).

This section discusses the purpose, features, use of national assessment results and lessons in selected countries. Some of these countries have a history of sustained administration of national assessments for more than a decade while others have only recently established their national assessment systems. For the purposes of this study, experiences and lessons on the use of national assessments will be drawn from both developed as well as developing nations, and includes the following countries:

- Chile in South America
- Ontario in Canada
- England in Europe
- New Zealand in Australasia
- The United States of America
- Uganda and Zambia in Africa and
• South Africa.

The above countries were selected as part of the literature study for the following reasons:

• All of the above have institutionalised national assessment systems (Ramirez, 2012, Kanjee and Acana, 2013, Santiago, 2013);
• Except for Uganda and Zambia, the remaining five systems have a track record of over 20 years;
• Some of the selected countries use census (example, Chile) testing while others use sample testing (example, the USA); and
• All countries have two common subjects for testing: language and mathematics.

The section concludes with a description of a number of South East Asian countries (Hong Kong, Singapore, South Korea, Taiwan and Japan) where national assessments are not conducted.

2.5.1 Chile

The Chilean national assessment programme was selected for four reasons: firstly, the National Programme to measure the quality of Chilean Basic Education has been in existence since 1978, though it has become more effective and efficient since 1988 (Wolff, 1998); secondly, it is a census based survey, thirdly, it provides feedback on the extent to which students are achieving the learning targets considered minimal; and finally, it provides feedback to parents, teachers, and officials in the Education Department (Greaney and Kellaghan, 2008: 99).

Gvirst and Larripa (2004: 350-353) claim that state centralisation is a common characteristic of national assessments in Latin America and Africa whereas this is not the case with evaluation systems in Europe, the United States and Australia. They justify centralisation with reference to:

• Funding by multi-lateral credit organisations, such as the World Bank;
• The need for national states to control education in light of increasing decentralisation of education; and
The use of results to rank schools (as in Chile), promote learners to the next level (as in the Dominion Republic) and to monitor system performance (as in South Africa).

The Chilean national assessment system, Sistema de Medición de la Calidad de la Educación, also known as SIMCE, serves three primary purposes, namely, to: (a) inform policy, (b) provide pedagogical support, and (c) hold schools accountable (Taut, Cortes, Sebastian and Preiss 2009:129; Meckes and Carrasco, 2010: 234). A number of researchers (Greaney and Kellaghan, 2008; Wolff, 1998; Taut et al, 2009; Meckes and Carrasco, 2010) have identified the key features of the Chilean national assessment (SIMCE) as follows: it is managed by the Ministry of Education; it is administered annually in all schools at Grades 4 (every year), 8 and 10 (alternating every two years); subjects tested are Spanish language and Mathematics; the assessment tasks are closely aligned to the curriculum and are empirically equated across years for comparability; background information is collected on learners, teachers and parents; test questions are tightly aligned to the curriculum; reporting of school performance is done through the media, website and school reports by socio-economic context; and the cost of SIMCE is about US$5 per student.

The uses of SIMCE results vary, depending on the user. For policy makers the results are used to determine the impact of policy on equity and quality. The magnitude of the achievement gap is used to assess whether policies on equity are making a difference over time (Ramirez, 2012: 5). SIMCE data are also used to channel resources and support to the schools most in need, generally those located in low income communities. In addition, Wolff (1988) notes that the SIMCE results are used to reward top performing schools and teachers.

While the SIMCE data is being put to good use by policy makers, its use by teachers and schools appears to be unclear (Meckes and Carrasco, 2010: 243). Ramirez (2012: 8) notes that this may be due to weak institutional conditions, poor assessment culture, teacher perception of SIMCE as a control mechanism and inadequate information in the school report for teachers. With regard to parents, Elacqua and Fabrega (cited by Meckes and Carrasco, 2010) note that only a small
percentage of parents use it even though one of the intended uses of SIMCE is to help parents choose a school for their children, as the main reason. Also, parent knowledge and use of SIMCE results varies according to their socio-economic status, income and educational background. The SIMCE results are published widely in the press to the general public, but also for promoting competition between schools to attract students and informing consumer choice (Ramirez, 2012). The national publication of school results also holds schools accountable for learner performance. Therefore, the expectation is that schools will improve their internal management and teaching processes (Taut et al, 2009: 131).

In their overview of SIMCE, Meckes and Carasso (2010) assert that SIMCE helped the education system to place learning outcomes at the heart of education, develop a culture of evaluation and accountability and identify inequities. They also indicate that, despite these accomplishments since 1988, the effective analysis and use of assessment data by teachers on a national scale remains a challenge, more than two decades later. Based on her review of the experiences in Chile, Ramirez (2012) offers the following useful lessons for South Africa and other countries intending to improve their national assessment systems: building assessment literacy at all levels in the education system; building an assessment culture where educators analyse and use data to inform decisions all the time; creating the right institutional conditions by allocating time for analysis of student results and other relevant information; provision of guidelines which explain, amongst others, the link between the assessment framework and the curriculum; and introducing, building, strengthening and sustaining a dissemination strategy that is clear on the purposes of the assessment, target audiences, uses of assessment and monitoring its impact over a protracted period.

2.5.2 Ontario in Canada

The choice of Ontario from amongst the 13 provinces and territories in Canada is premised on three reasons. Firstly, Ontario’s assessment reform to reinsert large scale assessment started in 1994, which coincides with education and political reform in SA. Secondly, the testing programme closely resembles the ANA in SA, where Grades 3 and 6 are tested in Language and Mathematics and Grade 9 tested in Mathematics (Klinger et al, 2006). As part of the reform, the Educational Quality
and Accountability Office (EQAO), at arm’s length to the Education Ministry, was set up to administer large scale assessments (Volante and Cherubini, 2010). Thirdly, Ontario has a diverse population, similar to SA, due to the influx of immigrants.

According to Klinger et al (2006), the purpose of national assessments in Ontario is to enable the Education Ministry to:

- Report annually on the level at which students are meeting expectations in reading, writing and mathematics;
- Provide data to assist schools in improvement planning and target setting; and
- Provide a basis for support to schools.

The key features of national assessments in Ontario, according to Earl (1995), Volante (2007), Klinger et al (2006, Volante and Jafaar (2008), are as follows:

- The Grade 9 Mathematics assessment results form part of the final grade for a student, while the Grade 10 Language test result serves as a graduation requirement;
- Census testing with marking done centrally;
- Educators are actively involved in the development of assessment instruments and in the marking of test/examination papers. This promotes tight alignment of the curriculum with tests;
- The Education Quality and Accountability Office (EQAO) publishes school results in the media by rank order and provides individual learner reports to administrators and teachers for discussion with parents;
- All districts and schools are required to prepare improvement plans based on assessment findings (diagnostic information) and other information; and
- Districts are expected to analyse data coming out of large scale assessments (LSA) for practical use in schools.

According to Volante (2007), the EQAQ mandate is to provide data for decisions on accountability and the improvement of teaching and learning. This is done through administration of tests in grade 3 and 6 in reading, writing and mathematics, a mathematics test in grade 9 and a grade 10 test in literacy which is used for
graduation. The following limitations with regard to the impact of assessment results and reports are noted by Volante (2007): firstly, assessment reforms are not widely embraced by teachers and unions, secondly, teachers are suspicious of the scores, partly due to the 70% to 80% reported inter-rater reliability, thirdly, teachers feel that the differences in learner results is a reflection of linguistic groups and socio-economic conditions rather than the quality of teaching, and finally, teachers question the yearly improvement of learner results as it may be due to improved teaching or variations in test difficulty or other factors.

Five **important lessons for South Africa** arise from the use of national assessments in Ontario, Canada:

The *first lesson* emerging from the Ontario provincial assessment programme has to do with balancing the use of large-scale assessment surveys for accountability and for improving student learning (Volante and Jafaar, 2008; Volante, 2007). The paradox is that exerting accountability pressure in the hope of improving learner performance often leads to unintended consequences such as teaching to the test, narrowing the curriculum and dedicating more effort and time to the subjects that are tested, which ultimately undermines authentic learning for all students.

The *second lesson* underlines the need for capacity building of district officials, principals and teachers in the analysis and use of data in decision making for instructional improvement and student learning (Volante and Cherubini, 2010). In this instance, capacity building in the use of assessment data enables more accurate identification of circuits, schools, teachers, learners and subject content areas for support and improvement. Once the target group or area is known, then it is possible to intervene with appropriate measures. Monitoring the performance of target groups informs review and redesign of interventions. It is argued that if district officials, principals and lead teachers are sufficiently skilled in data analysis and decision making, their leadership in curriculum and assessment will be the pulse to continuously improve the use of assessment information to drive better teaching and learning.
Thirdly, there is a need to rigorously research the psychometric properties of the assessment programme before arguments are made for comparison of learner improvements across years.

Fourthly, judgements on education quality should not be based entirely on large scale assessments, but rather on a comprehensive set of indicators, which may include student progression rate, as an example.

Finally, the EQAQ, being at arms-length to the Ontario Education Department, but reporting to the Minister, manages the administration of National assessments, which raises the credibility of the assessment findings.

Three questions emerge from Ontario: firstly, should ANA be used for accountability or improvement; secondly, can the improvement of psychometric properties of ANA for comparison of results over years be used, and finally, whether ANA should be managed by a structure outside the DBE.

2.5.3 England
The rationale for selecting England as a unit of study within Europe is informed by two observations, namely, (a) that national monitoring efforts have been a feature of the English education system since 1948 (Greaney and Kellaghan, 1996: 15) and (b) the system has been moving from a decentralised form of education (greater control rested with Local Education Councils (LEAs and schools) towards a centralised curriculum and regular national assessments with a push for accountability (Whetton, 2009; Isaacs, 2003).

The enactment of the Education Reform Act in 1988 was a turning point in three respects: firstly, a national curriculum was implemented by law; secondly, the law required assessment of learners in Language and Mathematics at the end of each of three key stages, and thirdly, there was a call for greater accountability for results through the publication of league tables (Gregory and Clarke, 2003: 67; Whetton, 2009; Wyse and Torrance, 2009). The initial purpose of the national curriculum assessment (in 1988) was proposed by the Task Group on Assessment and Testing (TGAT) as: formative, summative, evaluative, informative and professional
development (Whetton, 2009: 1). However, the envisaged professional purpose was transformed into a political purpose of testing the national system (Wyse and Torrance, 2009: 216). The Labour Government, which came into power in 1997, continued with national curriculum assessment, focusing on the improvement of learner achievement in literacy and numeracy through the use of the national literacy and numeracy strategies.

The features of national curriculum assessment in England are summarised as follows:

- According to Whetton (2009), overall responsibility for the tests was in the hands of successive statutory bodies and now rests with the Qualifications and Curriculum Authority (QCA);
- Curriculum and assessment is a highly contested arena between the professionals and politicians (Whetton, 2009; Daugherty, 1995). The Standard Assessment Tasks (SATs), as they have come to be known, are being implemented at the end of Key stages 1 and 2 as the Key stage 3 tests were abolished and substituted with teacher assessments (Darling-Hammond and Wentworth, 2010: 27);
- At the primary school level, all students aged 7 and 11 are tested in English and Mathematics, based on the national curriculum, every year;
- At least once a year, parents are given a written report on how their children are performing. The test results are also published in league tables, ranking schools, thus placing schools in the marketplace environment (Gregory and Clarke, 2003: 67); and
- Wyse and Torrance (2009) report that in the period 1997-2007, results improved by 16 percentage points in English (63% to 79%) and by 14 percentage points (61% to 75%) in mathematics for 11-year olds; learner achievement reached a plateau after 2005.

The use of national curriculum assessments in England is biased towards holding schools and LEAs accountable for learning achievement in English and Mathematics, reflecting one of the two broad uses of national assessment identified in the literature, namely accountability. This is done through the use of SAT results for monitoring and comparing school performance to obtain a national picture.
(Sammons, Thomas and Mortimore, 1997: 16). There is little evidence to suggest that it is also used for improvement purpose (Gregory and Clarke, 2003; Collins, Reiss and Stobart, 2010; Black, 1994).

Two important lessons emerge from the experiences of England in the use of national assessments in the period 1988 to 2010. Firstly, as Black and William (1998) note, placing national assessments (summative) over teacher assessments may be counter-productive because the former (national assessments) may override and marginalise the latter (teacher assessments). Indications are that the best way forward is to link and balance the use of both kinds of assessment. Secondly, the publication of league tables based on national assessments may have detrimental effects on teachers, students and principals. Wyse and Torrance (2009: 219) indicate that such publication has resulted in a narrowing of the curriculum, more time being spent on test preparation, transmission of content knowledge, and an under-valuing of formative assessments by teachers. Similar observations were noted in the South African context as discussed later.

Clearly, there is great utility value in both classroom assessments and national assessments; much depends on the integration of the findings by different role players to improve learning. Sammons et al (1997: 89-97) highlight the positive impact of national assessments as follows: increased parental involvement in education, better understanding of curriculum content by teachers, and better data available to track student progress and school performance through performance comparisons of class, school, district, province and national levels.

2.5.4 New Zealand

New Zealand, being part of Australasia, was selected for two reasons. Firstly, its national assessment system, referred to as the National Education Monitoring Project (NEMP), was initiated in 1995 and maintained for 25 years before it was discontinued. Despite this, it provides valuable instructive information on the development and use of national assessments. Secondly, it used a novel method of employing practicing teachers to administer and mark the test papers, thereby resulting in a powerful teacher development programme in curriculum and assessment.
The purpose of the NEMP, according to Flockton (2012) and Nusche, Laveault, Mac Beath and Santiago (2012), was to collect information over time to monitor student attainment of national learning standards; determine where improvement was needed; celebrate successes, and inform debates on curriculum decisions on teacher development. The key features of NEMP, according to Nusche et al (2012) are the following:

- it was conducted by a local university on behalf of the Ministry of Education;
- assessment tasks required application of knowledge (close to real life) and paper and pencil tests; and
- only a sample of Year 4 (a group of subjects) and Year 8 (all subjects) learners was assessed, not the whole school population, and perhaps because of this, assessment results did not carry high stakes for learners.

A distinguishing feature of NEMP is the use of the national assessment project for teacher development (Gilmore, 2002). This is of value, given that one of the weaknesses observed in several studies, is the lack of assessment knowledge, skills and confidence of teachers (Gilmore, 1999; Black and William, 1998).

Gilmore’s paper (2002) on learning opportunities for teachers in NEMP describes the methodology as follows:

- About 100 teachers are engaged full time for a period of 6 weeks; they are appointed as Teacher Administrators (TAs) or Teacher Markers (TM). In this period, they are released from their regular teaching responsibilities;
- They are given intensive training for a week and then work in pairs in conducting practical assessments in schools; and
- After one or two weeks of training, they formulate marking criteria and undertake marking, which exposes them to new ideas of assessment.

The uses of the national assessments are largely evaluative and informative as they provide information to policy makers, curriculum specialists and educators for planning purposes and inform the public on trends in education achievement.

The main lesson to be learnt from this analysis is that it is possible to achieve two objectives simultaneously, that of national assessment, and authentic teacher
development in assessment practices. The investment requires proper organisation of the assessment programme to accommodate the sharing and transfer of skills in assessment between units responsible for assessment in a district and the teachers taken out of their classrooms. In South Africa, it may be possible for a service provider or university to work with the DBE and provinces to organise a cohort of teachers for ANA marking and professional development during the holiday after the end of the third term. This will incur costs which may be offset from the provincial budget for teacher development.

2.5.5 United States of America
The national assessment programme in the USA, called the National Assessment of Educational Progress (NAEP), is also known as the ‘nation’s report card’. It is regarded as the nation’s best measure or ‘gold standard’ of student achievement in key subjects (Pellegrino et al, 1999: 9). The inclusion of the USA in this literature review is motivated by three reasons: firstly, the NAEP is long established (since 1969); secondly, the assessment is, interestingly, not associated with a common national core curriculum as, by law, states have their own curriculum and assessment frameworks, and thirdly, the assessment is complemented with state-designed and -administered large-scale assessments. After 1989, the NAEP disaggregated the results by state and therefore assessment information is not reported by district, school or student. A notable feature of the NAEP according to Hombo (2003) and Yamamoto and Mazzeo (1992:155) is the comparability of student results over different years. This is achieved through the use of highly sophisticated statistical techniques using Item Response Theory in which results are equated to and reported on a common scale (scaling).

The purpose of the NAEP is defined at the strategic level as a survey of what students know and can do (by state) and as an important discussion tool for the evaluation of state assessment results (Hombo, 2003). Beaton and Allen (1992) mention two additional purposes: firstly, to report on the performance of categories of students by gender and racial/ethnic groups and, secondly, to generate results for use by the research community to inform studies in education.
According to Klein et al (2000) and other researchers (Hombo, 2003; Koenig and Bachman, 2004) the features of the NAEP and the state organized assessments are as follows:

- The NAEP started in 1969; administered every two years
- The NAEP tests students at the ages of 9 (Grade 4), 13 (Grade 8) and 17 (Grade 12) in Language, Mathematics and Science;
- A multi-level, multi-stage sampling framework is used;
- State assessments are a requirement of the No Child Left Behind (NCLB) Act of 2001, with states being required to develop curriculum standards, assess all learners in Grades 3 to 8 in Language and Mathematics, publish results by school and student, and sanction or reward schools, principals and districts based on results (Linn et al, 2002);
- State tests, consisting primarily of multiple-choice items based on the curriculum standards of the state concerned, carry high stakes; and
- State assessment results sometimes do not correlate with the NAEP results as seen in the case of the Texas Assessment of Academic Skills (Klein et al, 2000).

The uses of the NAEP, according to Koenig and Bachman (2004: 32) include serving as the basis for: (a) descriptions of the status of the education system and student performance by demographic group, (b) the identification of the knowledge and skills that students have or have not mastered, (c) debates on the adequacy of performance and the evaluation of content and teaching strategies, and (d) urging states to maintain/strive for high academic standards and accountability.

The following lessons could be learned from the ways in which the NAEP is used (Hawley, 1985):

- It has made pioneering contributions to test development and practice, which includes the use of item response theory, equating approaches, and standard setting reporting measures;
- It does not exert high pressure for results because it does not report performance by student or school;
• The test results together with other data stimulate debate for education reform; and
• The disaggregation of results by ethnic groups highlights the achievement gap, which in turn puts an obligation on districts and schools to introduce and drive interventions to bring about equity in opportunities to learn.

The ways in which NAEP results are used in the USA contain valuable lessons for countries that want to improve their own assessment systems. Given that the NAEP has made pioneering contributions to test development and practice, by implication, this is one of the areas in which national assessments could improve assessment systems in general. Indications from NAEP are that other areas where national assessments could have a beneficial effect are the stimulation of debates on education reform and the obligation that identified achievement gaps puts on districts and schools to introduce and manage interventions which have equity in learning opportunities and outcomes as a purpose (Johnson and La Salle, 2010: 72).

2.6 National assessments in Africa
In this section, the literature review focuses on the rise in the use of national assessments in Africa since 1990. For the purposes of this study, Uganda and Zambia are chosen for three reasons: firstly, both countries received independence in the early 1960s from Britain; secondly, both implemented national assessments in the late 1990s and both also participate in SACMEQ assessments; and thirdly, both countries are grappling with the implementation of Universal Primary Education programmes.

International assessments are the forerunners of large scale assessments in most regions and nations. Due to significant investments in human and physical resources, international assessments are supported by superior technical skills as well as better administration, analysis and reporting when compared to regional and national assessments. According to Kamens and Benavot (2011: 297), national assessments and examinations, if carried out with sufficient methodological rigor, could provide crucial information about the organisation of schools, their governance, the quality of teaching, the education of teachers, the strength of the curriculum and
student outcomes in terms of the curriculum taught. The authors emphasise that information derived from national assessments has the potential to inform decisions on interventions at the classroom, school, district and higher levels of the education system to improve and increase student learning. Benevot and Köseleci (2015) assert that national assessments, if designed carefully, could better reflect instances of effective teaching and actual learning.

Kellaghan and Greaney (2001b) and Kamens and Benavot (2011) sketch a background to the introduction of national assessments in African countries. Highlighted in their background description are some important points regarding the evolution of national assessments in Africa. The first point made by these authors is that the interest in and subsequent surge of national assessments, may be attributed to the World Conference on Education for All, held in 1990 at Jomtein in Thailand. It was at this conference where the emphasis was placed on the importance of determining what students actually learnt as a result of educational opportunities. In 2000, at the Dakar Conference, the commitment of developing countries to this ideal was reinforced (Kellaghan and Greaney, 2001b: 88). The second point made is that the number of national assessments conducted in developing countries in the period 1990 to 1999, far exceeded the number of international assessments. Moreover, in the same decade, two regional assessments in Africa (SACMEQ in Anglophone countries) and (PASEC in Francophone countries) came into being (Kamens and Benavot, 2011: 286). It is within this context that national assessments in Uganda and Zambia are discussed.

2.6.1 Uganda
This review on national assessments in Uganda draws primarily on the work undertaken by Kanjee and Acana (2013) at the request of the World Bank in its effort to improve student learning outcomes in low-income countries through the development of robust student assessment systems. Kanjee and Acana (2013), in their publication entitled Developing the enabling context for student assessment in Uganda, outline the purpose, features, use and lessons from national assessments in Uganda. Each of these aspects will be explained in this section.
The National Assessment of Progress in Education (NAPE) of Uganda was first conducted in 1996 for grades 3 and 6 and for grade 9 in 2006, and is now an annual survey. The assessments are conducted by the Uganda National Examinations Board (UNEB), which is also responsible for examinations. The **purpose** of the NAPE is: firstly, to monitor student performance in the context of Universal Primary Education introduced in 1997; secondly, to identify variables that are related to student performance; thirdly, to provide guidelines to improve teaching and learning; and fourthly, to inform policy, planning and research.

The **features** of the NAPE are summarised as follows:

- Testing is done at grades 3, 6 and 9 on a sample of schools drawn from the 112 districts;
- Tests are conducted in numeracy and literacy in grades 3 and 6, and biology in grade 9; and
- In addition to test data, additional data on the teaching and learning environment is collected through questionnaires and interviews of students, teachers, principals and parents.

The NAPE has three important **uses**; firstly, the assessment results are used to push for education reforms, in light of poor levels of achievement. Secondly, the results are used as a basis to secure the support of development partners to improve education quality in numeracy and literacy. Thirdly, the results are used to address public concerns regarding the introduction of Universal Primary Education – early research showed a decline in results, while more recently, this trend appears to be reversed.

Three **lessons** emerge from the study of the Ugandan assessment system. Firstly, the stability and growth of an education system is dependent on political stability. Secondly, the effective implementation and use of national assessments is reliant on political support. Finally, a single organisation responsible for all assessment forms across the education system (i.e. the examinations council) ensures synergy, co-ordination and efficiency in the use of resources.
2.6.2 Zambia

The national assessment survey in Zambia is known as the National Achievement of Learning Achievement (NALA). The first survey was conducted in 1999 and thereafter, it has been done every two years. This section looks into the purpose, features, uses and lessons arising out of the national surveys in Zambia. According to Kanyika and Kelly (2010), the use of assessment surveys is mainly to evaluate the functioning of the education system and for determining the nature and type of interventions needed for improving the quality of education.

Sakala and Chilala (2007) report that the objectives of the National Assessment Programme in Zambia is to: (a) measure the extent to which grade 5 pupils have mastered literacy and numeracy skills, and (b) to provide information on regional, gender and geographical disparities in the levels of learning. Kanyika and Kelly (2010) identify the following features of the programme:

- It is a sample-based assessment using a random sample of 400 schools; 20 pupils per school,
- Additional data is collected using a pupil questionnaire, teacher questionnaire and a principal questionnaire,
- Validation of results and setting of performance benchmarks is done by a panel of education experts, and
- The performance data is presented in mean scores and correlated to the contextual information.

Kanyika and Kelly (2010) and Sakala and Chilala (2007) highlight the following challenges which serve as important lessons: (a) poor dissemination of reports to schools to promote ownership and use of NALA results and (b) poor articulation of the link between the findings, proposed interventions and the functioning of the school system.

2.6.3 Annual National Assessments in South Africa

This section describes the mandate for national assessments in South Africa, conducted as the Annual National Assessment (ANA) and then provides a commentary on the application of the mandate. Thereafter, this section clarifies the
purpose of ANA, its envisaged use, design features, the reporting process used, and the content of the ANA report.

2.6.3.1 Mandates for ANA
A full administration of ANA started in February 2011, followed in September of 2012, 2013 and 2014 (NEEDU, 2013). The mandate for ANA may be traced to four sources, namely, the ANC 2007 conference resolution to “focus rigorously on the quality of education” (ANC, 2007), enunciated by the President in his 2010 State of the Nation address when he said that “from this year onwards, all grade 3, 6 and 9 students will write literacy and numeracy tests that are independently moderated.” secondly, the National Education Policy Act (RSA, 1996a) which requires the Minister to “direct that the standards of education provision, delivery and performance throughout the Republic be monitored and evaluated by the Department annually or at other specified intervals”, thirdly, the Action Plan, which uses ANA as “a key system that serves as a vital tool for the support and monitoring activities described in the plan” (DBE, 2010a), and fourthly, the Delivery Agreement signed by the Minister and the President, which requires the Minister to ensure that there is “regular assessment to track progress” through the use of standardised tests in languages and mathematics for grades 1-6 and 9 (DBE, 2010b).

2.6.3.2 Commentary on the execution of the mandates
Achieving quality, equity and social justice in education remains a global challenge (Motala, 2013: 203), but in South Africa, there is a greater need as it is believed that quality education could, over the long term extricate people from intergenerational poverty (EFA Global Monitoring report, 2014: 13). One of the levers adopted by the South African Government to improve and monitor education quality is the use of ANA. Section 8 of the National Education Policy Act (RSA, 1996a) on monitoring and evaluation of education, when applied to ANA, provides the legislative authority and framework for the implementation of the decision to use ANAs as follows:

- Analysis of ANA data by the DBE in co-operation with Provinces,
- DBE shall enhance professional capacities in monitoring and evaluation throughout the national education system,
- The DBE prepares and publishes the national ANA report,
If the ANA report indicates that standards of education provision, delivery and performance of a Province is in need of improvement, the Minister shall inform the MEC for Education to furnish a plan within 90 days to remedy the situation, and

The plan, prepared by the Provincial Education Department will then be tabled by the Minister in Parliament within 21 days of receipt.

Ramirez (2012) shares the Chilean experience wherein she points out that effective use of assessment information as expected by section 8 of the National Education Policy Act (RSA, 1996a) is a challenging task that takes time, effort and resources to be effectively implemented. For efficiency and integration of national evaluations in South Africa, it may be wise to consider ‘housing’ Whole School Evaluation, ANA and Systems Evaluation (district, province and national) under the domain of NEEDU. A change in this direction would require policy and legislative amendments to shift current responsibilities for WSE (DoE, 2001) and ANA from the DBE to the NEEDU. In practice, if implemented, four advantages become evident: coherence in the three assessments, convenience in triangulation, increased credibility and reports published on ANA, for example, could correlate findings from all three assessments.

The purpose of ANA was eloquently stated by the Minister on the release of the 2014 ANA results (Motshekga, 2014) when she declared that “ANA is a diagnostic tool to help the sector to self-correct. In fact ANA results have become a powerful tool of assessing the health of our basic education system.” The Minister went further to state that the purpose is not a “tool to punish and antagonise teachers.” Therefore, the purpose of ANA, according to the Minister, is to monitor system performance and a tool to improve learning outcomes in primary school language and mathematics.

The key design feature of the ANA is explained as follows in the Report on the annual national assessment of 2014 (DBE, 2014b: 20):

- Learners are tested in their language of learning and teaching (LOLT);
- ANA is a census survey that tests all learners from grades 1 to 6 and grade 9;
- The focus of assessment is on the terminal grades (3, 6 and 9) of each phase;
• Verification of ANA is done by an external agent who administers the test in a sample of schools, marks the tests and writes a report;
• Universal ANA is administered by teachers (led by the principal), marked by teachers and moderated by the SMT and then re-marked centrally by the Province;
• Test frameworks comprising topics to be tested, number of items per skill, cognitive levels, duration and total number of marks are developed by subject experts;
• New tests are developed and administered each year, thereby making comparisons across years unreliable. To overcome this limitation, the DBE intends using two instruments; one for systemic purposes (same instrument used each year) and the other for diagnostic purposes; and
• The tests are subjected to review by internal and external panels against national and international benchmarks.

With regard to ANA, the DBE (2012a: 10-16) provides guidelines at the four levels (school, district, province and national) of the education system for actions to be taken on the basis of results. Apart from the expectation that schools need to report and disseminate results to parents, the guideline links the use of ANA results to the requirements of section 16A of SASA (RSA, 1996b), where: (a) all schools are expected to prepare and submit an Annual Academic Report accompanied by the School Improvement Plan and (b) schools identified as poor-performing have to submit an Academic Performance Improvement Plan to the Head of Department through the district. The district office is expected to give targeted support to the identified schools in response to the Report and the Plan.

It is important to note, though, that ANA results constitute lag data, not lead data as the learners who sat for the tests in a particular year would have progressed to the next grade level in the following year. Therefore, the use of ANA results is more beneficial for annual curriculum and assessment planning rather than for daily teaching.
At district level, guidance is provided on ways in which circuit managers could use the results to target management support to schools in need, as well as ways in which curriculum advisers could use the same data to target specific content areas for pedagogy, content knowledge and assessment support. The DBE guidelines advise provinces to use ANA results in the identification and support of poorly performing districts. With these results as a basis, provinces would then be able to provide appropriate and targeted support across districts and schools. Districts could also use the results to determine numerical improvement targets in Language and Mathematics.

The DBE published the 2013 Diagnostic Report and the 2014 Framework for improvement which gives teachers and managers at all levels an indication of: (a) the curriculum problem areas that were not adequately mastered by learners and (b) remedial strategies for classroom practice as well as support actions to be implemented by the DBE, province and district (DBE, 2013a). However, the use of the report at all levels in the system is dependent on its timeous availability, and translating into action the improvement plans of districts, and especially, schools. Hence, the first use of ANA seeks to target classroom practice coupled with appropriate support by managers. The second use of ANA is to make better use of the DBE workbooks for informal or classroom assessment especially in the Foundation Phase where exercises are referenced to essential knowledge and skills tested in the ANAs. The third use of ANA results is its ability to highlight the seriousness of poor learning in grades 6 to 9 in particular, and not just grade 12 only. Finally, the ANA results inform the content and approach to teacher development for language and mathematics teachers (DBE, 2012a: 15).

Three important lessons regarding ANA come from the analysis of ANA reports, the NEEDU report and findings of the three case studies (see chapter 5). Firstly, the DBE intention of introducing a separate instrument for benchmarking systemic improvement in learning (DBE, 2014b:9) is welcomed as year-on-year comparisons done presently is indefensible on the basis of psychometric comparability of the ANA instruments (NEEDU, 2013: 54). Secondly, publication and distribution of the ‘guideline for the interpretation and use of the ANA result’ requires further communication and discussion for implementation at school level by the district and
circuit officials (NEEDU, 2013: 53). Thirdly, there is evidence from interviews with district officials (Subject Advisers and Circuit managers) that teaching in some schools is predominantly driven by ANA rather than by CAPS.

The Action Plan to 2014 (DBE, 2010a: 53-54) requires a district to produce the District-wide ANA Report. Specifically, the following guidelines are laid down with regard to the district-wide ANA report:

- The district report will be written using the national format, which includes tables showing the distribution of learner scores in subjects for each grade;
- The average percentage scores for the quintiles will be displayed in the report;
- The report should describe the outcomes of the district driven moderation and the extent to which school marks had to be adjusted;
- The report will also set district targets for grades 3, 6 and 9, collaboratively determined with the province; and
- Finally, the report will contain a statement from the district director that outlines the actions to be taken to improve ANA results in the coming years.

These requirements imply that the writing of a District-wide ANA Report requires technical capacity and team work of the assessment unit and the curriculum unit, and should ideally be led by the district director.

### 2.7 Assessment in high performing East Asian countries

In the preceding sections, a discussion of national assessments in countries from six regions of the world was covered, namely Latin America, Canada, Europe, the USA, Australasia and Africa. For completeness, we take a brief look at five high performing East Asian countries. These are Hong Kong, Singapore, Korea, Japan and Taiwan.

The above-named countries have been performing consistently well in the TIMSS tests, which is no different to the most recent assessment done in 2011 (Mullis et al, 2012). The interesting observation is that none of these countries use national assessments to rank students or schools (Darling-Hammond and Wentworth, 2010). All of them have long established examination systems for certification and selection. In fact, examinations have always played and still play a determining role in the
school life of students as it provides or denies them access to higher education (Kennedy et al., 2008). Because of these students’ excellent performance in international student assessment surveys, these countries do not see any reason why they should also have national assessments (Kennedy and Lee, 2007).

Common to the assessment systems of all these countries is that teacher/classroom assessments are used for increasing the amount and quality of learning; not for accountability purposes. Put differently, rather than using classroom assessment to determine what has been learnt, (summative assessment) it is used to determine how students are learning (formative assessment). Specifically, according to Darling-Hammond and Wentworth (2010) assessment tasks drive the teaching of higher order skills of problem solving and innovation beyond the basic understanding of concepts. In summary, the five East Asian countries rely on classroom assessment, examinations and international assessments to improve and monitor the quality of education.

2.8 Implications of the literature review for this study

The literature review of selected countries across the world shows that national assessments are used for four reasons: (a) accountability (example, in the USA where the consequences are sanctions or rewards), (b) marketing (example, in Chile and England where parents choose their children’s schools based on assessment results), (c) for effecting improvement in student learning and teaching skills (as in the case of South Africa) and (d) for tracking system performance.

The literature review also indicates the disadvantage of using assessments for accountability since it unintentionally pressurises teachers to teach to the test, narrow the curriculum and exclude students who are at risk of performing poorly. In a country where there are sharp socio-economic disparities, as is the case in South Africa, there are also exogenous factors at play (resources at home, education level of parents and a home language that is different from the language of learning and teaching and assessment) which place students at a disadvantage in the learning situation. It therefore follows that a range of factors have to be taken into consideration when applying accountability sanctions.
The use of ANA data to make decisions on ways of improving learning at different levels of the system is receiving a great deal of attention in South Africa (Motshekga, 2015). This is evident in the publication of guidelines on the use of ANA results (DBE, 2012a), the advocacy campaign being waged by the DBE across districts, mostly through meetings with principals and teachers observed by the writer, and the decision to release grade 8 and 9 mathematics teachers on one day in the week to attend professional learning community meetings to improve subject content knowledge and pedagogics (DBE, 2015). The DBE also published a Diagnostic Report on the 2013 ANA, which calls for its use by teachers in particular, through system support and monitoring. This is a positive effort that requires follow-up training and support in assessment literacy by provinces and districts. It also presupposes adequate and on-going self-development and training of provincial and district officials who share the responsibility of supporting principals and teachers in the use of assessment data.

Kanjee and Moloi (2014) surveyed the perceptions and experiences of 114 teachers on the use of ANA information to improve teaching. The findings indicate that while teachers regard ANAs as useful, they do not enjoy the support of districts on how to make effective use of the ANA information. Kanjee (2011) and Kanjee and Moloi (2014) argue that ANA has the potential to impact teaching in schools if the following conditions are in place:

- A clear theory of change is articulated and used to link the use of ANAs to improving teaching and learning in order to raise learner performance;
- The psychometric properties of ANA instruments ensure comparability of results across years;
- The test items are constructed to provide diagnostic information to teachers;
- There are effective systems and processes for reporting and dissemination of ANA results;
- Teachers and district officials are provided with the tools to make effective use of ANA information;
- Systems are used to monitor and evaluate the quality of ANAs; and
- The DBE, provinces and districts have the capacity to design and implement interventions (informed by ANA information) to improve teaching and learning.
The use of cohorts of teachers each year (as in New Zealand) for moderation of ANA scripts is a powerful method of teacher development because, during this period, all the teachers involved in marking, work together. Their involvement in this exercise requires them to study the curriculum more deeply, to observe how assessment is linked to the curriculum and, most importantly, to identify the knowledge and skills that students struggle to master. Also their marking experience allows teachers to share pedagogical content knowledge while simultaneously improving their own subject content knowledge. In South Africa, it is now common practice for selected teachers to work with Subject Advisers on re-marking a sample of three scripts (moderation) per class per subject at a central venue. The usefulness of this exercise will become tangible once these ‘markers’ share their experiences with small groups of teachers within a school or from a cluster of schools, often referred to as communities of practice.

National assessments highlight specific content and higher-order skills that prove to be challenging for learners. Clearly, from practical experience, this information could be used by textbook writers and developers of learner workbooks so that the ‘troublesome sections’ may be addressed, especially in grades 7-9, a phase where the majority of learners move from the primary to the secondary school.

For South Africa, a blend in the use of ANA and SBA to improve learning is an advantage as the one strengthens the other. The one should not overshadow the other. While formative assessment provides real-time information for teachers to alter teaching to overcome student mis/understanding and poor grasp of skills to solve problems, national assessments are useful tools for planning and taking corrective action by school management and district officials.

ANA produces lag data published in the previous year and students in the current year would benefit when the teacher uses the report to be proactive in preventing common misconceptions and errors and, importantly, to remediate gaps in learner knowledge and skills.

Although policy (Action Plan to 2014 cited above) requires districts to play a critical role in writing an annual secondary report (District-wide ANA Report) in line with the
national report, this is yet to be realised in the three districts studied. The publication and dissemination of district reports depends on the push from the DBE, coupled with capacity building at the provincial and district levels.

Finally, ANA results act as a unifying tool to get unions, parents, communities, universities and business to act in the interest of learners and the country. In South Africa, the impact of pacts agreed to in the Education Labour Relations Council (specifically, the Quality Learning and Teaching Campaign), in NEDLAC, and more recently in the National Education Collaboration Trust, among labour, government, business and civil society (NECT, 2013) to improve the quality of education remains to be seen. Improving the quality of ANA and NSC results may serve as one of the primary reasons for the structures to meet in light of research evidence which shows the link between cognitive skills of the population and economic growth (Hanushek and Woessmann, 2007).

2.9 Conclusion

The purpose of the literature review on large-scale student assessment is to place this study on national assessments in South Africa within the broader context of national assessments globally. The structure of an assessment system and a framework for building an effective system was explored. This was followed by a review of the use of national assessments in Latin America, the United States of America, the UK, Ontario in Canada, New Zealand and Africa. The review shows that all countries that use national assessments do so to monitor system performance across states or provinces or nationally.

Particular attention was given to the introduction and implementation of the Annual National Assessment in South Africa, which is one of the largest systemic monitoring and improvement interventions, involving the assessment of about 6.8 million learners from 20 000 mainstream and special schools in language and mathematics in grades 1-6 and 9 over four days (Minister’s media release of 16 September 2014).

The next chapter is a continuation of the literature review, but with the focus on data driven decision making and the interventions that are selected as a consequence thereof.
CHAPTER THREE

DATA-DRIVEN DECISION MAKING AND INTERVENTIONS

3.1 Introduction
Chapter Two provided insight into the structure of assessment systems and how they can be improved. National assessments fit into an assessment system alongside classroom assessments, examinations, regional/international assessments and school evaluations. An overview of the purpose, use and features of national assessments in different regions of the world shows commonalities (for example, assessment in language and mathematics is common) and differences (for example, in census or sampling testing). All four assessment types are, in most countries, operationalised simultaneously, thereby generating assessment information continuously or periodically, so that the users at different system levels are able to use it to take remedial and corrective measures through new policy, policy reviews or through interventions. This study examines how this important process plays out in provinces and districts.

This chapter delves into four broad themes: (a) role and functions of education districts, (b) use of data-driven decision making (DDDM) by districts, (c) conceptual framework for using data and (d) commonly used interventions to improve learning outcomes.

The next section reviews the literature on education districts by focusing on the history of districts in SA, the role of districts and attributes of effective districts. An understanding of districts will assist to place DDDM and interventions within the context of an education district.

3.2 Districts
The Government policy on the organisation, role and responsibilities of education districts (RSA, 2013:13) defines a district from a geo-spatial perspective as “an area of a province which is demarcated by the MEC for administrative purposes”. Districts have the following general characteristics: it is a geographically demarcated area which may correspond with one or more of the local government district
boundaries; it has a fixed number of schools to support; it serves a specific community; and may be predominantly rural, urban, semi-urban or a combination of the three.

### 3.2.1 History of education districts

In South Africa, a unique feature of a district is that it has its historical roots in one or more of the previous apartheid (racially-divided) education systems (Narsee, 2006: 60). Therefore, some of the historical past practices still persist in the ‘new’ education districts, particularly in terms of resources, facilities, as well as staff qualification and experience, all of which impact on the ability of the district to effectively support schools to improve learning and teaching. The sub-units of the former (pre-1994) racially-divided education systems in SA were referred to as regions or circuits or area offices. Narsee (2006) contends that the role of these erstwhile structures (equivalent to districts) was limited to delivering mandates to schools and monitoring compliance through control mechanisms rather than providing professional support. Having worked with districts for almost two decades, my observation is that the culture of control and command is gradually giving way to transparent school monitoring and support since about 2000 due to democratisation of education, re-culturing and possibly the appointment of new officials as a result of natural attrition.

### 3.2.2 Role of districts

The four roles of the education district specified by policy are: planning, school support, oversight and accountability and public engagement (RSA, 2013: 11-12). Planning entails collecting school, circuit and district data, assisting schools to compile school improvement plans and thereafter integrating the school plans into the district plan. The district role to hold schools accountable for performance runs alongside school support. Public engagement, including engaging and involving parents is now an important district role highlighted in the National Development Plan (NPC, 2012: 266). In the era of self-managing schools, the management role of the district was diminished (Iatarola and Fruchter, 2004: 492). Furthermore the ‘school improvement’ and ‘school effectiveness’ movements dismissed the potential of districts as substantial contributors to systemic reform (Rorrer et al, 2008: 307). In the last two decades, however, there is growing realisation that districts matter when
it comes to improving school performance and in ensuring equity across schools (Muller, 2004; Marsh et al, 2005; Fullan, 2001b; Sheppard and Brown, 2009).

Since early 2000, the growing trend has been to view the role of the district within a three-level education system comprising the classroom, school and the community as the first level, the district as the second level and the province/state and the national department as the third level (Fullan, 1999; Fullan, 2001b; Fullan, 2009; Taylor et al, 2003). The approach to school reform that engages the three levels simultaneously is also called large-scale reform or systemic reform, based on a particular change theory.

Rorrer et al (2008: 313) identify four essential roles for a district, based on their analysis of research on districts conducted during 1998 and 2008 in the USA. These are: providing instructional leadership; refining organisational structures and processes; altering district culture to align with district goals; and finally, establishing policy coherence and maintaining an equity focus.

In her paper entitled District Development – the new hope for education reform, Roberts (2001) lists the following five roles for districts: policy implementation; leading and managing change; creating an enabling environment for schools to operate effectively; intervening in failing schools; and offering administrative and professional development and support services to schools and teachers.

Chinsamy (2002: 7) views the primary function of the district as that of supporting schools in the delivery of the curriculum, while Massell (2000: 2) is more specific by referring to capacity building in the following four areas noted in her study of 22 districts in California: interpreting and using data; building teacher knowledge and skills; aligning curriculum and instruction; and targeting interventions for low performing schools and/or students. Mourshed, Chijioke and Barber (2010: 83) in their report, entitled How the world’s most improved school systems keep getting better, are of the view that districts, as the intermediary layer in the system, typically have three tasks, namely: providing targeted support to schools; interpreting and
communicating improvement objectives in order to manage resistance to change; and enhancing the collaboration of schools by sharing best practices.

From the above literature review, the primary role emanating for the district is to serve schools by providing professional support to teachers and principals to improve student learning. Moreover, from personal observations, districts also coordinate administrative support in student transport, student feeding programmes and financial management of allocated funds. The next section explores the attributes of effective districts, measured in terms of improving student learning and achievement.

### 3.2.3 Attributes of effective districts

The literature on district effectiveness is of three types: descriptive, prescriptive and empirical. The *descriptive* studies report on research findings over a particular period (for example, 10 or 20 years), or on a particular theme, for example, characteristics of effective districts in the form of meta-analyses. The *prescriptive* studies report on good practices that have the potential to raise student achievement. These are in the form of guidelines, similar to the school effectiveness research studies. The *empirical* studies are qualitative case studies based on one or a small number of districts. The gap in the literature of district effectiveness is the lack of empirical studies that investigate the link, if any, between a particular district action, strategy or policy and learning outcomes.

Studies on attributes of effective districts come mainly from the US and Canada where districts have long been in existence. A summary of research findings on attributes of effective or successful districts follows, where success is defined in terms of raising student performance on standardised assessments in reading and mathematics.

Murphy and Hallinger (1988) studied 12 instructionally effective districts in California through interviews and document analysis and found that these districts paid particular attention to curriculum, assessment and instruction, displayed consistency in goals and approaches to instruction across schools, demonstrated strong leadership of the superintendent, placed great emphasis on inspection of
processes and outcomes, and ensured a high degree of co-ordination between district, schools and classrooms.

Community District - Number 2 in New York City is often quoted as an example of a successful district in raising learner achievement in reading and mathematics over a sustained period of about ten years (Togneri and Anderson, 2003: 4). Elmore and Burney (2002) found three attributes of this district that stands out. Firstly, professional development of teachers and principals, secondly, focus on teaching and thirdly, using system and school level accountability measures to assure high quality instruction.

McLaughlin and Talbert (2003) conducted a multi-level survey over four years in three reforming or improving districts in California, where they found the following characteristics: a systems-approach to reform; existence of a learning community at the district office; coherent focus on teaching and learning; support for professional learning and instructional improvement; and data-based inquiry and accountability.

Iatarola and Fruchter (2004) investigated the differences between two high-performing and two low-performing districts. Their qualitative study involved two schools from the two ends of the district performance spectrum. The researchers report the following about the high performing districts: districts were clear on priorities and their roles; districts made better use of data to drive instructional improvement and also used non-assessment data; they worked with universities to develop potential principals; and linked the use of data to selection of resources to improving instruction.

A literature survey, entitled Characteristics of improved school districts: themes from research by Shannon and Blysma (2004), found that effective districts displayed the following four attributes: firstly, effective leadership with focus on all students learning; secondly, high expectations and accountability; thirdly, support for system-wide improvement in effective use of data, strategic allocation of resources, policy and programme coherence; and fourthly, clear and collaborative relationships with an understanding of school and district roles.
Dailey, Fleishman, Gil, Holtzman, O'Day and Vosmer (2005) present a synthesis of findings on components (characteristics) of successful high-poverty districts after having studied over twenty reports and studies in the US. They identify the following seven primary attributes of successful districts: focus on student achievement and learning; establish clear goals and have a theory of action; focus on system-wide, comprehensive, coherent long-term change (coherent policies); officials take personal responsibility for improving student learning; commitment to professional learning at all levels; use of data to guide improvement strategies; and regularly monitor progress and intervene if necessary.

From the above review, the common attributes of districts deemed to be effective are: persistent focus on instruction and assessment; alignment of curriculum, teaching, assessment and professional development; use of assessment information by teachers and district officials to drive instruction through the use of professional learning communities; needs-related support to principals and teachers; and support to learners to overcome barriers to learning through re-teaching and remedial work. The next section reviews research on data-driven decision making and, in doing so, provides deeper understanding of the types of data used, process, conditions and decision making to select appropriate interventions that may lead to higher levels of student learning.

3.3 Data-driven decision making
Not long ago (in the 1970s) decisions at the district level were made on the judgement of people in authority, privileged knowledge of the context, political savvy, professional training and logical analysis (Earl and Katz, 2002: 2). In recent times, however, the use of data in decision making by districts is fast becoming standard practice and its popularity may be ascribed primarily to the accountability movement, the introduction of large-scale assessments and the availability of hardware and software to rapidly organise and analyse data (Shen and Cooley, 2008: 319; Mandinach, Rivas, Light, Heinzen and Honey, 2006: 2). Marsh et al (2006) describe data-driven decision making as a process of gathering, analysing, sharing and applying data to guide decisions.
The causal relationship between the effective use of data in decision making and the improvement of learning outcomes is not established in the literature (Honig and Coburn, 2008: 601; Marsh, Pane and Hamilton, 2006:11). A number of factors determine whether and how data is used and what impact it has on decision making. Factors include types of data, selection of appropriate data, culture of data use, leadership in data use, resources or tools for data use and, importantly, user skills.

3.3.1 Types of data
Scheerens (1990), a proponent of school effectiveness theories, classifies data according to the input-output model and thus distinguishes between context, input, process and output data. Marsh et al (2006) use a similar classification, namely input data, process data, output data and satisfaction data. A more useful data categorisation for use by schools and districts is that proposed by Bernhardt (2013a; 2013b), wherein the following four types of data are defined: demographic, student learning, perception and school processes data. Table 3.1 below illustrates examples of the different types in the Bernhardt typology.

<table>
<thead>
<tr>
<th>Category</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>Demographic</td>
<td>Teacher qualifications; student attendance</td>
</tr>
<tr>
<td>Student learning</td>
<td>Quarterly test results, examination results, ANA results</td>
</tr>
<tr>
<td>Perception</td>
<td>Student attitudes, parent satisfaction</td>
</tr>
<tr>
<td>School process</td>
<td>Teacher development; financial management</td>
</tr>
</tbody>
</table>

The examples given in the table may be intersected in different combinations to answer a range of questions (Bernhardt, 2013b: 105); for example, a question that calls for intersecting three types of data – Does the teacher development programme (school process) for unqualified teachers (demographic data) address poor grade 9 ANA results (student learning)?

3.3.2 Selection of appropriate data
Anderson, Leithwood and Strauss (2010) hold the view that lag data such as national assessment results used to inform instructional decision making is somewhat misdirected. This is because of the conviction that data generated from good questioning during a lesson and from daily oral and written work (formative
assessment or assessment for learning) is more useful for adjusting teaching in order to make learning effective.

Mandinach, Honey and Light (2006) assert that a central aspect of data use is to ask good and relevant questions in the search for solutions to improve schools and learning. Asking the right questions is the first step, which leads to the selection of appropriate and good quality data for analysis and interpretation (Protheroe, 2001: 4). These observations highlight the importance of building capacity in posing the correct questions before commencing with data processing steps. The practice of individuals or groups of educators meeting regularly to do problem solving through the use of data is a cultural issue, and is considered next.

### 3.3.3 Culture of data use

Using the culture variables defined by Owens (1991: 167), one may describe the culture of data use as the shared behaviours and accepted beliefs that enhance decision making through the use of data. From experience in working with districts, my observation is that the culture of data use does not occur spontaneously, rather it has to be developed and nurtured so that everyone becomes accustomed to data use for making important decisions. This therefore calls for a culture of data use at all levels of the education system, starting from the level of learners up to the district and even higher. Mills (2011) describes eight steps to develop a culture of data use in districts. Of the eight steps, the following five are highlighted for this study: ensure infrastructure support, secure buy-in and commitment to data use, foster professional development, lead by example and establish data meetings that seek to improve teaching and learning.

Halverson et al (2007) outline four steps for developing a culture of continuous data use in districts and schools:

- Practice collecting, storing, and communicating relevant data;
- Establish social processes (communities of practice) to reflect on the data and establish goals;
- Develop interventions; and
- Learn from interventions and integrate lessons into the next cycle.
According to Bernhardt (2013b: 112), the best thing a district can do to help schools to create a culture of effective data use is to demonstrate that it values data use in all of its decision making by modelling its use though practical examples, such as Mathematics teachers meeting quarterly to analyse learner performance and associated barriers, or parent meetings to discuss school performance in the ANA, with a view to agree on parent inputs and support.

3.3.4 Leadership in data use

The empirical study and literature survey conducted by Leithwood and Seashore-Louis (2011: 178) indicates the following about leadership and data use: firstly, they observed the powerful leadership role of districts in shaping data use in schools; secondly, in high data-use schools, principals worked with teachers in analysing data by establishing the purpose and expectations for data use; thirdly, in schools where principals did not provide leadership, teachers did not do this on their own; and finally, leadership must not only facilitate a change in practices (single loop learning), but more importantly, a change in underlying assumptions as well (double loop learning).

Blanc et al (2010), having examined the use of interim (or quarterly) assessments by principals in a district of Philadelphia, found substantial evidence that assessment data has the potential to contribute to instructional improvement if it is embedded in a robust feedback system. This requires the use of assessment information for feedback by leadership that is distributed across district officials, principals and SGB chairpersons, and leadership is found to be a factor that could enhance the use of data across the system. An example of feedback of ANA and quarterly results is the analysis and decision making on interventions in meetings called by Subject Advisers for teachers.

3.3.5 Resources for data use

In setting up a district data system, Boudett et al (2006: 3) advise that the following be given consideration: what data to include; how to organise data and update it regularly and computational power versus ease of use.
In addition to the above, there is a need to provide for the following: a central data warehouse; protocols and points for data cleaning and capturing; access to data and supply of hardware and software. Ideally, the provincial mainframe may be used as the data warehouse, and data cleaning and capturing may be done by the district assessment unit at the end of each quarter. The creation and maintenance of an assessment data system will not guarantee use. Therefore, the province, through the district, has to communicate a vision for data use, protocols, and importantly, capacity building so that a culture of data use is engendered and entrenched.

Figure 3.1 depicts an example of the central data warehouse at the provincial office and district level user points in the South African education system. The data cleaning and capturing may be done at two points: assessment data (NSC, ANA and Quarterly Tests) at the province and non-assessment data (attendance, teacher subject qualifications, teacher load and teacher shortages in key subjects) at districts. This presupposes protocols and systems to collect data, clean, capture and allow access to users. It is also assumed that hardware is available, that is, a mainframe, laptops and printers.

The adoption of a vision for effective data use at all levels of the system takes time and investment. Therefore a phased approach will be to capture assessment data by expanding the current capacity from ANA data to quarterly assessments (phase 1) and then uploading non-assessment data, such as student attendance and curriculum coverage (phase 2). Phase 3 will be the final stage where users intersect assessment data with non-assessment data, for example, learner performance in mathematics with teacher qualification and experience.

**Figure 3.1** Data warehouse and user points at districts
The above model for data warehousing may be developed by using the existing Examination and Assessment Units in the Province and District. There may be a need for dedicated data analysts in these units, namely at Province and districts, who could also serve as support staff to build capacity and make good use of the system. This issue is discussed next.

In summary, there is a gap between data collection and data use; in between these two processes, data must be cleaned, secured, updated, imported into analytical software, analysed, and formatted for reporting (Mason, 2002: 8).

3.3.6 Skills in data use

The utility of the ANA intervention as a national effort to improve education system performance is premised on the expectation that ANA information will be used effectively for planning, development, monitoring and low level-accountability (without sanctions). Therefore, skill in data-use at all levels of the system is central to making the process a worthwhile exercise that provides value for money.

The critical skills required for data organisation, analysis, interpretation and decision making are summarised as follows in the literature (Andersen et al., 2010; Mandinach et al., 2006; Dembosky et al., 2005; Ronka et al., 2010): computer skills to manipulate data sets; disaggregating data by student groups for pinpointing the potential sources of underperformance among students; skills at the data level, namely “collect” and “organise”, skills at the information level, namely “analyse” and “summarise”, and finally, skills at the knowledge level, “synthesise” and “prioritise”.

Thereafter the two important skills are planning interventions, followed by implementation, monitoring and reporting of achievements, challenges and lessons.

3.4 Conceptual frameworks for data use

A conceptual framework is an abstract model which allows the researcher to explore the relationships among variables in a logical and prescribed fashion (Anderson and Arsenault, 2002: 57). A conceptual framework also informs the reader of the study’s substantive focus and purpose (Marshall and Rossman, 2010: 57), in addition to further clarifying the research problem (Ethridge, 2004: 128).
framework is embedded in or derived from a theoretical framework. Kumar (2005: 35) regards the theoretical framework as tentative and defining the broad parameters of the literature review, which in this study covers three aspects, namely, collection and management of information for large-scale assessment surveys, (that is, ANA), analysis and use of assessment data and selection of appropriate district interventions for improving teaching and learning.

A review of the literature on models for data use reveals similarities and little difference. The similarities lie in the conditions for data use and the process which starts with raw data leading to information and then knowledge to decide on interventions. The difference is found in the representation format. Three models are discussed, starting with the Andersen et al (2010) framework for understanding evidence-informed processes in decision making, shown in figure 3.2, followed by the Mandinach Model (figure 3.3) and then the Ronka et al (2010) model (figures 3.4).

Figure. 3.2 Andersen et al (2010) model for data use

In this model, student learning is the dependent variable that is influenced most directly by decisions and actions of the district/principal/teacher. Types of evidence and conditions influencing data use are regarded as variables that shape processes for interpreting evidence. This model helps one to take account of the following in data use: firstly, one needs to understand the different data types (performance data,
perception data, demographic data, etc.) and make strategic choices on which data to use and why; secondly, there are conditions that influence data use, for example, user skills or organisational culture, and thirdly, a process for interpreting evidence may involve analysis of data in tables, graphs and narrative reports. The Mandinach Model for data use, shown in figure. 3.3, depicts decisions made within school districts, focusing on the classroom, school, and district levels.

**Fig. 3.3  Mandinach, Honey and Light (2006) model for data use**

The model illustrated in figure. 3.3 gives the steps in the process of interpreting evidence by changing data to information and then to knowledge with associated actions. The user collects and organises data into tables or graphs thus translating it to information which is analysed and summarised. To turn information into knowledge, the user must synthesise the available information, and then use it to prioritise interventions. Additionally, the model assumes that the processes required for data use occur simultaneously at three levels, which are, classroom, school and district, implying that teachers, principals and district officials will analyse information to take decisions relevant to their context. For example, the classroom teacher may use the ANA information to determine the specific ‘problem areas’ in the curriculum.
that may need re-teaching or remedial teaching or re-sequencing for identified learners.

In a paper written by Ronka et al (2010), after a review of fifteen case studies on conditions that support data-driven decision making at districts, published between 2002 and 2009, the writers propose a theory of action. The theory of action links the conditions necessary with the data driven actions that lead to improved student outcomes, as illustrated in table 3.4. Specifically, the theory argues that if three conditions are in place, namely, use of ‘clean data’, capacity building of data users and a culture of data use for effective data driven actions or decision making in policy making, programme selection, classroom practice and student placement with a focus on results, then student achievement will improve.

Figure 3.4 Ronka et al (2010) theory of action for data use

<table>
<thead>
<tr>
<th>Student-centred</th>
<th>Focus on Results</th>
<th>Increased Student Achievement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Systemic</td>
<td>Data driven actions</td>
<td>Policy</td>
</tr>
<tr>
<td>Sustained</td>
<td>Conditions for data use</td>
<td>Quality</td>
</tr>
</tbody>
</table>

The key features of the model shown in figure 3.4 is the emphasis on four elements of data use, namely: (a) conditions for data use, (b) data driven actions (c) focus on results and (d) sustained use of data that is student-centred across the system. The data driven actions derived from effective use of assessment data are meant to improve policy, programmes, teaching practice and student placement. The model also implies that the conditions for data use, which are data quality, capacity of users and the culture for data use is a pre-requisite for analysis and use of assessment data.

Table 3.2 gives a summary of the features of the three models that contribute to a more comprehensive understanding of the analysis and use of assessment data.
Table 3.2  Summary of features of three models on data use

<table>
<thead>
<tr>
<th>Features</th>
<th>Andersen et al</th>
<th>Mandinach et al</th>
<th>Ronka et al</th>
</tr>
</thead>
<tbody>
<tr>
<td>Types of data</td>
<td>x</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Conditions for data analysis and use</td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Process highlighted</td>
<td>x</td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>Process steps highlighted</td>
<td></td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>User across system</td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Data driven actions in specific areas</td>
<td></td>
<td></td>
<td>x</td>
</tr>
<tr>
<td>Outcome of improved learner achievement</td>
<td>x</td>
<td>X</td>
<td>x</td>
</tr>
</tbody>
</table>

The value of using all three models taken collectively lies in the understanding that a number of variables (features) have to be considered in data collection, analysis and decision making on interventions that will result in improved teaching and learning which should logically produce better learning outcomes measured through the use of assessments. A Model for Data Use suitable for the South African context and drawing on features from the above three models is described in Chapter 5.

The next section deals with the outcome of ANA data analysis and decision-making, namely, interventions to improve teaching and learning.

3.5 Interventions

Midgley (2000) defines a systemic intervention as purposeful action taken by a human agent to create change. Such action in the context of this study would be a set of carefully selected activities, informed by contextual factors and data analysis, that seeks to improve a process or output to higher levels; for example, an intervention may seek to improve learning of low level skills (recall of facts) to higher order skills (problem solving and innovation). An intervention has the following characteristics: it is planned, sustained, targeted and outcomes-oriented (Howell, 2009).

Interventions may be implemented at different levels of the system; at one level or more levels concurrently; for example, teacher development at classroom level and capacity building of Subject Advisers at district level. Interventions may be programmed for one target group (teachers only) or for combined target groups; for example, teachers and Subject Advisers. However, the purpose, content and desired outcomes will influence decisions on the format of interventions.
3.5.1 Types of interventions

In their article, entitled *Testing the effectiveness of an intervention model based on data use*, based on a sample of seven schools, McNaughton, Lai and Hsiao (2012: 203) found that interventions based on data use can be effective in raising student achievement. They call this type of intervention a second generation model as the use of data now complements the first generation model based on the school improvement and school effectiveness theories. However, they caution that focus must be on both the *process* of data use and *outcomes* pursued when using an intervention. The following are commonly-used multi-level interventions: at classroom level, conceived and implemented by the teacher; at school level conceived by the entire staff and led by the principal; in school clusters for subject teachers or management or school governors, organised by the district or teachers or principals; and district-wide interventions conceived and led by the district or province to introduce new policy and training on policy implementation.

Any intervention (set of activities) is mapped to a priority area for improvement. The example in figure 3.5 shows the improvement area of reading comprehension being mapped to four activities that make up the intervention to improve reading. This one-to-many mapping has to be coherent and integrated to meet the outcome of improved reading skills.

**Figure 3.5 Map of area for improvement to intervention actions**

- Teacher support and use of resources
- Support to Principals on curriculum leadership
- Remedial/catch-up programme for learners
- Parent support to assist children at home
The example illustrates a school-wide set of actions supported by the circuit and district to improve reading and comprehension. The sequencing and resourcing of the intervention activities are also important.

3.5.2 Interventions in district development programmes in SA: 2000-2008

The design and use of interventions at ‘project’ districts in South Africa during the period 1995-2008 is discussed in this section in order to elicit lessons from the theory of action underpinning the interventions, types, content and impact of interventions as reported in the summative project evaluations. These lessons generally fall within the first generation intervention models as the extensive use of data was in most instances not used to make decisions. The literature survey on interventions used in South Africa during the decade of large-scale district development draws heavily from the compilation of project experiences in a book entitled, *The search for quality education in post-apartheid South Africa* edited by Sayed, Kanjee and Nkomo (2013).

The table below (table 3.3) summarises the projects, goals, intervention activities and outcomes in seven multi-year programmes.

**Table 3.3 Summary of interventions used in the district development projects in South Africa during 1995 to 2008 (Sayed, Kanjee and Nkomo, 2013a: 99-316; Taylor, 2007)**

<table>
<thead>
<tr>
<th>Project</th>
<th>Goals</th>
<th>Intervention activities</th>
<th>Outcomes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Education Quality Improvement Partnership Programme (EQUIP) 1995-2008</td>
<td>Improve school management and governance; Improve teaching and learning of language, mathematics and science.</td>
<td>Training of principals and school managers; Training of SGBs; Training and support to teachers and learners in reading, mathematics and science.</td>
<td>Implementation of the concept of school development; Improved co-operation between school managers and governors; Cluster level collaboration of subject teachers.</td>
</tr>
<tr>
<td>2. Imbewu I (1997-2000) and Imbewu II (2002-2007)</td>
<td>Transform schools through developing an understanding of professional roles; Improve district capacity to support schools in curriculum delivery;</td>
<td>Capacity building of SMTs in planning, budgeting, working with school communities, monitoring and evaluation; Interventions to improve district functionality: training and resourcing; Technical support to enhance</td>
<td>Changes in school management and classroom practices were effected</td>
</tr>
<tr>
<td>3. District Development Support Programme (DDSP)</td>
<td>1999-2003</td>
<td>Support the Provincial Department to play a strategic role in curriculum delivery and school resourcing.</td>
<td>capacity of Provincial office: support to establish curriculum branch and chief directorates for strategic management and curriculum.</td>
</tr>
<tr>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>Improve learner performance in grade 3 literacy and numeracy.</td>
<td>Training and on-site support of teachers in lesson planning, teaching methods, assessment and use of resources; Training and on-site support of principals, SMTs and SGBs; Provision and use of assessment resource banks to strengthen classroom assessments; Use of assessment data for accountability (pressure) and improvement (support).</td>
<td>Improved learner performance in mathematics (11%) and literacy (3%) over baseline; Implementation of a school support system by circuit managers.</td>
<td></td>
</tr>
<tr>
<td>4. Quality Learning Project (QLP)</td>
<td>2000-2004</td>
<td>Improve academic performance of secondary school learners in mathematics and language.</td>
<td>Training and support of district officials in HR, finance, information management, textbook and school supplies; Training and support of SMTs and SGBs to improve management and governance; Use of assessment data to improve teaching; Teacher Development: content knowledge, assessment literacy and use of LTSM; Monitoring and evaluation through systemic assessment data collection in grades 9 and 11.</td>
</tr>
<tr>
<td>Improve academic performance of secondary school learners in mathematics and language.</td>
<td>Training and support of district officials in HR, finance, information management, textbook and school supplies; Training and support of SMTs and SGBs to improve management and governance; Use of assessment data to improve teaching; Teacher Development: content knowledge, assessment literacy and use of LTSM; Monitoring and evaluation through systemic assessment data collection in grades 9 and 11.</td>
<td>Increased number of learners passing matric exams and English (16.8 % and 36% respectively); Increased number of learners passing with exemption (61.8%).</td>
<td></td>
</tr>
<tr>
<td>Improve reading, comprehension and writing in English First Additional Language.</td>
<td>Training and support of FP and IP teachers in teaching reading and writing; Supply of reading books using the ‘book flood’ approach thus exposing learners to reading books.</td>
<td>Inputs in terms of resources and teacher development in literacy produced significant improvements in language competency of learners but negligible improvements in numeracy.</td>
<td></td>
</tr>
<tr>
<td>Improve reading, comprehension and writing in English First Additional Language.</td>
<td>Training and support of FP and IP teachers in teaching reading and writing; Supply of reading books using the ‘book flood’ approach thus exposing learners to reading books.</td>
<td>Inputs in terms of resources and teacher development in literacy produced significant improvements in language competency of learners but negligible improvements in numeracy.</td>
<td></td>
</tr>
<tr>
<td>Improve student performance in numeracy, literacy, mathematics and science.</td>
<td>Training and support of teachers in FP and IP: subject knowledge, assessment, University INSET, Interpretation of NCS, use of LTSM; Training and support of SMTs in instructional leadership; Training and support of SGBs to collaborate with communities to implement SDP;</td>
<td>Grade 3 and 6 learner performance scores showed improvements in literacy, numeracy and science.</td>
<td></td>
</tr>
</tbody>
</table>
Training and support of districts to develop and implement school support plans.

<table>
<thead>
<tr>
<th>Training and Support of Districts</th>
<th>Provision of Reading Books, Mathematics Kits, Workbooks and Assessment Resource Banks to improve teaching and assessment;</th>
<th>Learner performance scores showed improvements in grade 3 and 6 mathematics over control schools.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Khanyisa Transformation Programme (KTP) 2002-2008</td>
<td>Improve efficiency of systems at Provincial office; Improve in-school professional development; Improve learner achievement in literacy and numeracy; Improve capacity of subject advisers to support teachers.</td>
<td></td>
</tr>
</tbody>
</table>
assessment practices and use of resources; (iii) School Management Team development workshops: drawing up school improvement plans and, to a lesser degree, curriculum leadership; (iv) School Governing Body workshops - roles and responsibilities and financial management; and (v) district officials training - district office organisation and planning, and supporting schools.

3.6 Conclusion

This chapter sought to bring together three inter-related concepts: the role of education districts, data-driven decision making and evidence-determined interventions. The primary role identified in the policy on districts is school and classroom monitoring and support to improve learning outcomes. The literature review points to the need for data-driven decision making as a useful philosophy, strategy and practice to better diagnose challenges and decide on priorities for systemic interventions. These interventions may call for policy change, improving practice and targeted resourcing.

The review of literature on data use also provides several lenses to understand the required skills, organisational culture, processes and conditions for data use. The conceptual frameworks described in this chapter inform the model offered in chapter 5 to suit the South Africa context, in particular for the three sampled districts, and possibly other districts as well. The next chapter outlines the research methodology and instruments employed in this study.
CHAPTER FOUR
RESEARCH METHODOLOGY

This chapter presents the research design for the study and outlines the reasons for choosing the case study method, the selection of districts, provinces and interviewees, as well as the data collection method and the instrumentation used. The research design is regarded as appropriate to investigate the use of ANA information by districts and provinces for addressing the five research questions as stated in Chapter One.

4.1 The case study method

Baxter and Jack (2008) describe the case study method as an approach to research that facilitates exploration of a phenomenon within its context using a variety of data sources. For this study, the method allows the researcher to delve deeper into the way in which the district and provincial officials understand their roles and the process and systems applied for using ANA results. Yin (2003) is of the view that the case study design should be considered when: (a) the focus of the study is to answer “how” and “why” questions; (b) you cannot manipulate the behaviour of those involved in the study; (c) you want to cover contextual conditions because you believe they are relevant to the phenomenon under study; or (d) the boundaries are not clear between the phenomenon and context. Yin (2009: 4) also contends that a case study allows investigators to focus on a ‘case’ and retain an holistic and real world perspective on small group behaviour, organisational and management processes and school performance, amongst others.

The case study method is eminently suited for this study as the research questions attempt to find answers on ‘how’ and ‘why’ ANA information is used in districts and provinces to make decisions on developing appropriate interventions to improve teaching and learning. The researcher acts as the primary instrument for data collection and analysis in order to produce a thick description of actions and experiences (Merriam, 2009: 15-16).
4.2 Sample for the study

Two senior officials from the DBE (i.e. national level) were interviewed to get an understanding of the mandates used for ANA, and the policy guidelines and reports issued to provinces and districts on the use of ANA information. The interview subjects were selected according to their line functions, namely the assessment unit and the curriculum unit as these are the two primary sections in the system that are responsible for the administration of ANA and the subsequent use of ANA results.

Three provinces – P1, P2 and P3 – constitute three cases selected from the nine provinces in the country. Data on each of the cases is collected at three levels of the education system: provincial, district, and circuit. The primary instrument for data collection is a structured interview instrument in which questions are asked according to the line functions of the interviewees. Moreover, key documents, which were made available during the interviews, pertaining to ANA analysis, interpretation and plans for interventions were studied. Additionally, my experience and observations while working with districts and provinces for over a decade also served as a strong basis for triangulation.

The choice of provinces was determined by my work as an education department official in the National and Provincial offices and in large scale district development projects. I worked as project manager in Province P2 for a period of seven years and served in the Provincial office (P1) for five years. I led the district development projects in province P2 for six years and therefore became familiar with the context, structure and operations at both district and circuit levels. Currently, my work is in province P3 under the auspices of the National Education Collaboration Trust (NECT). Having worked in provinces P1, P2 and P3 for an extended period gives me insight into provincial plans and operations and therefore makes the choice of the provinces strategic and appropriate for this study.

The selected provinces have between five and twelve districts. One district was selected from each of the three provinces (called D1, D2 and D3). The choice of the districts was informed by the contextual factor of urban-rural; all three districts have a mix of urban and rural schools.
Two circuits were selected from each of the three districts to allow the researcher to understand the dynamics of ANA use in rural, semi-rural and urban areas. The six circuits are referred to as C1, C2, C3, C4, C5 and C6.

The names of the provinces and districts are not indicated and shall remain anonymous. The provinces are called P1, P2 and P3; while the districts are labelled as D1, D1 and D3. The six circuits are named as C1 to C6. Table 4.1 summarises the provinces, districts and circuits.

### Table 4.1 Sample of three provinces, three districts and six circuits

<table>
<thead>
<tr>
<th>Province</th>
<th>District</th>
<th>Circuits</th>
</tr>
</thead>
<tbody>
<tr>
<td>P1</td>
<td>D1</td>
<td>C1, C2</td>
</tr>
<tr>
<td>P2</td>
<td>D2</td>
<td>C3, C4</td>
</tr>
<tr>
<td>P3</td>
<td>D3</td>
<td>C5, C6</td>
</tr>
</tbody>
</table>

Data on policy and operational links and relationships between the DBE and provinces was collected from interviews conducted with two officials, one responsible for policy on ANA and the administration thereof (working in the Examinations and Assessment Unit), while the other is responsible for directives on the use of ANA information (working in the GET Curriculum unit).

### 4.3 Interviewees and data collection

Each district in South Africa has Subject Advisers who report to the Head: Curriculum. These officials are subject and Foundation Phase (FP) specialists responsible for training and supporting teachers. They interact directly with teachers and are intimately involved in the use of ANA data with teachers. Therefore, in each district, three Subject Advisers were selected to participate in the study. The participants are specialists in FP, language and mathematics, which are subjects tested in the ANA. Hence, nine Subject Advisers (SA1 to SA9) were interviewed. Table 4.2 illustrates the sample of Subject Advisers in each district.
Table 4.2 Three districts and Subject Advisers

<table>
<thead>
<tr>
<th>District</th>
<th>FP Subject Adviser</th>
<th>Language Subject Adviser</th>
<th>Mathematics Subject Adviser</th>
</tr>
</thead>
<tbody>
<tr>
<td>D1</td>
<td>SA1</td>
<td>SA2</td>
<td>SA3</td>
</tr>
<tr>
<td>D2</td>
<td>SA4</td>
<td>SA5</td>
<td>SA6</td>
</tr>
<tr>
<td>D3</td>
<td>SA7</td>
<td>SA8</td>
<td>SA9</td>
</tr>
</tbody>
</table>

The overall planned sample size of interviewees from the DBE, Provinces, districts and circuits was 26 officials. However, two officials were unavailable at the time of interviews, one due to illness and the other being on leave. Subsequently, almost fifteen months later, a second Provincial official in P2, responsible for ANA use, attached to the Quality Assurance Directorate was identified and interviewed. Therefore, 25 officials, including the two DBE officials make up the realised sample, shown in table 4.3.

Table 4.3 Realised sample of Interviewees in three Provinces

<table>
<thead>
<tr>
<th>Structure</th>
<th>Interviewees</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Director: Curriculum/Prov official</td>
<td>Head: Assessment</td>
</tr>
<tr>
<td>Province P1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Province P2</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Province P3</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>DBE</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Total</td>
<td>3</td>
<td>2</td>
</tr>
</tbody>
</table>

Data collection was done through structured face-to-face interviews in 20 cases and telephonic interviews in five instances. In the case of telephonic interviews, the supporting documents were obtained through emails. All documentary evidence was analysed for purposes of triangulation with interview data.

At the start of all interviews, the confidentiality and anonymity clauses of the University ethics policy was explained. A copy of the letter to the interviewee and the consent form (Annexure 1: Information leaflet and informed consent form) was handed to the interviewee and signed prior to the interview. For telephonic interviewees, this was done through emails. Thereafter, a general question on how the person’s work is related to ANA was asked. Flowing from the general question, the specific questions from the interview instrument was posed.
4.4 Interview instruments

Structured interviews were conducted using four different instruments attached as Annexures 2 to 6, namely Interview instrument for DBE officials, Interview instrument for Provincial Director: Curriculum, Interview instrument for District Head of Assessment, Interview instrument for District Head of Curriculum and Subject Advisers and Instrument for Circuit Manager, that contain questions and sub-questions derived from the research questions listed in Chapter 1. The advice from Dilley (2000: 136) to listen with more than one ear, to more than one voice, all at one time was followed in the interviews. The same instrument was used for the Head of Curriculum and Subject Advisers for two reasons: firstly, the nature of work is similar in many respects, namely planning for support of subject teachers and secondly, the same questions in an instrument used for two people gathers comparable information. The list of instruments linked to the research questions is given in Table 4.4. The guideline suggested by King and Horrocks (2010) was used to make the interviewing process effective: use of a quiet private office; note taking of points to be followed up and responses; building rapport by understanding the nature of work and role in the position; providing information on the project and assuring confidentiality and anonymity; use of lead questions followed by probes; and closure of interview by expressing gratitude for participation.

Table 4.4 Instrument types and research questions

<table>
<thead>
<tr>
<th>Appendix number</th>
<th>Instrument</th>
<th>Research questions</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>DBE officials</td>
<td>What policy guidelines are issued by the DBE to provinces on the use of ANA information?</td>
</tr>
<tr>
<td>3</td>
<td>Director: Curriculum/Provincial official</td>
<td>How do provinces interpret and direct the implementation of the national assessment policy?</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Which policies, structures and processes are in place across provinces to enhance the effective use of assessment information, focusing specifically on the ANAs?</td>
</tr>
<tr>
<td></td>
<td></td>
<td>How does the provincial office lead, organise and co-ordinate the use of ANA data across districts?</td>
</tr>
<tr>
<td></td>
<td></td>
<td>What are the conditions that promote or inhibit effective use of ANA data in provinces?</td>
</tr>
<tr>
<td>4</td>
<td>Head: Assessment</td>
<td>How do the selected districts (assessment unit) analyse ANA data?</td>
</tr>
<tr>
<td></td>
<td></td>
<td>How does the assessment section collect, organise and manage ANA data?</td>
</tr>
</tbody>
</table>
Responses of interviewees to all questions posed (see table 4.4) was carefully summarised in a pre-prepared data collection schedule. As a way of ensuring reliability, at the end of each interview, the participant was asked to confirm his/her answers to the questions. In addition, ‘analytical notes’ of good ideas or similarities in responses of other interviewees to the same question were jotted down as advised by Kelly (2006: 302).

### 4.5 Collection and data analysis

The primary method for data collection in this study is a structured interview and document analysis complemented with personal observations of district work for over a decade. The questions included in the interview instrument are derived from the original research questions and their associated sub-questions. However, since the officials who participated as interviewees in this study operate at different levels of the system and because their line functions are different, the interview instrument had to be aligned to their functions with regard to the specific questions asked of research participants. The questions included in the interview schedule used for the

<table>
<thead>
<tr>
<th></th>
<th></th>
<th>What systems, structures and processes are used to analyse the ANAs?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>What conditions promote or inhibit effective use of ANA data in the Assessment unit?</td>
</tr>
<tr>
<td>5</td>
<td>Head: Curriculum AND Subject Advisers</td>
<td>How do the selected districts (curriculum unit/Subject Advisers) use ANA information to support teachers?</td>
</tr>
<tr>
<td></td>
<td></td>
<td>How do Subject Advisers and the Curriculum Head interpret and use ANA information to select strategies to improve teaching and learning?</td>
</tr>
<tr>
<td></td>
<td></td>
<td>What are the strategies used by Subject Advisers to support teachers to improve teaching and learning?</td>
</tr>
<tr>
<td></td>
<td></td>
<td>What conditions promote or inhibit effective use of ANA data in the curriculum unit?</td>
</tr>
<tr>
<td>6</td>
<td>Circuit Managers</td>
<td>How do Circuit Managers support principals in the use of ANA reports and ANA results?</td>
</tr>
<tr>
<td></td>
<td></td>
<td>How do Circuit Managers support principals in the use of ANA reports and ANA results?</td>
</tr>
<tr>
<td></td>
<td></td>
<td>How do circuit managers use ANA results to mobilise SGBs and parents to support the improvement of learning outcomes?</td>
</tr>
<tr>
<td></td>
<td></td>
<td>What conditions promote or inhibit effective use of ANA data by circuit managers?</td>
</tr>
</tbody>
</table>
Head of Curriculum as well as the Subject Advisors, both operating at district level, are exactly the same, however, the questions in the instruments used to interview the Director: Curriculum at provincial level, the Head of the Assessment Unit at district level and the Circuit Managers are somewhat different.

The first step in the data collection process involved recording responses of participants during interviews. During the interview, participants were asked to provide the relevant documents as evidence in support of their answers. Where interviews were conducted face-to-face, these documents were collected on site; where interviews were conducted telephonically, documents were either sent to the researcher or made available electronically. In both cases, an analysis of the documents served as a means of verifying the trustworthiness of data collected during interviews. The documents that were not readily available were the minutes of meetings convened by CMs, Heads of Curriculum and Heads of Assessment.

The analysis of ANA documents served as a secondary source of information. These were: presentations of ANA results to district senior management, circuit managers and subject advisers by the assessment unit, provincial curriculum plans; district curriculum unit plans and circuit plans. Also included were notices (circulars) from the province and district offices for Subject Advisers to train and support teachers in improving content knowledge and assessment. The diagram below (Fig. 4.1) shows the three-step process of data collection, summarising by province, district and circuit and finally cross province, district and circuit analyses.

**Fig. 4.1  Data analysis process**

The second step is the analysis of participant responses to interview questions by position for each province, district and circuit. The third step is the analysis of
participant responses to interview questions across the provinces, districts and circuits.

*Step one* (data collection), is technical in nature where detailed notes were made of responses to the primary, secondary and the clarity seeking questions. This was accompanied by collection or observation of relevant documents as evidence to substantiate responses. The *second step* provides insight into the use of ANA information by Provincial officials, District officials (Head of Assessment, Head of Curriculum and Subject Advisers) and Circuit Managers. The *third step* (analysis of DBE responses and responses across provinces, districts and circuits) made it possible to compare and contrast practices in ANA data use. The common findings on practices in ANA data use in the three provinces may be good pointers to the way in which the other provinces use ANA information.

### 4.6 Validity and trustworthiness

Trustworthiness and validity of research findings is about “how we claim to know what we know” (Altheide and Johnson in Whittemore *et al*, 2001: 535). Morse *et al* (2008: 18) advance five verification strategies to improve validity and trustworthiness. These are methodological coherence, sampling sufficiency, developing a dynamic relationship between sampling, data collection and analysis, thinking theoretically, and theory development. Firstly, in this study, methodological coherence is ensured by selecting the appropriate design to match the research questions (chapter 1), secondly, the sampling is motivated by selection of subjects who are responsible for data analysis, interpretation, and use in deciding on interventions. Finally, the study ensures trustworthiness during the research process, where ideas emerging from the data (micro-theory) are compared with existing theory (macro-theory) and new theory is developed from a combination of ideas generated by the study, and existing theory. The audit trail in this study consists of (a) responses to interview questions, (b) reconstruction and synthesis notes, (c) analysis notes by province, (d) cross province/district/circuit analysis and (e) comparative analysis across provinces (Klenke, 2008: 39).
4.7 Conclusion

While Chapter One provided the introduction and overview of the study, and chapters two and three presented the literature review, chapter four explains the research methodology used in this study, namely a qualitative study of three cases (provinces P1, P2 and P3) on the use of ANA information. The next chapter presents the research findings drawn from the analysis of data collected through interviews, document analysis and personal observations of DBE, provincial, district and circuit operations in relation to the administration and use of ANAs.
CHAPTER FIVE
RESEARCH FINDINGS

5.1 Introduction and purpose
In this Chapter, the research findings based on data collected from officials operating at different levels of the education system is explained and interpreted to address the five research questions and the sub-questions noted in Chapter 1.

Specifically, the findings highlight: (a) policy and guidelines provided by the DBE on the use of ANA information, (b) the ways in which provinces use ANA information to direct and co-ordinate strategies aimed at the improvement of teaching and learning, (c) how districts (assessment unit and curriculum unit with Subject Advisers) analyse, interpret and use ANA data as the basis for the selection and implementation of interventions to improve teaching and learning in schools and finally (d) how circuit managers use ANA results to support principals (in school management) and parents (in school governance).

The first level analysis (by Province) presents the findings by position, starting with the Director: Curriculum in Province P1. This is followed likewise for Provinces P2 and P3. The second level (cross analysis) is done by DBE, three provinces, three districts and six circuits. The chapter then notes the key findings and related proposals that contribute to a better understanding of the research problem.

5.2 Data collection and analysis: Province P1
Eight officials from Province P1 were selected as research participants – one operating at provincial level, five at district level, and two at circuit level. The interview findings regarding the Director: Curriculum (Provincial level) follows in the next section.

5.2.1 Provincial interview (Director: Curriculum - Province P1)
Provincial data was collected by means of a telephonic interview with the Director: GET Curriculum using the interview schedule marked Appendix 3. The person occupying this position is responsible for the interpretation and operationalisation of policy, curriculum leadership to districts, as well as the co-ordination and monitoring
of the implementation of curriculum interventions. The big question here is: how does the province interpret national policy and directives from the DBE for implementation? The data collected at provincial level from the Director for GET Curriculum provides an understanding of the following sub-questions: (a) what policies, structures and processes are used in the implementation of ANA, (b) how the province leads, co-ordinates and organises the use of ANA information and (c) what are the conditions that promote or impede the use of ANA information in the province.

When asked which policies or guidelines are used for the implementation of ANA, the Director indicated that only the 2013 ANA performance and diagnostic reports, copies of which were received in June, were used. Using these as frames of reference, the provincial department developed its own Procedure Manual to guide subject advisers and schools on Error Analysis. The challenging topics in the Diagnostic Report are linked to the items in the test, thus aligning curriculum with assessment. Part B (Framework for Improvement) of the Diagnostic Report (DBE, 2013a: 104-141) is used for remedial actions to be taken at provincial, district and school levels. However, the Director was not aware of the ANA Guidelines (DBE, 2012a) and no mention was made of section 5 of the Action Plan which refers to the place of ANA in the Action Plan.

According to the Director, the following structures are functional at different levels of the system: the Directorate team (provincial level), subject advisers (district level), principals’ meeting (circuit level) and school management teams (school level). The Provincial/Directorate team sets targets in the Annual Performance Plan (APP), which is translated into learner numbers per district, e.g. 1 321 learners in District X must pass at 50% to contribute to the provincial target of 15 749 passes. Subject Advisers at district level do error analyses and conduct quarterly subject teacher workshops. Principals’ meetings are convened by the Circuit to discuss performance at national, provincial and district levels and to set school targets. Heads of Department (HODs) and school management teams (SMTs) are required to support teachers according to diagnostic analysis though this process is not monitored.
The Director also indicated that analysis and reporting take place at all layers of the system. The interpretation of the internal Item Analysis report is done at provincial level – the DBE report came late to Provinces in 2014 – and is used as a basis for the selection of content for subject workshops that are held once per quarter. Content training includes discussion of lessons in subjects where performance is poor, e.g. Grade 9 English First Additional Language (EFAL). Quarterly papers for Grades 3, 6 and 9 are also set at provincial level and the results are used by teachers as basis for remedial work; Subject Advisers (SAs) at district level manage the administration of these common quarterly papers and do both a quarterly item analysis and a quantitative analysis to monitor progress towards targets. Circuit managers (CMs) are responsible for the collection of mark sheets.

With regard to the directives and guidance (leadership) that the curriculum directorate in the province gives to districts on the use of ANA data, the Director indicated that it is the responsibility of the Director: Curriculum to lead the provincial team on how to do Error Analysis, how to decide on steps to be taken to close gaps identified (guiding districts on quarterly workshops and how to administer quarterly tests and materials development). While district officials are advised on the use of the Error Analysis Manual and content of workshops, no direction is given to circuit managers (CMs). HODs and teachers are, however, supported in content knowledge, teaching methodology and assessment literacy during quarterly workshops, informed by the ANA Diagnostic Report (internal and DBE). The analysis, interpretation and identification of specific barriers to effective learning is undertaken by Provincial and DBE officials after the release of the Diagnostic Report; a process confirmed by the DBE interviewee (curriculum).

The use of ANA data, according to the Director, is co-ordinated by means of meetings held at provincial level (directorate meetings), district level (subject advisers’ meetings), circuit level (principals’ meetings) and school level (meetings with school management teams). While notices for such meetings were available, minutes for the said meetings were not available, thus making it difficult to determine the content of the discussion or to confirm decisions taken on the interventions to be implemented.
When asked about conditions that either promote or impede the effective use of ANA data in provinces, the Director indicated that time for data analysis was insufficient due to the small number of subject advisers – for example, 11 subject advisers for Mathematics have to service 2 400 schools. In addition, due to a poor culture of data use, ANA data is used in a haphazard rather than in a regular and systematic manner. The Director conceded that leadership in data use is lacking and that the Department of Basic Education (DBE) could do more in this regard. This perception is probably due to the Director being unaware of the DBE guidelines published in 2012. Resources (old laptops, no access to internet) are also inadequate due to budgetary constraints, hence the provincial department does not have a platform to capture and manage ANA data. Acknowledging the lack of skills in data use, the Director highlighted the need for a comprehensive programme in this area, first for the province and districts, second for circuit managers, and then for principals and teachers.

5.2.2 District interviews in D1
The five district officials who were interviewed were the District Head: Assessment, the District Head of Curriculum and three subject advisers, one responsible for the Foundation Phase (FP) and the other two responsible for Mathematics and English First Additional Language (EFAL), respectively. District data was collected by means of structured interviews, all of them face-to-face.

5.2.2.1 Head: Assessment in district D1
The interview with the Head of Assessment lasted approximately an hour. During this time the research participant responded openly to the questions included in the structured interview schedule. (See Appendix 4 for the interview schedule).

The District Head of Assessment is tasked with the provision of leadership in the administration of the National Senior Certificate (NSC) and Annual National Assessment (ANA) examinations and other assessments. The person occupying this position is, moreover, responsible for the analysis of assessment data, the results of which is used as information by the district management committee and the curriculum unit for planning interventions; for which minutes of meetings could not be produced.
The first set of interview questions addressed to this research participant focused on the way in which the assessment unit, a district level structure, collects, organises and manages ANA data. The second set of questions focused on the structures and processes used in the analysis of ANA data and the third set on conditions that either promote or inhibit the effective use of data in the assessment unit. Together, the responses to these three sets of questions were intended to assist the researcher in answering the second research question, namely, “How do districts analyse ANA data”.

With regard to the structures, systems and processes that the assessment unit uses in the collection of ANA data, the official indicated that different structures are used for different purposes: subject co-ordinators for item analysis, nodal centres for the distribution of papers, and decentralised venues for the provincial moderation of ANA. Three systems are used for data collection, namely SASAMS (School Administration and Management System) for the registration of learners for ANA, a delivery system for test papers, and a collection system (by circuit managers) for papers and completed mark schedules. Data collection processes include the orientation of district staff and school principals on the administration of ANA, the registration of learners, a memo discussion before marking commences, receipt of DBE performance report from the province and the cascading of this information to the curriculum unit and circuit managers.

A provincial management plan that adheres to national dates is followed. Schools collect sealed test papers from the district office, administer tests on the scheduled days, and teachers mark and moderate the test papers under the control of the principal. The mark sheets are completed by teachers and submitted to the circuit manager by the principal. The circuit manager submits mark sheets from all his/her schools to the district office (assessment unit). These mark sheets are in turn forwarded to the province for capturing on the mainframe computer by the Provincial Examination and Assessment Directorate. Once captured, the data is uploaded to the National database.

The ANA system is still developing and not operating optimally as yet in light of firstly, percentage of marks captured; in 2013 the national percentage captured is
80% (without absent learners) and in 2014 the national percentage captured without absent learners is 91% (DBE, 2013b: 26; DBE, 2014b: 29). Secondly, comparison of system performance across the years is questioned in the NEEDU report (2013). Kanjee (2014a: 14) in his report to the NECT on the viability of using ANAs to evaluate the impact of NECT programmes asserts that the use of different instruments for different years makes comparison invalid as there is no common basis against which to compare changes in the performance of learners over time. Thirdly, anomalies were found between the 2011 scores in the DBE national database and school scores in mark sheets, which were not the same, while some school scores do not appear on the national database (NEEDU, 2013: 54-55).

When asked how the assessment unit organises collected data for purposes of analysis and interpretation, the District Head of Assessment (DHoA) indicated that student performance data is organised in Excel tables and presented in PowerPoint slides. Tables with averages are used to report per grade and subject in terms of national, provincial and district performance - pass rate greater than 50%. The interviewee pointed out that tables indicating frequency distributions graphs (national, provincial and district) are done by the DBE and not by officials working at district level, and that these are available in the national reports (DBE, 2012b, DBE, 2013b; DBE, 2014b). The district assessment unit does not draw graphs for circuit performance: instead, they use the graphs in the DBE report to draw comparisons between national, provincial and district performance.

The management of collected data, according to the interviewee, takes place at school and district levels. Data is kept as follows: mark schedules in paper files in school principals’ offices, and the diagnostic report on a compact disc (CD). The official noted that in the district, there is neither a functional system nor a platform to track learner performance over a number of years, but indicated that the DBE is in the process of setting up a Learner Unit Record Information System (LURITS) to serve this purpose.

With regard to the structures utilised by the assessment unit, the interviewee indicated that the unit meets with the district management committee (MANCO), but not with the curriculum unit or with Circuit Managers. The curriculum unit
communicates directly with the subject advisers without a joint meeting on data analysis between the assessment and curriculum units. MANCO meetings are called (between January and February) by the District Director (DD) and provide provincial and district assessment units with an opportunity to make presentations on ANA results. Meetings with principals are called by circuit managers to cascade reports received from the Assessment Unit. During these circuit meetings, principals are given instructions by the circuit managers on the development of School ANA Improvement Plans. Circuit Managers cascade information to principals that was cascaded down to them by circuit co-ordinators who attend the district MANCO. This long chain usually results in a dilution of the message, which has consequences at the level of schools. Invariably, a clear articulation on the use of ANA results may be distorted or incomplete apart from dilution.

Concerning data analysis processes utilised by the assessment unit, the interviewee indicated that since its focus is on administration matters, and given staff shortages, the assessment unit does not undertake district level analysis. Consequently, they do not draw graphs or tables to represent data, nor do they analyse or prepare reports on ANA data. Rather, they rely on the province to do the primary analysis. However, one circuit manager of his own volition, provides circuit-level analysis of ANA data. This circuit manager does not merely pass on the mark sheets to the district (compliance) but makes copies for circuit level analysis that is presented in the meeting of principals.

In response to interview questions dealing with conditions that promote or inhibit the effective use of data in the assessment unit, the interviewee reported that s/he has a laptop and printer and has access to the intra- and internet. While s/he has been trained in the administration of ANA and has received basic training in the use of Excel, s/he has received no training in basic statistical tools, the representation and interpretation of data or the use of data for planning. S/he indicated that s/he would like to have training in all these areas. Although, according to the interviewee, there is sufficient time for data-related activities, there is little evidence of a data-driven culture within the assessment unit. The interviewee is of the opinion that leadership from the province in data use is limited and poor. Interestingly, a similar finding about district capacity to support schools was made by Kanjee and Moloi (2014).
5.2.2.2 Head: Curriculum in district D1

The face-to-face interview with the Head: Curriculum at district level, conducted by the researcher lasted approximately an hour. During this time the research participant responded openly to the questions in the structured interview schedule. The responsibility of the District Head of Curriculum (DHoC) is to provide leadership on curriculum delivery to subject advisers and curriculum officials at the district level.

In response to the question on the interpretation and representation of data, the DHoC indicated that s/he is familiar with both DBE reports, and noted that the ANA Diagnostic Report (DBE, 2013b) is given to each school on a CD. The DBE Diagnostic report is found to be very useful to triangulate results of the item analysis (IA) done by schools and the district. S/he finds good correlation across the reports in identifying problematic concepts. At district level, item analysis is done on a sample of schools by Subject Advisers. The Curriculum Head gets the subject coordinators in the unit to summarise the data in tables, showing mean scores and percentage pass (50%+), disaggregated by grades and subjects. From this analysis, schools needing urgent attention are identified for additional support. Distribution tables for scores in the seven levels are not done by circuit for circuit comparisons.

The DHoC also indicated that outlier schools producing good results thus breaking out of the norm, are not visited and studied for good practices. The primary focus is on poor performing schools, with little attention on deeper analysis that targets HODs and teachers. The support interventions developed are generic for all schools. The reason given for generic interventions is that there are too few curriculum officials to support the 650 primary schools in the district. There was no evidence of innovative solutions, for example, using ICT or professional learning communities (PLCs) to overcome this problem.

With regard to strategies for the development of HODs, the DHoC indicated that no special attention is paid to HODs. They are treated like teachers in group support activities. Differentiation for curriculum management is not done. Discussions of content knowledge and teaching methods are covered in meetings of about 40-50 teachers (including HODs) from a cluster of circuits or schools. The cue is taken from the DBE ANA Diagnostic Report (DBE, 2013b) and district item analysis, on a
sample of schools, comprise the content of workshops. With regard to support of teachers in the use of resources, the DHoC indicated that this is provided in activities on aligning exercises in workbooks with CAPS to ensure correct sequencing. The better-equipped teachers easily find the link between the CAPS sequence and the workbook sections. Support to teachers in the areas of learner assessment practices, according to the DHoC focuses mainly on policy compliance, notably with the assessment policy for continuous assessment (known as formal assessment tasks). Teachers are asked to use assessment frameworks to ensure that all levels of learning are covered from straight recall to problem solving.

With regard to the monitoring of curriculum coverage, the DHoC indicated that this is an area that is done relatively well as the district uses a tool for completion by HODs to assess curriculum coverage in each term. This is analysed by subject co-ordinators and shared with the circuit manager, who in turn investigates reasons for slow coverage in identified schools. During school visits, the SAs observe teaching and also scrutinise learner exercise books for quality, quantity and regularity purposes. The Head explained that even Circuit managers are now beginning to look at exercise books in the primary schools, prompted by the ANA results and diagnostic reports. The additional curriculum support is of particular importance in light of the unfavourable ratio of SAs to schools (1:182 and 1:104) for Mathematics and English First Additional Language (EFAL) for grades 4 to 9 noted by the writer.

According to the Head: Curriculum, principals are invited to a meeting at a central venue, and are expected to present their results and solutions for improvement, when called upon. These meetings are referred to as ‘accountability meetings’ where principals of poor performing schools are expected to account for poor performance and to share their improvement or remedial plans. This was done for the first time in early 2014. This observation was corroborated by the circuit managers. It still remains to be seen whether this strategy of demanding performance-based accountability could lead to improved learner performance. Fleisch (2006: 235) takes lessons from district improvement projects to assert that this approach has positive results because the act of monitoring and follow-up is a form of capacity building.
In response to interview questions dealing with conditions that either promote or inhibit the effective use of data in the curriculum unit, the DHoC indicated that hardware was not a major problem. Although both his laptop and desktop computers were old, both were still working; he had a printer and had access to the Intra- and Internet. The only problem he had was with a lack of training, which was confined to a 4-hour annual session in which provincial officials train them on the administration of ANA. They have thus far received no training on the collection, analysis, interpretation or use of data for planning; something which, according to this participant, was sorely needed.

Time is not a barrier, but a weak culture of data use in the district and in schools is indicated as a problem. The Head of Curriculum also noted that s/he does not convene meetings of the curriculum unit to specifically discuss solutions through joint analysis of ANA data.

5.2.2.3 Subject advisers in district D1

Interviews were conducted with three subject advisers (SAs) in district D1. Subject advisers are tasked with providing support in the interpretation of Curriculum and Assessment Performance Statement (CAPS), teaching, learning, assessment and the use of resources (ELRC collective agreement 2, 2002).

An interpretation of responses from all three subject advisers in district D1 is described below. A common interview instrument was used for subject advisers and the Head of Curriculum. Therefore, the reporting template for subject advisers is similar to that for the Head of Curriculum.

When asked how they interpret the ANA data represented in tables/graphs, all three subject advisers indicated that they study mean scores in order to identify grades that seem to need support. They also study mean scores across schools to identify those schools with a pass rate lower than 35% in grades 3, 6 and 9 since these are the schools that would need urgent support.

None of the subject advisers do a performance-level analysis for subjects and grades in order to check the ‘bulge’ in particular levels, for example, level 2 which is
30-39%. While both the Foundation Phase SA and the EFAL adviser analyse ANA results, they do it for different purposes: the one does it to check which questions are problematic while the other identifies schools in a circuit that perform poorly in the subject. All three participants have copies of the DBE Diagnostic Report but only the subject adviser for Mathematics discussed it at schools; the FP subject adviser had not read it at the time (October) the interview was conducted.

Two of the three subject advisers (EFAL and Mathematics) have lists of schools that require intensive support; the FP subject adviser does not. With regard to the identification of high performing schools, only the subject adviser for EFAL has a list of these but the reasons for their good performance are not investigated. None of the subject advisers identified HODs needing support: two of them – the one for FP and the one for Mathematics indicated that HODs were regarded and treated in the same way as teachers although the study of teachers assessment practices (Kanjee et al, 2010) found that the HoDs are the key point persons within the schools for any advice or support regarding content and assessment practices. The FP subject adviser added, though, that individual support (to teachers and HODs) is provided during school visits, and that, as a rule, about 10 schools are visited per quarter, which is about 5% of poor performing schools. The SA for EFAL indicated that HODs are called together once a year to discuss ways in which classroom visits could be conducted and continuous assessment (CASS) should be moderated. Quarterly teacher workshops are used to strengthen identified teachers’ subject knowledge in topics where learners did poorly in the ANA (SA: Foundation Phase), and quarterly meetings where teachers from better performing schools facilitate discussions on good practices in teaching problematic sections (SA: EFAL).

With regard to the development of teachers’ ability to make better use of resources, such as textbooks, workbooks and science kits; responses varied widely. The subject adviser for the Foundation Phase indicated that work books are used extensively by teachers as there are no textbooks prescribed for home language, English First Additional Language or Mathematics. The SA for Mathematics indicated that the use of workbooks is explained in meetings with teachers: they are shown, for example, how to align workbooks with CAPS. This activity is important for ensuring that topics where learners perform poorly in ANAs is treated intensively, adequately
and comprehensively in textbooks and DBE workbooks, especially for grades 7 to 9 – a matter that is not given attention by any of the Subject Advisers.

All three subject advisers participating in this study indicated that strategies aimed at the improvement of learner assessment practice focused on training teachers to test learners on recall of knowledge, understanding, analysis and synthesis and problem solving. In the Foundation Phase, the focus is on assessing learners at the different cognitive levels and the use of assessment frameworks when designing tests to prevent assessment of only lower order knowledge and skills. In EFAL and Mathematics, the focus is on spreading assessment tasks over the different cognitive levels in line with the curriculum and assessment policy (DBE, 2011c). According to the Mathematics SA, greater awareness of designing balanced tests is ascribed to lessons from the assessment frameworks provided by the DBE in preparation for ANAs.

With regard to the monitoring of curriculum coverage, the Foundation Phase SA indicated that this was not done regularly, which is confirmed by the NEEDU finding that the volume and quality of written work assigned to learners is well below the norms set in the CAPS (NEEDU, 2013). The SA for EFAL indicated that monitoring was done during classroom support but s/he was unaware of the norms regarding the requisite number of units of written work. The SA for Mathematics also indicated that curriculum monitoring occurred during class visits by examining alignment and coverage of the curriculum in the work schedule or tracker, lesson plans, written work in exercise books, and assessment tasks. Clearly, none of the SAs relate monitoring of curriculum coverage with the ANA reports issued by the DBE.

When questioned about target setting for the district and supporting schools to do the same, the SA for FP indicated that the majority of schools (90%) do not have targets for FP. The SA for Mathematics (IP and SP) indicated that targets are set by schools for subjects in Grades 3, 6 and 9 while the SA for EFAL (IP and SP) indicated that there was no insistence on the setting of targets in previous years but that s/he is now pushing schools to do so in EFAL. This would involve each class setting its target and the school setting a realistic target using a baseline.
Responding to questions on conditions that could inhibit or promote the effective use of ANA data in the district, all three subject advisers indicated that they had laptops but only the SA for EFAL had access to a printer (shared with others) and to the intra- and internet. The only training received – from the provincial department - was a half–day training session/orientation to the administration of ANA. Two of the SAs indicated that they needed training in statistical tools, data representation and the analysis and interpretation of data. The SA for Mathematics indicated, however, that the only training s/he still needed was in the use of data for planning school support.

In addition to the lack of training, according to these SAs, the absence of a data-driven culture, limited opportunity for data use with colleagues, lack of leadership and/or support could be regarded as barriers to the effective use of data in the district. The SA for EFAL indicated that s/he worked with district colleagues (once a term), in analysing ANA data and quarterly test results.

5.2.3 Interviews with Circuit Managers CM1 and CM2 in district D1

Circuit managers are tasked to support principals to maintain an environment that is conducive to teaching and learning, to ensure school functionality and to help principals to work closely with SGBs and the community (RSA, 2013: 26). The questions posed during the interview to circuit managers were therefore aimed at determining the extent to which they use ANA results in performing these tasks. Specifically, the researcher wanted to determine (a) how circuit managers supported principals in the use of the DBE ANA reports and results to improve learning outcomes; (b) how circuit managers use ANA reports and results to involve SGBs and parents in the improvement of learning outcomes, and (c) which conditions promote or inhibit the effective use of ANA data by circuit managers.

The face-to-face interviews with CM1 and CM2, conducted by the researcher took place in the district D1 office and lasted approximately an hour and ten minutes per circuit manager. A description of responses from the two circuit managers (CM1 and CM2) in district D1 follows.

Responses to interview questions indicated that both circuit managers had copies of the 2013 ANA reports (DBE, 2013a, 2013b) issued by the DBE. Both the circuit
managers (CMs) found the diagnostic reports very useful, firstly, because it highlighted common errors and challenging concepts; secondly, because it illustrated correlations between the national and school level item analysis done by teachers, heads of department and principals. This observation is important for credibility and reliability of the ANA report published by the DBE. Circuit Manager 1 (CM1) expressed concern about the Grade 9 ANA results and indicated that s/he had addressed Grade 9 teachers in this regard. S/he did not, however, monitor the use of the report at schools. Circuit Manager 2 (CM2), on the other hand, indicated that s/he monitored the use of the report.

When asked what their roles were in reporting ANA results to schools to improve learner performance, CM1 indicated that s/he prepared a summary in which school performance in her circuit is compared to district, provincial and national performance. This implies that school mark sheets with the data is used by CM1 and not merely passed on to the district. This report was presented to principals for their information but also as a means of motivating and pressurising schools to achieve the circuit targets (set at 50%). In addition to setting targets for the circuit, and in effect for him/herself, the CM1 requested the principals of all the schools in the circuit to set school-specific targets for the year and to report ANA results to parents, using the DBE template for learners. No evidence for this communiqué was produced.

CM2 indicated that s/he prepared and provided to principals a comparative analysis of performance in grade 3, 6 and 9 Language and Mathematics at national, provincial and district levels. Circuit targets were set at 60% (in line with the national target found in the Action Plan) and principals were requested to set school targets for each of the grades. Additionally, principals are required to monitor the use of exemplars and past ANA papers when preparing for the ANA tests scheduled in September. According to CM2, there was no guidance or timelines on the reporting of ANA results to parents and SGBs from the Province or district. This in effect means that CMs are not aware of the policy on reporting and/or do not appreciate the importance of using ANA reports to mobilise parents to get involved in the education of their children, in particular through target setting and monitoring.
Responses to questions focusing on conditions that may impede or promote the effective use of data by circuit managers indicate that both CMs have laptops and have access to the internet, Intranet and a printer. This means that CMs have the tools but do not adequately use them for analysis and reporting of ANA data, probably due to being unaware of the need for this or due to lack of skills in data analysis. Both CMs also attended a 4-day training workshop on data-driven circuits (by an external provider) and a half-day meeting called by the provincial department to discuss the administration of ANA data. In addition to these two training interventions, CM1 indicated that guidance was also received from the province via a campaign called the Rapid Response programme, which was aimed at assisting teachers to make better use of workbooks, exemplars and previous question papers. CM 1 managed to make decisions based on the prepared analysis of ANA results but could not disaggregate by circuit and schools because (a) the district analysis only disaggregates data up to districts, and (b) the CM does not have the skill to do so. CM2 indicated that s/he knew how to use data for planning school support and represent data graphically but s/he lacked the skill to use Excel. Tabulation was done with the assistance of an intern. Both CMs indicated that they need training in the use of Excel, statistical tools, data representation, analysis and interpretation of and planning with data.

Other conditions inhibiting circuit managers’ effective use of data are lack of support and leadership (at provincial and district levels) on data-related matters (CM2) and, the absence of a data-driven culture, hence CMs have to rely on their own knowledge (CM1). The availability of time does not seem to be a problem, and while CM1 had initially said that they merely collected the data and submitted it to the assessment unit in the district, there was a realisation that the data could be analysed and used for decision making on support and monitoring.

5.3 Data collection and analysis: Province P2

Eight officials from Province P2 were interviewed as research participants – five at district level and two at circuit level. The Director: Curriculum (province P2) was not available at the time of interviews. However, as pointed out in chapter 4, a provincial official who is directly responsible for directing the use of ANA results was identified at a later date and interviewed telephonically. In province P2, unlike in provinces P1
and P3, a provincial official with this responsibility works in the Quality Assurance Directorate.

5.3.1 Provincial interview (Chief Education Specialist: Quality Assurance)

In response to the question on which policies, structures and processes are in place for analysis and interpretation of assessment information, the interviewee pointed out that there is no policy on ANA currently, although a draft policy has been gazetted for comment (RSA, 2015). In the absence of policy, he mentioned the use of the President’s injunction to check progress in system improvement and the sector plan called the Action Plan to 2014 towards 2025. Therefore, it appears that ANA is conducted without a policy framework, but based on a manual for the administration of ANA.

The respondent spoke about a co-ordination structure in the provincial office made up of ten officials divided into four teams: for ANA administration, registration, marking and school based assessment (SBA). At the district level, the structure responsible is the Assessment and Examinations sub-directorate, represented by an ANA Co-ordinator. All communication regarding ANA is between the Quality Assurance Directorate in the Provincial office and the Head of Assessment and Examinations in the district office.

Processes for analysis of ANA data is centralised and done by the DBE and the Province, Analysis at provincial level refers to disaggregation of school performance by circuits in each district in order to identify poor performing circuits and schools. The respondent explained that one of the uses of data is to identify schools that obtained a mean score of less than 50% in either language or mathematics. Such schools had to write quarterly ‘ANA tests’ set, printed and distributed by the Province. It is noteworthy that while the Province (P2) believes in more testing to improve performance it is viewed as an additional burden by schools as reported by a Subject Adviser for mathematics in district D2 (see below).

Regarding the methods that the province P2 uses to lead, co-ordinate and organise the use of ANA data in districts, the interviewee described the following: firstly, when it comes to leadership in data use, the province instructs districts (Subject Advisers)
in the first quarter to undertake item and error analysis using a sample of schools in order to inform interventions for teacher development. Thus workshops are organised and a limited number of school visits are done to support teachers in the so called ‘problematic areas’,

According to the respondent, the co-ordination is done using the National Guidelines on the Administration of ANA, a document developed by the DBE. The Province therefore executes the required standard processes at different points in the year by co-ordinating the steps to be taken by districts, such as registration of learners, cleaning data, delivery of test papers and managing the moderation of sampled scripts. It therefore appears that the Province devotes much of its time and effort to technical matters in organising a successful ANA, and less on the actual use of ANA information.

In addition to interventions mentioned already, namely the use of quarterly tests and teacher development workshops, the interviewee made reference to the meetings that Circuit Managers call in the first quarter to address principals on comparative performance of learners nationally and in the province and districts. He notes that the emphasis is the downward communication of ANA results with the instruction to districts and schools to develop plans to raise learner performance. No mention was made of follow-up monitoring and support to districts to undertake improvement efforts. A striking observation is that the process becomes an ‘annual ritual’, repeated annually, without taking a longer term perspective of using interventions that span three to five years.

The provincial official cited the following conditions that promote better use of ANA information: firstly, the results are used for planning interventions and for identifying poor performing schools; secondly, ANA demonstrates how assessment practices may be improved through the use of assessment frameworks, marking and moderation processes; thirdly it helps in assessing whether improvement targets are attained.

Interestingly, the Provincial official in P2 claimed that the practice of the DBE and Provinces undertaking all the analysis, leaves little for the districts (Subjects Advisers
and Circuit Managers) to do. Hence, these frontline officials are predominantly consumers of knowledge and less producers of knowledge. A case in point is that when raw ANA data was given to districts, they did not do any analysis. This therefore begs the questions: do the districts have the capacity and opportunity to do local level data analysis?

When asked about challenges relating to the use of ANA information, the response was that teachers find the administration of ANA, followed by marking in September and then preparing for the end of year examinations and marking in November places a burden on teachers and also reduces teaching time. According to him/her, such pressure may be one of the factors that led to Teacher Unions resisting ANA and demanding that the DBE reconsider the purpose, place and administration of ANA. Refer to proposals in chapter 6 to alleviate this problem.

5.3.2 District interviews (D2)
Incumbents from the following posts were interviewed in district D2: Head: Assessment; Head: Curriculum; three Subject Advisers and two Circuit Managers.

5.3.2.1 Head: Assessment in district D2
The responses from the Head: Assessment unit (DHoA) in the district D2 is presented below.

The interviewee explained that the school completes a class list with details of learners by grade and subject for ANA registration. These forms are then collected by the District Examination and Assessment Section with the assistance of circuit managers and forwarded to the Province for registration. After the tests are written, learners’ marks are entered on mark sheets at the school and sent to the Province through the district Assessment Unit for capturing. According to the District Head of Assessment, the entire ANA process is driven from the DBE using a national management plan with target dates for learner registration, delivery of test papers, administration, marking, capturing of marks, compilation of reports and release of results by the Minister. The province co-ordinates re-marking of the Universal ANA scripts, which involves marking of three scripts (pre-selected) per class, per grade, per subject from each school.
When asked how the assessment unit organises collected data for purposes of analysis and interpretation, the District Head of Assessment (DHoA) indicated that a provincial database is designed to store data on each learner in the system. This would indicate personal details, district, school, grade and subject and the mark scored. The management of collected data, according to the DHoA, takes place at school, circuit, district and provincial levels. The school stores learners’ scripts and mark sheets. Schools with computers keep electronic copies.

With regard to the structures utilised by the assessment unit in the analysis of ANA data, the DHoA indicated that the Unit meets to analyse the ANA data and the ANA National Report to prepare for an ANA presentation to the District Senior Management Team (MANCO). The MANCO meeting, chaired by the District Director, is attended by Chief Education Specialists (CESs) and Deputy Director. After analysis of the report, decisions are taken on the preparation of a District ANA Improvement Plan to be championed by the CES Curriculum. Examination of the plan shows three interventions: (a) quarterly teacher workshops, (b) on-site support and (c) quarterly assessment of learners in schools that had an average of less than 35% in grades 3, 6 and 9 Language and Mathematics.

An important forum is the principals’ meeting, which the Assessment Unit organises, together with Circuit Managers (CMs). At this meeting, principals are requested to develop school-level ANA Improvement Plans. At another level, the CES: Curriculum meets with Subject Advisers to develop the District ANA Improvement Plan; and the Subject Advisers in turn meet, on a quarterly basis, with school HODs and subject teachers to provide support on topics that were poorly answered in the ANA tests.

Concerning data analysis processes utilized by the assessment unit, the DHoA indicated that calculation and communication of mean percentage scores is the most prevalent method used to obtain a measure of student performance. Although means are presented in graphs, together with the distribution of scores in the seven levels for the district, no mention was made of the link between the two representations and what the implications are for interventions. Frequency distribution tables are discussed at the MANCO meeting and the curriculum meetings. However, no mention was made about targets in relation to the different
score intervals. Targets are usually discussed in terms of mean scores as indicated in the Action Plan.

In response to interview questions dealing with conditions that either promote or inhibit the effective use of data in the assessment unit, the DHoA indicated that h/she has had a desktop computer (since 2010) but no laptop. While there was access to the intranet, there was no internet access. Training was limited to ANA administration once a year and a 5-day Excel training course provided by an external service provider. No training was provided on data analysis, interpretation, representation and data-driven planning. The DHoA indicated that s/he required additional training in advanced Excel that focuses on its use for manipulating ANA data, and training in the use of statistical tools: mean, mode, medium, standard deviation and data representation; as well as in the use of data for the design of a District ANA improvement plan, and more broadly, for the improvement of learning. The following are considered to be conditions that prevent the use of ANA data in the district: insufficient time for data analysis; lack of a culture of data use in the Assessment Unit and in the district; lack of leadership in data use by the province and district; lack of skills in the use of software (Excel); and inadequate support for data use from leadership.

5.3.2.2 Head: Curriculum in district D2

In response to the first question, which focuses on the interpretation and representation of data, the District Head of Curriculum (DHoC) indicated that the mean scores of all schools are analysed and interpreted to check how learners performed in the ANA tests. Schools with average ANA scores less than 35% in EFAL and mathematics are identified for support. This is done by using a frequency table of average school scores and not the actual learner scores. School ranking and prioritisation is done separately by the English and Mathematics Subject Advisers. The district has a list of schools requiring intensive support (mean < 35%) in one or both of the ANA subjects tested, which are visited to give teachers and HODs on-site areas requiring support. Therefore, it is possible that a school may be targeted for support in both subjects by different Subject Advisers (Language and Mathematics).
Item analysis is done at school level and sent to the Assessment Section. However, schools deemed to be performing extremely well or poorly (outliers) are not identified. Thus, in terms of planned school support, the DHoC indicated that the unit does not have a list of top-performing schools and, by implication, do not study such schools for lessons. There is no target list for teachers as support is for all teachers in schools that have an average of < 35%. HODs are also not singled out or listed for monitoring and support based on ANA school results.

The Assessment Section provides analyses that are not fully used by the Curriculum Unit. For example, there is a need to use the frequency distribution tables and graphs to drill deeper into the actual performance of learners. An area for consideration in analysis is to disaggregate by circuits to identify those circuits needing additional attention and for purposes of monitoring accountability.

With regard to strategies to improve teaching and learning, the DHoC indicated that meetings with HoDs are held twice a year, wherein the following matters are covered: how to monitor curriculum coverage using curriculum trackers or pacesetters; how to moderate; and how to focus on topics in which learners perform poorly.

In terms of enhancing teachers’ subject and pedagogical knowledge, “just-in-time” training is done at the beginning of each school term and subject content training is done for topics that present challenges as identified in the DBE Diagnostic Report. The DHoC explained that decisions on the content (topics) for teacher workshops is taken in a meeting of SAs by using the DBE Diagnostic Report and the topics covered in the previous workshops.

In its efforts to make better use of resources (textbooks, workbooks, teaching aids), the Curriculum unit pays attention to the following matters during school monitoring visits by Subject Advisers: use of workbooks; use of DBE exemplar questions; use of assessment guidelines; identifying text-book shortages, for example, in grades 8 and 9, where ANA results are the worst and shortages are severe; and provision of a curriculum monitoring tool by the Province from which the collected information is used for monthly reporting.
On the question of improving learner assessment practices, no mention was made of training and support to improve school-level assessment practices as envisioned by the DBE guidelines (DBE, 2012a) through the use of ANA modelling, such as: developing assessment frameworks; using a table showing distribution of marks in the cognitive levels of learning and closer alignment of tests with CAPS and Workbooks.

With regard to the monitoring of curriculum coverage, the DHoC indicated that this is done by counting the number of written exercises completed by learners and comparing it to the norm defined in CAPS and summarised in the NEEDU report (2013:76). On the issue of target-setting for the district, the DHoC stated that this was a practice observed in the District and School Turn-Around Plans for ANA. While school targets varied, they all worked towards 60% by 2014. The district also sets annual targets, but targets for schools are left to the CMs.

Regarding the conditions that promote or inhibit the effective use of data in the curriculum unit, the DHoC indicated that while s/he received a laptop in 2008, s/he had no internet access, noting that district policy is that internet is for CES and above. Training was largely limited to administering, monitoring and supporting schools to write ANA tests. This included training on developing an ANA Turn-Around plan, use of workbooks, subject content knowledge and use of the Learner Unit Record Information and Tracking System (LURITS) and the South African School and Administration Management System (SASAMS). Training on LURITS and SASAMS was done by Provincial officials for registration of learners to sit for ANA tests and for capturing of learner marks after marking and moderation. On the request of the district, basic Excel training was provided by an external service provider. According to this participant, there was a need for training on data analysis and interpretation. Serious challenges remained in the following areas: lack of time for analysis as four days are spent on fieldwork; the need for laptops and access to internet for downloading ANA information from the DBE website and for keeping records of ANA information, and the need for greater leadership from the Province which appears to be limited to the administration of ANA tests.
5.3.2.3 Subject advisers in district D2

When asked how they interpret the ANA data represented in tables/graphs, two of the three subject advisers indicated that they study the class mark sheets with mean scores across grades in order to identify grades that need attention. The Foundation Phase Subject Adviser was the exception, stating that although schools’ performance data was received in the form of a CD, she had not used it for analysis or for planning. S/he also claimed that none of the DBE reports was given to her, nor any discussion held with her regarding ANA information. While the subject advisers for EFAL and Mathematics both analyse mean scores of learners and schools, only the former uses the data to identify schools for urgent support. The same SA uses the DBE Diagnostic Report to identify topics and concepts that are problematic, but admitted that outlier schools are not identified or studied for lessons.

Only (EFAL) one of the three subject advisers works with a list of poor performing primary schools, that is schools attaining <35% mean. However, no list of teachers or HoDs needing intensive support and/or training is compiled, despite the SA having to contend with about 450 schools. The same SA questioned the credibility of results when schools are recognised for good performance because of his/her suspicion of malpractices in ANA administration. In similar vein, the Mathematics SA believes that the results are not credible due to possible manipulation at some schools. In this instance, the SAs expressed doubt on the credibility of ANA results, but did nothing. Volante (2004) suggests that administrators and school district personnel need to be sceptical of results that seem outside the norm for individual students and schools, and therefore should investigate the reasons for the observation. The FP SA indicated that she conducts school support on an ad-hoc basis; where she deals with the problems identified or reported. She also comes across schools that are doing well, but does not draw on good practices from such schools.

On the question of support, only the subject adviser for EFAL provided an encouraging response, stating that HODs accompanied her to observe teachers in practice whenever she conducted on-site support visits. The same SA pointed out that as many as 65% of HODs were not conducting supervision, possibly because they did not have the necessary monitoring skills nor the will nor the time to do it. Of the other two subject advisers interviewed, the FP SA recalled that HODs from all
school phases had requested a 4-hour workshop once during the year, where the following had been discussed: problematic topics identified in the ANA report; curriculum coverage; and use of a monitoring tool. The Mathematics SA observed that HOD training was generic and done primarily by the unit responsible for school management.

Strategies used to strengthen identified teachers’ subject and pedagogic knowledge included meetings with teachers held at least three times a year to address weaknesses identified in the DBE diagnostic report. In Mathematics, materials are prepared based on what is to be taught during the current term. In addition, teachers selected from schools visited were monitored for compliance (EFAL). The SA for EFAL also claimed that teacher content knowledge in the topics where students performed poorly in the ANA was generally weak, but that there was no targeted strategy used to remedy the problem. This observation indicates that the SA is able to identify a problem using ANA information, but does not act to mitigate or address the problem directly through appropriate interventions with clear outcomes in mind.

With regard to SAs role in supporting teachers to make better use of resources to improve learning and teaching arising from ANA information, this appeared to be limited to the use of workbooks (EFAL and Mathematics). The EFAL SA reported that workbooks were more helpful to teachers than textbooks because (a) of alignment with ANA tests and (b) the range of cognitive levels assessed by the questions.

Responses from the three subject advisers regarding assessment literacy aimed at the improvement of learner assessment practice were varied and not very encouraging. The Foundation Phase SA noted that support to teachers was generic, with the focus on policy compliance, and monitored as part of provincial moderation requirements. Similarly, the SA for EFAL observed that HODs were not moderating assessment work and little was done by way of teacher training or support, although some monitoring occurred through school visits by examining written work and teachers’ files. The Mathematics SA noted that teacher workshops dealt with the requirements for School Based Assessment (SBA), specifically the cognitive levels of learning when constructing assessment tasks.
With regard to the monitoring of curriculum coverage, the practice was to focus on a sample of schools (Foundation Phase and Mathematics). For example, in the FP, this was done through monitoring 10 schools per month and averaging about 100 schools per year. This was done by using a curriculum coverage monitoring instrument and checking of teachers’ files and learners’ books – a sample of books was inspected during school visits where the amount of written work is counted and reported on, and marking, writing, revision for ANA and use of workbooks is checked. SAs did not monitor whether the challenging topics (identified by ANA) are being adequately covered as some teachers tend to avoid teaching it if they are not competent to do it, which is a phenomenon observed by the researcher. The EFAL SA noted that although lower order questions were commonly used, with the introduction of ANA, teachers and the SA were moving towards getting the balance between lower order questions and higher order questions right. The ANA assessment frameworks provided by DBE were also used to guide teachers on the skills to be tested in the different cognitive levels. Similarly for Mathematics, the practice by the SA was to check the correlation between the Annual Teaching Plan and the work completed in learners’ exercise books. Significantly, the Mathematics SA claimed there was “malicious compliance” on curriculum coverage, because topics were treated superficially in order to cover the curriculum. He also reported that teachers complained of an overloaded curriculum; without delving into the reasons for this complaint.

When questioned about target setting for the district, and the support provided to schools to set targets, all three subject advisers indicated that this was done as part of the schools’ ANA performance improvement plans for the respective subject areas, which were then expected to be monitored by circuit mangers.

Responding to questions on conditions that could inhibit or promote the effective use of data in the district, all three subject advisers indicated that they had laptops but only the SA for Mathematics had a printer. Internet access had to be sourced privately as this was not provided by the department. This implies that the SAs have the tools to undertake data analysis generated by the ANA. Training provided by the province for subject advisers related primarily to the administration of ANA, usually over one day during the year. The FP SA was fortunate to have also received three days training on ANA when it was introduced in 2009. S/he also had skills in the use
of Excel through training done before joining the district as a SA. Two of the SAs indicated that they needed training in statistical tools (including Excel), data representation, analysis and interpretation of ANA data; as well as data-driven planning for school support. The SA for Mathematics indicated, however, that s/he did not need such training as he “sees his job to accept analysis, comprehend and implement”.

The Mathematics SA, moreover, noted that schools do not take ANA seriously as it does not count for progression, increases work-load; and is thus viewed as something done more for compliance. This perception held by schools is counter-productive to the ANA programme and therefore calls for the communication of a vision for ANA data use, purpose and benefits of using ANA information amongst both SAs and teachers.

5.3.3 Circuit Managers (CM3 and CM4) in district D2

Responses from CM3 and CM4 to interview questions dealing with the use of the DBE report and results indicated that both circuit managers had a copy of the 2013 ANA report (DBE, 2013b), but not the 2013 ANA Diagnostic Reports (DBE, 2013a). They found the ANA report to be useful as it gave them an idea of learner performance in the country, province and district. The implication of this situation is that the Circuit Managers would not be (a) aware of topics that present challenges to learners and teachers and therefore (b) what actions to take in order to remedy the problems.

When asked what their roles were in reporting ANA results to schools to improve learner results, CM3 indicated that s/he used information from the DBE report to address principals about the performance of learners in the district. However, this served merely as an information session, with no analysis and discussion on improvement strategies. Furthermore, CM3 indicated that no improvement targets are set for schools within the circuit as in his/her view there is no baseline information to work from; which implies that s/he did not develop the 2012 baseline for the circuit. School principals are usually requested to set their own school improvement targets. Similarly, CM4 spoke to principals (no formal session) on the ANA results. According to CM4, schools are expected to revise their School
Improvement Plan (SIP) in line with new targets. This attitude diminishes the agency role of the Circuit Manager because principals are not guided on how to do the revision of targets in the SIP; which, if not done or not monitored, will not result in efforts to change teaching and learning.

Both circuit managers indicated that no guidance was provided by districts or provinces on the reporting of ANA results to parents and SGBs in order to solicit their support and involvement in improving learning outcomes. There was an expectation that principals would communicate ANA results to SGBs, but there was no evidence of the CMs engaging with the SGB chairpersons on ANA results. As was the case with Province P1, the use of ANA results to engage parents and SGBs in a planned and systematic manner appears to be neglected.

Research participants’ responses to questions focusing on conditions that may impede or promote the effective use of data by circuit managers indicated that both had a computer and both had access to intranet and printers. While both attended ANA administration-related training, CM3 had also undergone 3-days Excel training – generic and unrelated to ANA. Both CMs indicated that they needed training in statistical tools, data representation, analysis and interpretation for planning school support and interventions. CM3 also indicated a need for training in advanced Excel.

Other conditions raised by the CMs on the effective use of data were lack of support and leadership (at provincial and district levels) and the absence of a data-driven culture. And, as was the case with Province P1, time for undertaking data analysis was not an issue.

5.4 Data collection and analysis: Province P3
Seven officials from province P3 were interviewed as research participants – one operating at provincial level, four at district level, and two at circuit level. The district head of the Assessment Unit was not available for the interview. The interview findings on province P3, starting with the Director: Curriculum is presented in the next section.
5.4.1 Provincial interview (Director: Curriculum - Province P3)

When asked which policies or guidelines are used for the implementation of ANA, the Curriculum Director indicated that the ANA guidelines and two reports (ANA performance and diagnostic) are used in the development of district intervention plans. The plans are further informed by reports received from Subject Advisers on school support visits. However, no mention was made of the Action Plan 2014 (DBE, 2010a) (Section 5) as a policy document that informs the province of the strategic purpose of ANA.

According to the Director, the following structures are functional at different levels of the system: Subject/phase committees (school level); Principals’ Meetings and Subject Cluster Meetings (circuit level), Curriculum unit (district level) and the Curriculum Directorate (Provincial level). Each of these structures analyse and interpret ANA information to make decisions and choices on interventions.

The Curriculum Directorate is required to act on the Provincial ANA report by devising an intervention plan driven by the province through districts to improve teaching and learning. The Operational Plan of the Curriculum Directorate is said to be the main driver for improvements in teaching and learning contain interventions, amongst others, on training and support of teachers informed by the ANA Diagnostic report for 2014.

The Director: Curriculum reported that a presentation of the analysis of ANA results is made at the district level. This is discussed at the District management level with the Extended Management team, which includes Circuit Managers (CMs), in order to determine a district-wide strategy. According to the Director, the curriculum sub-directorate is the co-ordinating structure at the district level tasked with designing a plan in line with the provincial plan for implementation through circuits. With regard to communication of ANA results at circuit level, the Director: Curriculum indicated that CMs convene meetings with principals to inform them of the ANA results pertaining to the national, province and district levels; thereafter, schools then study their results and develop their own improvement plans in order to work towards provincial targets. It should be noted that the chain appears to be cascading the same report
on performance from Province to districts. The district in this province does not disaggregate results by circuit as observed in districts D1 and D2.

The Curriculum Director indicated that the provincial directorate produces an intervention plan that is part of the Annual Performance Plan (APP) but operationalised through districts. Teachers, meeting in school clusters within circuits, interpret the ANA results and conduct item analysis for interventions. The observation is that this single chain leaves out circuit managers, which could easily result in fragmentation in teacher and school support by the curriculum section and the management section. This point is vividly illustrated in an action research study conducted by Smith (2011: 118) in an urban district in the Gauteng Province in South Africa where circuit managers complained of chaotic and haphazard planning and co-ordination.

Significantly, the management and curriculum units interpret ANA results jointly at the Province and District in a close relationship, but similar practices are loosely conducted at the operational points led by CMs and SAs. This compartmentalised approach to school support manifests in the disjuncture between curriculum leadership to principals on the one hand and to subject teachers on the other.

In terms of data co-ordination, this is undertaken by the exam/assessment unit within the province and the districts, and involves communication of results for information and for use in decisions on strategy and interventions. Thereafter, the Curriculum unit in the province and districts’ curriculum sub-directorates co-ordinate the use of performance data to identify schools for targeted support.

The Provincial Curriculum Directorate uses ANA information to organise interventions, notably the enhanced use of workbooks in tackling challenging topics identified in the DBE Diagnostic Report. Most critical here is the question of textbook and Workbook suitability in light of the teaching and learning challenges identified in the 2013 and 2014 Diagnostic Reports. Information on whether this is done is not available because it may not be publicly documented by the DBE. The selection of teacher development themes is also informed by the diagnostic reports and provincial-level item analysis. Teacher development is done in cluster meetings and
school support visits. Training in assessment literacy in teacher workshops is based on guidelines from the DBE (assessment framework, exemplar papers, past papers, use of work books and alignment between curriculum, teaching and assessment). There is no evidence that the development of School Management Teams (SMTs) is informed by ANA results or reports. There is also no evidence of interventions to involve parents through engagement with ANA reports and results. This implies that the ANA results are under-used at the Provincial level for planning capacity building interventions for SMTs and also for planning the reporting of ANA information to SGBs and parents.

When asked about conditions that promote or impede the effective use of ANA data in the province, the Director indicated that while s/he made time to hold meetings with the team to interpret the ANA information at the start of each year, more time was required for in-depth analysis to disaggregate performance by circuits. Some of the main factors that impede effective use of data include the absence of a culture of data use; lack of leadership in data use; and unsuitable software or platforms for maintaining a database to store quantitative information. Moreover, the skills shortage in data analysis, interpretation and planning is a major factor that prevents effective use of ANA and other information.

5.4.2 District interviews (D3)
Four district officials were interviewed in district D3 of province P3. These are the District Head of Curriculum (DHoC) and three Subject Advisers (SAs). The Head of assessment was not available to participate in the interview. The findings arising out of the district interviews are presented below.

5.4.2.1 Head: Assessment in district D3
Interviewee was not available during the planned days for data collection.

5.4.2.2 Head: Curriculum in district D3
In response to the first question, which focuses on the interpretation and representation of data, the DHoC indicated that this is done using quantitative and qualitative ANA data obtained from the DBE reports. According to the DHoC, quantitative data is used to identify grades and subjects where students perform
poorly; identification of levels where ‘bunching’ occurs (at district level) and of high performing outlier schools. Qualitative data analysis, including item analysis, focuses on sections in which students displayed a poor grasp of concepts and experienced difficulty with different question types, for example, word problems in Mathematics and comprehension in Language. The DHoC also pointed out that good practices are not investigated in the better-performing schools. It should be noted that the ANA analysis does not include cohort comparison, for example, Grade 2 in 2012 with Grade 3 in 2013, at district, circuit and school levels.

The DHoC pointed out that while the district has a list of poor performing schools, teachers and HODs within these schools requiring additional support are not identified on this list. The observation of the researcher is that data-drilling stops at the level of schools, and therefore excludes deeper drilling to identify teachers needing support, students in need of remedial work in the new year and professional needs of HODs.

With regard to questions focusing on strategies for the development of HODs and teachers, the DHoC indicated that HoD workshops include design of assessment tasks and moderation processes. The teacher development workshops, on the other hand, are based on item analysis and pre-tests (for teachers) using questions from past ANA papers – these workshops are held on a quarterly basis. Quantitative data is not used to isolate groups of teachers in need of training and support, such as teachers from schools with a pass rate of less than thirty per cent (30%). According to the DHoC, schools use workbooks mechanically more often; without carefully linking the learner exercises with learner challenges picked up from ANA Diagnostic reports.

Support to teachers in the areas of learner assessment practices, according to the DHoC, is a neglected area. Nevertheless, teachers benefitted from having served as Provincial Moderators, which enabled them to bring valuable experience and skills into the classroom. This experience enhanced teacher understanding of assessment frameworks, learning about possible solutions to test questions, mark allocation for accuracy and method (in Mathematics) and finally the diagnosis of misconceptions and gaps in learner knowledge. According to the DHoC, the introduction of memo
discussions in 2014 with teachers was a step in the right direction. The DHoC emphasised that common quarterly assessment tasks set by the Province were used to strengthen assessment, teaching and reliability of test results.

Regarding the monitoring of curriculum coverage, the DHoC indicated that this was undertaken at identified schools by comparing the Annual Teaching Plan with work done in exercise books. On the question of target-setting for the district and support for schools, monitoring focused on the extent of curriculum (quantity) coverage, rather than quality and regularity. Provincial targets were used at all levels of the system – the DHoC felt this should take into account baseline, context and ownership through a process of discussion and involvement of teachers, learners and parents.

In response to interview questions dealing with conditions that promote or inhibit the effective use of data in the curriculum unit, the DHoC observed that the main problem was lack of training. Training, provided by the DBE, was restricted to the administration of ANA. They had, to date, received no training on the collection, analysis, interpretation or use of data for planning; something which the DHoC felt was needed. In the view of the DHoC, time was a barrier as ANA distracted teachers from completing the curriculum for the year; teachers often tended to devote too much time to teaching to the test and revising past ANA test questions, which led to ANA-related work overshadowing or crowding-out the normal school-based assessment. Teachers are therefore caught in the paradox of attempting to produce good results at the expense of not covering the curriculum. Thus, there is a need for balance and integration through professional development (Volante, 2004). A critical point that merits further discussion, linked to international practice and to arguments of accountability, is teaching to the test. A similar finding is reported by Kanjee and Moloi (2014) in their study on the use of ANA results by teachers. Popham (2001: 20) contends that although teaching to the test is a difficult practice to identify, a proactive deterrent is to enhance teachers' literacy so that they understand the difference between item-teaching and curriculum teaching, and the outcomes thereof.
5.4.2.3 Subject advisers in district D3

When asked how they interpret and use the ANA data, two of the Subject Advisers (FP and EFAL) indicated that item analysis is undertaken to identify challenging topics. In the case of the Foundation Phase, based on item analysis, a report is compiled on content areas that require additional attention from teachers and SAs.

The report is then used to develop intervention strategies for implementation in teacher workshops, cluster meetings, classroom support and school-monitoring visits. In EFAL, comparisons of school performance are made in the circuit, and challenges addressed in the workshops and cluster meetings. Materials are also developed to address content gaps. In Mathematics, interpretation is limited to analysis of mean scores to identify schools to be prioritised for support. The DBE report is also used to identify the challenges in content, which are addressed to improve teaching and assessment practices.

All three Subject Advisers have lists of schools that require intensive support. Only the SA for the FP has a list of better-performing schools; however, no indication of drawing lessons from these schools was given. The absence of two important lists for interventions, namely, for teachers and HODs in the poor performing schools suggested that targeted support where it was most needed, was not provided. Hence, interventions treat teachers and HODs as the same. The EFAL SA claimed that identified schools were provided with on-site support, and that teacher development was the key lever used to improve learner performance.

All three subject advisers, nevertheless, noted that some form of support or interaction with HoDs was undertaken. In EFAL, one workshop was held at the beginning of the year for HODs and senior teachers, and dealt with generic curriculum management processes: planning, organising, monitoring and evaluation. Similarly, in Mathematics, the emphasis was on providing guidance to HODs on how to conduct monitoring and support. The observation is that SAs do not readily connect the training and support offered to teachers and HODs with the ANA results.

Strategies used to strengthen identified teachers’ subject and pedagogic knowledge include quarterly just-in-time cluster meetings (Foundation Phase) or content workshops (EFAL and Mathematics). The SAs reported that the EFAL and
Mathematics workshops focus on developing subject knowledge in challenging topics identified through item analysis. With regard to the development of teachers' ability to make better use of resources, all three Subject Advisers monitored the use of workbooks in classroom assessments. The FP and EFAL SAs also monitored the use of textbooks, with the FP SA concentrating on developing knowledge and skills in the problematic areas of the curriculum, identified in the ANA Diagnostic report.

On the question of strategies aimed at the improvement of learner assessment practices, the responses of the Subject Advisers varied widely. The FP SA conducts cluster-based and school-based moderation activities, such as common reading assessments; the EFAL SA guides and requests teachers to give learners standardised tasks in preparation for ANA and the Mathematics SA provides training in quarterly content workshops to teachers on the setting of tests and providing feedback to learners. With regard to the monitoring of curriculum coverage, all three Subject advisers focus on monitoring teacher and/or learner portfolios against the Annual Teaching Plan or curriculum work schedule.

Responding to questions on conditions that could inhibit or promote the effective use of data in the district, all three Subject Advisers indicated that they had laptops and access to the intra- and internet, but only the SA for Mathematics had access to a printer. All three SAs stated that the only training received – from the province or district departments – relates to the administration of ANA. Two of the SAs indicated the need for training in statistical tools, data representation and the analysis and interpretation of data. The EFAL SA possessed some statistical capabilities, including an ability to use Excel to organise and represent data in tables and graphs.

In addition to the lack of training, the SAs observed that the absence of a data-driven culture, lack of leadership and/or support as well as time constraints due to heavy workloads (FP and Mathematics SAs) could be regarded as barriers to the effective use of data in the district.

5.4.3 Circuit Managers (CM5 and CM6) in district D3

Responses to interview questions regarding the use of DBE reports and results indicated that both Circuit Managers had copies of the ANA reports (DBE, 2012b; DBE, 2013b) which they found to be very useful. CM5 also made use of the
quantitative analysis report (DBE, 2012b; DBE, 2013b) in comparing the mean scores of the province and district performance in grades 3, 6 and 9. This information was supplemented with the average subject scores achieved by schools, thus giving a picture of all levels except the circuit. This is done to rank schools for support.

It is important to note that circuit mean scores are not calculated in this district nor in the previous two districts (D1 and D2). The following table (5.1) is offered as an example for grade 3 Mathematics using mean percentage for schools that may be used by a circuit manager to enable school and system performance comparisons. This shortcoming of ignoring ‘circuit performance’ in the analysis may be addressed by using table 5.1 for schools to compare their performance against the four levels in the system.

Table 5.1 Comparison of school performance with four levels in system

<table>
<thead>
<tr>
<th>No</th>
<th>Circuit**</th>
<th>District***</th>
<th>Province***</th>
<th>National***</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>etc.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**circuit mean calculated; ***from DBE report

CM6 ensured that his/her schools had hard copies of the ANA Guidelines (DBE, 2012a) and the CD with the DBE Diagnostic Analysis (DBE, 2014b). He observed that principals tended not to read the reports or share the data with teachers. The CM6 found the Diagnostic report useful as it provided an understanding of learner difficulties. In addition to the DBE report, CM6 studies the item analysis done by teachers on the instruction of the Subject Advisers (using a sample of scripts) to identify areas of support that the circuit office could assist with. This is achieved through a request to the relevant Subject Adviser by the CM to provide support to a teacher or group of teachers on specific problems encountered, for example, the teaching of division of whole numbers and fractions in Grade 4 Mathematics; a skill identified as poorly mastered in the DBE Diagnostic Report (DBE, 2014a).

When asked about their roles in reporting ANA results to schools to improve learner results, CM5 indicated that s/he prepared a table of school and system performance and presented it to the Principals’ Meeting to compare school performance at district,
province and national levels in grades 3, 6 and 9. This led to schools deciding on improvement targets and strategies to improve teaching and learning. There is no evidence of both CMs monitoring the implementation of plans. CM6 is not sure if ANA results are reported to parents by principals; despite being responsible to ensure that reporting happens.

On the question of guidance from the province/district regarding the reporting of ANA results to principals and SGBs, both CMs indicated that guidance was received on the reporting format (table of school and system performance per subject and grade). However, there was no evidence that guidance was provided on the reporting of ANA results to parents and SGBs or that results were in fact reported to parents through the use of learner reports, despite in the case of CM5, requests having been made to principals to report ANA information to SGBs. CM6 observed that the use of ANA results in getting parents involved was not pursued although the ANA Guidelines (DBE, 2012a) stipulates that it should be done. Neither was any guidance provided on reports to learners. The CM6 indicated further that the district curriculum unit leads the dissemination of ANA results by providing performance statistics per national, province and district, and by reporting on item analysis exercises.

The CM responses to questions focusing on conditions that may impede or promote the effective use of data by circuit managers varied. While CM5 had a laptop and access to internet, Intranet and a printer, CM6 had a laptop but no access to the internet. Training of both CMs focused on administration and not on the analysis, interpretation and use of ANA data to select appropriate interventions to improve teaching and learning. Both CMs indicated a need for training in planning with data, with CM5 further identifying training in interpretation and analysis of data, while CM6 highlighted a training need in Excel. Other conditions inhibiting circuit managers’ effective use of data are lack of support and leadership from province on data-related matters and the absence of a data-driven culture.

The next section starts with an analysis of interview findings on the policy directives and guidelines issued by the DBE to provinces and districts. This is followed by
analyses of findings on the use of ANA information across Provinces, districts and circuits.

5.5 Findings from the DBE interviews on policy directives

Two interviews were conducted with DBE officials; one telephonically and the other face-to-face, each lasting for little under an hour. The research question framed for DBE officials was:

*What policy guidelines are issued by the DBE to provinces on structures, processes and the use of ANA information?*

The purpose of the interviews with DBE officials was three-fold: firstly, to determine what policy directives and guidelines are issued by the DBE to provinces to make effective use of ANA results, secondly, what structures are used to drive the use of ANA data and thirdly, from the perspective of the DBE, what factors or conditions undermine or enhance ANA data use. The questions seek to clarify the strands illustrated in Figure 1.4 which shows the linkages between the DBE and provinces.

When the **DBE official from the National Assessment Directorate** was asked as to what policy directives, reports and guidelines are issued to provinces, he/she prefaced the response by referring to four mandates from which directives are formulated, namely: the Action Plan (DBE, 2010a), Minister’s Delivery Agreement with the President (DBE, 2010b), National Education Policy Act (RSA, 1996a) and the NEEDU Bill (RSA, 2011b). On completion of each ANA survey, the DBE prepares and releases a National ANA Report (technical), a National Diagnostic Report (educational) and Guidelines on the interpretation and use of ANA results. The Guidelines for using ANA results is published and for use by provinces, districts and schools, which outlines, amongst others, the reporting of results to parents, the use of ANA data to calculate mean, mode, median and range and how to interpret these measures.

When asked about the structures used to analyse, interpret and use ANA results, the DBE official made reference to the provincial examinations and assessment directorate, the Provincial curriculum units, Subject Advisers and the SMT at school level.
The DBE official responsible for the administration of ANA identified four challenges regarding the effective use of ANA information. These are firstly, the inability or capacity of teachers and SMTs to make better use of ANA information, primarily due to the fact that data driven decision making was not taught as a skill in preparation for teaching and school management. Secondly, the timing of ANA at the end of the year and the availability of reports in February often causes the teachers to view the ANA reports as dated and therefore they undervalue ANA reports. Thirdly, it is claimed that teachers view assessment for grade progression as more important than national assessments (ANA) and largely ignore its usefulness for improving learning. Finally, ANA results are incorrectly used to classify and label schools and teachers as poor performing or better performing, which defeats the objective of using ANA to improve teaching and learning. For example, in Province P2 (observed by the writer), a school that has an average score of less than 35% in a subject is regarded as poor performing and therefore has to use quarterly tests set by the Province; implying that external tests are used to exert accountability pressure.

The Examinations and Assessment office in the DBE attends to the technical side of ANA administration such as learner registration for ANAs, developing the tests and memoranda, monitoring the implementation of the ANA management plan, the processing of Verification ANA and finally, the preparation of the technical report. The educational aspect of ANA, namely its use to make decisions on curriculum implementation is undertaken by the GET Curriculum office in the DBE. The official responsible for GET curriculum was interviewed to better understand the leadership provided to provinces for using ANA information, the structures involved and the conditions that affect the use of ANA information.

The **DBE official from the curriculum office** identified the DBE Diagnostic Analysis Report as the guideline offered to provinces, districts and schools. The Diagnostic Analysis Report is written by a panel of Subject Advisers led by the DBE over seven days. The process involves the analysis of a sample of Verification ANA scripts. The analysis is done to identify common errors, misconceptions and the methodology used by teachers.
According to the DBE curriculum official, once the Diagnostic Report is signed off by the Minister in January, three structures take responsibility for disseminating the report. The first structure is the meeting of the DBE with the provincial and district curriculum officials (including Subject Advisers). The second structure is the meeting to disseminate the report to teachers by SAs. The third structure is the meeting of the National Subject Committees which tracks progress with dissemination and use of the ANA Diagnostic Report. The outputs of province, district and school are: Provincial ANA Improvement Plan, District ANA Improvement Plans and ANA School Improvement Plans.

When asked about the conditions that impede or promote the use of the ANA information, including the ANA Diagnostic Report, the official highlighted three barriers: firstly, the insufficient number of SAs (FP, Language and Mathematics) to serve all schools in the district, secondly, the unavailability of sufficient vehicles to visit schools for teachers support and finally, the capacity of SAs to make effective use of ANA data. Importantly, the DBE has rolled out national training for SAs and selected Lead Teachers using a three-day course (May 2015) on making better use of ANA information to improve teaching and learning. The DBE relies on the SAs and Lead Teachers to cascade these skills to teachers; the effectiveness of which is still to be measured by the DBE.

From the foregoing, it is clear that two offices are intimately involved in ANA; namely the Assessment Office which attends to the administration of ANA and the analysis of ANA results and the GET Curriculum office which is responsible for writing the Diagnostic Report and thereafter driving the interpretation and use of ANA information at the provincial, district and school levels.

The literature review (see chapter 3) on the effective use of national assessments confirms the need for the following success factors namely: capacity of users, especially teachers (as they are in the majority) to make optimal use of ANA information (Dembosky et al, 2005: 43), the availability of ANA results ‘as just in time’ evidence (Andersen et al, 2010: 307), use of reporting formats to suit various users, the inappropriate use of ANA for making judgements on the performance of teachers and schools, a practice that has the potential to cause teachers to reject the use of
ANAs. The next section gives a summary of findings across provinces P1, P2 and P3.

5.6 Cross-province findings in provinces P1, P2 and P3

The first area that requires the attention of districts and support to districts from Provinces and the DBE is in the management of ANA data. Availability and access to data is a prerequisite for effective data analysis, interpretation and decision making on interventions to improve teaching and learning. In a meta-analysis of four studies conducted by the RAND Corporation in districts in the United States, Marsh, Pane and Hamilton (2006) found poor access to data to be a significant obstacle to data use. All three provinces do not have a system that allows access to data by users at district, school and circuit levels. Whilst there are mechanisms for uploading data into the provincial data base there is no way of users drawing on data for analysis and use. In addition to performance data, there is a need to have other data sources, for example, learner attendance and school days lost through non-curricular activities. Consequently, it is incumbent upon school and district leaders to identify structures and methods that support the collection, management and use of ANA data and other information in decision making.

The second area for attention is record keeping; the lack of which became apparent when the majority of interviewees (about 60%) failed to readily produce copies of minutes of principal meetings/SGB meetings and copies of circuit intervention plans. The three common documents available are (a) provincial and district analysis of ANA results, written from the DBE ANA report, (b) record of item analysis done by teachers with guidance from SAs, and (c) the provincial and district ANA improvement plans.

Whilst triangulation across interviews and document analysis was partially compromised due to the paucity of records, triangulation of interview information collected from the four levels (circuit, district, province and national) were consistent, thus making the findings and conclusions of the study reliable.

Before embarking on a discussion of the findings across the three provinces, it is useful to re-state the related research question, namely:
How do provinces (provincial curriculum directorate/unit), participating in this study, interpret and direct the implementation of the national assessment policy?

5.6.1 Analysis and interpretation in Provinces

The policy guidelines for ANA appear in four documents, namely the Action Plan 2014 towards schooling 2015 (DBE, 2010a), Guidelines for use of ANA results (DBE, 2012a), National ANA reports (DBE, 2013b; DBE, 2014b) and the Diagnostic Reports (DBE, 2013a; DBE, 2014a). In addition, the DBE publishes the Assessment Framework, Exemplar Test Papers and Past ANA Papers on its website.

The notable difference between province P1 and Province P3 is that in Province P3 there is a close working relationship between the Curriculum and Assessment Units at the Province and district levels; this is absent in province P1. The relationship for data analysis is illustrated in figure 5.1, where, ideally, ANA data is interpreted and decisions on interventions are made jointly by the Curriculum and School Management units with the support of the Assessment Unit. Note that the Director from Province P2 was not interviewed.

Figure. 5.1 Engagement with ANA information by three units

From the interviews, one infers that the assessment/examination unit does the analysis of ANA data at the beginning of the year and then passes it on to the curriculum unit and the circuit managers, after which there appears to be little or no interaction until the next year; typically working in three silos. A meeting of the
provincial Heads of Examinations and Assessment, Curriculum and School Management, at least two times in a year (January and July), may ensure better policy interpretation, leadership, co-ordination and the monitoring of interventions to improve teaching and learning.

5.6.2 Leadership, coordination and organisation

The provincial curriculum directorate (province P1) leads, organises and co-ordinates the administration and use of ANA by: (a) setting common quarterly tests, (b) designing lesson plans for ‘problematic topics’ and (c) developing a manual to guide item analysis. Whether more testing is the solution to improving learner achievement is a question that province P1 needs to consider carefully. As Mandinach et al (2006) highlight, the one erodes the other, more time for testing means less time for teaching. It is also about finding a balance between assessment of learning (as in the quarterly and ANA tests) and assessment for learning through which teachers clarify learning outcomes and provide feedback to students during teaching (Stiggins, 2002; Black et al, 2003:14; William et al, 2004). Clearly, as Stiggins (2002) contends, there is an assessment crisis in most schools because of the absence of assessment for learning.

The Curriculum Directorates (in P1 and P3) provide leadership by requesting: (a) districts to undertake item analysis using a sample of ANA scripts to identify topics in which learners performed poorly, and (b) Subject Advisers to respond to the outcomes of item analysis by providing teacher development workshops (generally on a quarterly basis) and classroom support, which is usually limited to ten school visits per month per Subject Adviser. The co-ordination of teacher support in primary schools, informed by ANA, is done through monthly meetings held in the provincial directorate office, involving the curriculum district officials and Subject Advisers.

The organisation and implementation of interventions is executed by Subject Advisers with support from the district curriculum officials. The key interventions mentioned by the two Provincial Curriculum Directors are support in: (a) preparation of lesson plans for identified topics, (b) delivery of quarterly workshops for teachers (budget permitting in the case of province P1), (c) use of workbooks in relation to
identified topics, and (d) the use of DBE test exemplars, assessment framework and past ANA papers.

Interviews with all research participants indicate the upward and downward flow of ANA data and information as illustrated in figure 5.2. The diagram shows two strands representing information flow between schools and the DBE. The verification ANA (V ANA) is done by an appointed service provider each year wherein tests are administered in sampled schools, scripts marked, data captured and reports written. The Universal ANA (U ANA) strand refers to the non-sampled schools where teachers administer the tests, mark scripts, SMTs moderate scripts, enter marks into the mark sheets and submit three sampled scripts per class per subject for re-marking at the provincial moderation centres. The National ANA report shows that the average school mark is not significantly different (difference of 1 mark in grades 3 and 6 and 2.9 in grade 9 Mathematics) from the provincial moderated mark, thus confirming that marking at school level was generally of an appropriate standard (DBE, 2014b).

Fig. 5.2 Flow of ANA data and reports
The centrally driven co-ordination and organisation of the ANA by the DBE and the Provincial structures is confirmed by all interviewees as shown in figure 5.2. However, the focus appears to be primarily on grades 3, 6 and 9, which tends to underestimate the value of ANA in the other grades. Focus on all grades is essential as, for example, the grade 3 learner achievement is dependent on learning and teaching in grades 1 and 2.

5.6.3 Conditions that promote or hinder effective use of ANA information

The three Provincial officials were asked questions on the following conditions that could promote or hinder use of ANA data:

- Time available for group analysis of ANA information;
- Availability of hardware and software for data analysis;
- Culture of data use in the province;
- Leadership in data analysis and evidence-based decision making;
- Skills for ANA data analysis.

The interviewees feel that three conditions: culture of data use, leadership in data use and skills in data use require the attention of the DBE, provinces, districts and circuits. Apart from hardware and software which is a problem in Province P1, the following responses by both Directors, on the conditions for ANA data use is the same. Firstly, both indicated that there is a serious shortage of skills in data use. Secondly, they believe that there is a lack of leadership and a weak culture of data use at province and district levels. These conditions cannot be ensured by the DBE only; it is a shared responsibility of leaders at all levels. Similar observations in the US, UK, Canada and Latin American countries, especially with regard to a skills gap is noted in the literature (Kerr et al, 2006; Marsh et al, 2006; Dembosky et al, 2005; Rosenkvist, 2010: 29).

Three out of five barriers identified (above) by the Directors warrant deeper analysis. These are firstly, the skills level for data use; secondly, the culture of continuous collaborative data use and thirdly, leadership in data use. Datnow and Park (2010)
use the concept of co-construction to explain data use in the embedded contexts of the classroom, school and district; thus requiring the district office to develop capacity and structures to enable effective data use. Mandinach, Rivus, Light, Heinze and Honey (2006) contend that pre-service and in-service training of educators should build skills in (a) understanding and use of data and (b) how to use technology to manipulate data. According to Datnow and Park (2014), a culture of data use in districts and schools require: credible data, collaboration amongst users, trust, support for data use by leaders, shared responsibility between the district office and schools for improved teaching and learning, and finally, a focus on excellence and equity. Sutherland (2004) makes an important point that leadership (especially at national level) must give an external mandate on data use which serves as an extrinsic motivator for districts and schools to make better use of data for decision making. This mandate on the use of ANA data is implicit in South Africa and therefore needs to be spelt out as a policy requirement for planning and resource allocation.

From the aforementioned, it is critical that the Directors both for Curriculum and Assessment Directorates in the provinces need the support and leadership of the DBE to ensure that skills in data use are built across the system, regular meetings of users are held (culture of data use) and leadership enunciates the need for, and importance of, assessment data use for decision making on interventions to improve teaching and learning (excellence and equity).

In summary, since 2011 the administration of ANA has been steadily improving, but its effective use requires focus and attention in order to make the investment on the ANA project truly worthwhile. The next two sections highlight findings across districts in relation to the analysis of ANA information by the district assessment unit or sub-directorate and then followed by the curriculum unit.

5.7 Cross district analysis

Two research questions are framed in this study in relation to districts, namely:

*How do districts (assessment units) analyse ANA data?*

*and*
How do districts (curriculum units) interpret and use ANA information to support teachers?

The findings relating to the above research questions are explained in the next section. The analysis of the ANA data is done primarily by the District Assessment Unit while the District Curriculum Unit and Subject Advisers interpret and use the ANA information to make decisions on interventions to improve teaching and learning. The findings are based on interviews with two Heads of Assessment, three Heads of Curriculum and nine Subject Advisers in districts D1, D2 and D3.

5.7.1 Structures and processes for ANA data analysis

The structures and processes for analysis and interpretation are common in all three districts. The process of reporting starts at the District Management Committee meeting, where a report by the Assessment unit is presented on learner performance in grades 3, 6 and 9 after which the District ANA improvement strategy for the district is decided. This report is then cascaded and discussed in the curriculum unit where the District ANA improvement plan is developed for implementation by Subject Advisers. The ANA report is also cascaded to principals by circuit managers who then request principals to develop School ANA improvement plans.

The following points emerge from interviews with the heads of assessment in districts D1 and D2 (DHoA for district D3 was not available during interviews):

- Provinces and districts rely totally on the DBE report, which in itself is not a problem for grades 3, 6 and 9. However, the ANA results for the remaining grades are not used, possibly because of the lack of skills or lack of personnel to undertake the analysis;
- Analysis of circuit level performance appears to be neglected by the district assessment section; it is at this level that data-driven decisions on appropriate interventions could be made for targeted schools and teachers; and
- For district officials in the assessment unit to undertake analysis of ANA data, there is a great need for capacity building that should treat the circuit as a unit of study and the school as a unit of change.
5.7.2 Analysis of ANA data by the Assessment Units

The DBE report is used by the Assessment unit to produce tables and graphs to compare learner performance in the district with the provincial and national levels. The document analysis shows that the districts use mean percentages and frequency distribution tables for grades 3, 6 and 9 to compare performance at district, province and national levels.

The capacity of the district assessment unit (skills level and personnel) determines the comprehensiveness of the ANA information presented to the district officials and principals as observed in district D1. Capacity and appropriate skills in the organisation and management of ANA data may thus be a challenge within certain districts.

5.7.3 Interpretation and use of ANA information by the curriculum units

The findings relating to the third research question: how do districts (curriculum unit) interpret and use ANA information to support teachers is presented in this section. For this level, the three heads of curriculum and nine Subject Advisers in districts D1, D2 and D3 were interviewed. This research question was explored by using the following three sub-questions: (a) how do Subject Advisers and the Curriculum Head interpret ANA information to select strategies to improve teaching and learning, (b) how are the strategies implemented by Subject Advisers to support teachers to improve teaching and learning and (c) what conditions promote or inhibit effective use of ANA data in the curriculum unit.

The twelve respondents (three curriculum heads and nine subject advisers) from the three districts indicated the following with regard to the interpretation and use of ANA information:

- quantitative information consisting of province, district and school performance (mean percentage scores and percentage of learners scoring less than 35%) in subjects for grades 3, 6 and 9 are used to identify schools needing support;
- only one of the Subject Advisers has a list of high performing schools, but did not investigate good practices;
• qualitative information (item analysis) is used to identify sections that learners had difficulty in both Language and Mathematics; and

• although HODs are accepted as curriculum leaders, their training is not differentiated by teaching and curriculum management - in instances where HODs were supported, such support was generic or related to implementation of assessment policy; and the curriculum head and subject advisers leave target-setting to HODs and principals and rarely monitor or compare achievements with targets.

The responses indicate that in-depth analysis of circuit level performance in ANA data is absent while no evidence was found of any attempts being made to draw on lessons from higher performing schools. Comparison of school and learner performance within a circuit is meaningful because the schools are likely to be more homogenous, given they are located in a smaller geographical area with similar socio-economic conditions, and importantly, led by one circuit manager.

Interviews reveal that there is little push by SAs for the setting and monitoring of targets in both districts. Although the general approach is to set targets in terms of percentage means for a subject, there are other options, such as ‘percentage of students scoring above 50%’ or setting targets for a performance level interval, such as ‘reduce the percentage of students in L2 (30%-39%) from 47% to at least 20%.’

All three districts use two strategies based on the ANA Diagnostic Reports (DBE, 2013a; DBE, 2014a) to support teachers: quarterly workshops and school-level teacher support, making on average 40 visits per year. The following findings are noted in relation to the support strategies for Languages and Mathematics teachers:

• workshops cover teacher content knowledge informed by the item analysis and the DBE diagnostic report;

• in district D3, teachers are given baseline tests by using questions from past ANA papers;

• teaching methods and the use of workbooks are covered in the workshops; support in assessment at the workshops is on the use of assessment
frameworks to cover all levels of learning, moderation and requirements of the assessment policy; and

- during school visits, the subject advisers assess curriculum coverage, quality of quarterly tests, alignment of lesson plans with learner work in exercise books and the performance of learners in common quarterly tests set by the province (provinces P1 and P2).

The support to HODs to undertake a leadership role in curriculum management informed by ANA information is seriously lacking in all three districts. The support and oversight roles cannot be done by Subject Advisers alone due to their small numbers in districts. As an illustration, from my work in these three districts, the ratio of schools to SAs for grades 4-9 Mathematics is as follows: in D1, it is 183:1, in D2 it is 441:1 and in D3 it is 42:1. Moreover, HODs are on site every day and therefore best placed to give just-in-time guidance and to learn from teacher practices. For example, consideration should be given to the role of HODs in leading professional development in subject/phase committees and the alignment thereof with the findings of the diagnostic report and other information, such as the ANA reports published by the DBE annually.

Two interesting observations were made by the head of curriculum in district D3; these relate to (a) overload of work on teachers with the introduction of annual assessments and (b) the tendency of teachers giving greater attention to ANA than the traditional classroom assessments.

With regard to workload and time taken for ANAs, there is a need to reconsider the frequency of administration of ANA. The DBE has many options and the one proposed in this study is to conduct assessments for grades 1-3 in year one, followed by grades 4-6 in year two and then grades 7-9 in year three. This means that the sector will have a view of system performance in all grades after a cycle of three years, rather than every year. Postlethwaite and Kellaghan (2008: 8-10) suggest a frequency of once every five years and contend that the decision on frequency of national assessments depends on the following factors: intended use; available funding; demand for assessment information, especially by politicians; and time required to train staff to administer tests.
The issue of ANA overshadowing classroom assessments requires an understanding of the purpose and place of both assessments, thereby ensuring a balanced approach to assessment. The importance of ensuring a balance in assessment for learning and assessment of learning requires emphasis in practice. Stiggens (2002) regards the former as a means to promote greater learning while the latter is used to determine the status of learning. Based on a review of literature on classroom formative assessment, Black and William (1998) found that teachers tend to use assessment for grading rather than for improving learning, which therefore requires teachers to use assessment to close the gap between ‘where the learner is’ – informed by ANA and classroom assessments and where the ‘learner ought to be’ according to the curriculum (CAPS) in addition to finding out how well learners are doing.

While it is commonplace for the three districts to use of ANA reports and results to identify curriculum areas for teacher support, its use for identifying learner groups with curriculum backlogs is not done. This would require capacity building of SMTs and teachers by districts to use learner performance in grade-level items from ANA to group learners so that the appropriate remedial and corrective teaching may be undertaken for groups of learners. The identification of learner groups is made easier if the ANAs are calibrated by grade.

5.7.4 Conditions constraining effective data use in the districts

The two heads of the assessment unit (D1 and D2) identify the following as barriers to effective use of ANA data: inadequate skills to undertake analysis and interpretation, namely, calculation and interpretation of statistical measures of central tendency and distribution, and also the ability to plan with data. Furthermore, poor leadership and lack of a culture of data use are cited as impediments.

There appears to be significant similarities in the conditions that impede/promote ANA data utilisation by the head of curriculum and subject advisers in all three districts. The following key points were noted by the heads of curriculum: time is not regarded as a barrier; weak culture of data use across the system and poor leadership from the province are cited as barriers - this attitude may indicate the need for the province to translate the strategic intentions articulated in the ‘Action
Plan’ and the ‘DBE Guidelines for use of ANA’ to operational reality; and the need for training and support in the use of statistical tools, data analysis, interpretation and evidence-based planning was echoed by all heads, which may call for a national training programme, if similar needs exist in other districts.

In summary, the district assessment units analyse data (a report with tables and graphs) on the basis of the DBE report. To make better use of ANA data, the district assessment units require capacity building in producing similar analyses for the remaining grades (grades 1 and 2, grades 4 and 5) and disaggregation by circuit. This will facilitate the use of a laser-like set of interventions for a phase rather than on the three exit grades.

The next section analyses findings regarding the use of ANA information across six circuits in three districts.

5.8 Cross circuit analysis
The main research question framed in this study in relation to circuits is:

*How do Circuit Managers support principals in the use of ANA reports and ANA results?*

The findings relating to this research question is discussed in this section. For the circuit level, six circuit managers, two each from districts D1, D2 and D3 were interviewed.

This main research question was explored by using the following three sub-questions:

- How do Circuit Managers support principals in the use of ANA reports and ANA results?
- How do circuit managers use ANA results to mobilise SGBs and parents to improve learning outcomes?
- What conditions promote or inhibit effective use of ANA data by circuit managers?
5.8.1 Use of ANA results by circuit managers to support principals

The six respondents (C1 to C6) from the three districts (D1, D2 and D3) noted the following with regard to the use of ANA information to support principals:

- Circuit Managers have copies of the ANA reports for 2013 prepared by the district assessment unit (which does not have circuit results) and use them for presentations to principals (except district D2);
- None of the Circuit Managers report ANA performance to SGB chairpersons or the community stakeholders, such as Unions, Traditional Leaders, Religious Leaders and Business;
- None of the respondents mentioned the use of the DBE publication titled *Guideline for the interpretation and use of 2012 ANA results* (DBE, 2012a) for information on supporting principals by circuit managers;
- The two Circuit Managers in district D1 set circuit targets for improving results, based on ANA results;
- All circuit managers requested training and guidance on the use of ANA information so that they, in turn, would be better placed to support principals and SGB chairpersons and the community in interpreting ANA information; and
- Four out of six circuit managers are of the view that principals do not provide strong leadership in the use of ANA information and therefore do not engender a culture of collaborative data analysis and interpretation in managerial decision making.

Circuit Managers form the link between the district office and schools and therefore are ideally placed to: (a) co-ordinate capacity building of teachers and principals in the use of assessment and demographic data, (b) report ANA information to principals and SGB chairpersons, (c) provide leadership in data use in schools, and (d) set up and sustain structures to regularly interpret ANA information and to implement strategies to improve curriculum management, teaching, student learning and parental involvement in education. In light of the role of circuit managers, the documentary evidence analysed shows a clear lack of circuit level analysis, which may be undertaken by the district assessment unit and/or circuit managers.
Rosenkvist (2010: 29) reports that a common finding in the literature is that schools that perform poorly do not have the capacity to improve on their own. Therefore, the agency role of the circuit managers and subject advisers to help principals and teachers to study the ANA results, make sense of it, to plan and to act differently is necessary (Hopkins, 2001).

At the circuit level, there are major shortcomings in relation to reporting of ANA results to principals and SGB chairpersons, possibly due to the unawareness of the DBE guidelines on the use of ANA information on the part of circuit managers (DBE, 2012a). The Provincial office supported by the DBE could improve this situation by monitoring implementation of the DBE guidelines, namely: (a) timeous reporting of ANA results to principals and SGB chairpersons and agreement on actions to improve learning, (b) target-setting by schools and circuits and monitoring achievement, and (c) entrenching a culture of analysis and reflection on improving student learning.

Halverson, Grigg, Prichett and Thomas (2007) offer a useful methodology for using assessment and other data to hold data reflection sessions which may be adapted and used at circuit and school levels. They contend that the users need to analyse a variety of data sources such as ANA information, classroom assessments, sample of learner exercise books, classroom observation data, learner attendance and home conditions of learners to decide on interventions that may change teacher classroom practices and school management practices to enhance teaching, assessment and learning. Togneri and Anderson (2003) concur that ‘improving districts’ used multiple measures of student and school performance to gauge progress and improve instruction.

5.8.2 Use of ANA results by circuit managers

The six respondents from the three districts noted the following with regard to the use of ANA information to support SGBs and parents: all Circuit Managers indicated that they do not have guidelines or time-frames on support to SGBs and parents; moreover, reporting on learner performance to parents using a report card is not done in any of the circuits studied. However, one circuit manager made a presentation of results to parents in her circuit.
From the above findings, the following are areas with policy implications, that could be considered in an updated guideline document: formulating reporting procedures for ANA results to SGB chairpersons by the circuit managers, and to parents by principals; formulating reporting guidelines on learner achievement to parents; and stipulation of timeframes for reporting and discussion of school targets with SGBs. The importance of sharing ANA information with parents to improve learning is supported by the observation made by Rosenkvist (2010: 19) who reports that perception surveys in the US, Canada, Norway and UK show that parents find student test results useful for information on achievement and for comparison of school performance.

There appears to be significant similarities in the conditions that impede/promote ANA data utilisation by the circuit managers in all three districts. The following key points were noted by the circuit managers: firstly, all circuit managers have laptops and internet connectivity, departmental or personal - which means that circuit managers have the basic ‘tools’; secondly, all circuit managers expressed inadequacy in their skills levels relating to analysis, interpretation and planning to use ANA information and therefore indicated a desire for training in the use of Excel, calculations and interpretation of measures of central tendency and measures of distribution in basic statistics, representation of data in tables and graphs, and evidence-based planning; and finally, all circuit managers pointed to the lack of leadership, support and culture of data use in their districts, implying the need for an integrated capacity building intervention at the classroom, school and circuit levels.

Clearly the annual orientation in administration of ANA is necessary, but not sufficient. There is a dire need for training of circuit managers to make better use of ANA information. While circuit managers claim that they require leadership in data use, it goes without saying that they themselves have to communicate ANA information to schools, provide leadership and model data use, engender a culture of data use and improve skills of school principals in data analysis and to act on data to improve learner and school performance (Anderson, Leithwood and Strauss, 2010; Leithwood, 2010; Datnow, Park and Wohlstetter, 2007; Campbell and Levin, 2009; Coburn, Honig and Stein, 2009).
Contribution to new knowledge: frameworks, policy and practices

McIntyre (2005) delves into the question: Does education research have an impact on policy and practice commensurate with the money spent on it? He contends that the gap between the two ends of the continuum, namely educational research and practice may be closed through the use of three strategies, namely: (a) dialogue between researchers and practitioners, (b) using research strategies specifically designed to inform practice and (c) starting at the centre of the continuum, that is, researchers working with practitioners in the context of their work. Given the dearth of research studies on the work of provinces and districts in the use of ANA information in South Africa, this research study offers initial proposals for policy and practice on the use of annual national assessments to improve teaching and learning. This is done with the full understanding that the proposals may still require further development and testing before use in diverse contexts. The next section contains six proposals for policy and practice that emerge from this study relating to the way in which provinces and districts use ANA information.

5.9.1 Data-use framework to guide use of ANA information

The framework for data use illustrated below draws on the two frameworks described in Chapter 3. All three frameworks make reference to conditions for data use, but differ in applicability; the Andersen et al (2010) model is for schools and classrooms, the Mandinach et al (2006) model is for the classroom, school and district, and finally, the Ronka et al (2010) model is designed for use at the systemic level. All three contribute to an understanding of the process of data utilisation, and the use of data in making decisions about interventions and their impact on teaching and learning. The framework (see figure 5.3) advocates the use of the following steps, which although illustrated as linear, may start at any point, depending on a school or district’s particular circumstances at a given point in time (it is applicable at the classroom, school, circuit and district levels): firstly, insistence on the use of assessment and non-assessment data as a general rule in making decisions; secondly, creation of an enabling environment to address the main challenges that influence data use; thirdly, skills capacity building to use data; promotion of a culture of data use, ensuring leadership in data use and the availability of time and technical resources; and finally, translating timeously received data that is credible and reliable.
into information and then into knowledge. The knowledge on interventions will be the documentation of the successes, lessons, risks and effectiveness of interventions.

There is a need for the DBE and provinces to articulate a vision for data use, which requires decision making on teaching, management, resourcing and budgeting to be done after careful analysis and interpretation of all relevant evidence. In essence, the gap between data and decision-making is filled with thought processes (analysis and interpretation). The district officials, circuit managers, subject advisers and principals are well placed to create and sustain an environment in which data use flourishes. All users from teachers to district officials to provincial officials could make data driven decision making a reality by converting data into information for interpretation and then into actionable interventions, which, if proven to be effective, may add to the theory on effective data use.

**Figure 5.3 Conceptual Framework for data use**

**Proposal # 1**
Consider the adoption of the above conceptual framework or its variation to guide the province and districts to systematically collect, analyse and interpret assessment data to make decisions on interventions to improve teaching and learning. The
proposed framework, drawing on the models from the literature (cf. Chapter Three), introduces two new features, namely *asking the right questions* to guide selection of the appropriate data for analysis, and the decision making involved in choosing interventions to *improve teaching and learning*. Although the scope of this thesis does not include a study of the impact of interventions, for completeness the following are listed as possible interventions that may be informed by ANA and other information:

- Meetings of Circuit Managers/ Subject Advisers/ Provincial and District Officials to select and plan interventions to improve teaching and learning, including the use of ICT;
- Workshops (preferably linked to a Continuing Professional Development system) to improve teacher knowledge in the subject content, pedagogical content knowledge, assessment literacy and use of resources;
- Cluster meetings for subject teachers and principals;
- Face-to-face teacher support to improve teaching methods and assessment practices;
- School management support for target-setting and to focus on the instructional core;
- Learner support through provision of supplementary materials and additional lessons; and
- Parent and stakeholder involvement in school performance and support to their children.

### 5.9.2 Leadership by the province in using ANA and other data

The use of ANA information is primarily driven by the DBE and Provincial offices, in line with the Action Plan 2014. Each year, the DBE provides a report containing quantitative analyses on system performance up to the district level, in addition to the qualitative diagnostic report for use by provinces and districts. The guidelines on the use of ANA information, provides information on how the various actors (circuit manager, subject advisers, principals, teachers, parents and learners) could make use of the ANA reports. The leadership will seek to (over time) institutionalise the use of ANA and other data and make it part of the organisational culture through behaviour change – setting up and sustaining structures or platforms, such as
committees or meetings, meeting regularly for decision making, review and reporting.

Proposal # 2
Provinces, through the assessment unit, should disseminate (annually) a summarised version of the relevant section from the Action Plan and the Guideline for ANA with the intention of increasing the use of ANA information in planning and problem solving. This should include a menu of strategies and tips to which districts, circuits and schools can refer when undertaking their respective responsibilities in relation to ANA.

5.9.3 The use of ANA information at circuit level
The empirical study found that provinces and districts rely heavily on the DBE ANA reports for the quantitative analyses, which compares how well the sub-systems are doing: national, provinces and districts. There is little additional quantitative analysis at districts and no quantitative analysis at circuit level, which is needed for decisions on interventions for schools located in a particular geographical area. If a district has twelve circuits, then the district director would rank them for prioritisation before drilling to the school level. Moreover, it is important to note that the current focus is on grades 3, 6 and 9 without attention to the remaining grades. The Action Plan (DBE, 2010a) places an obligation on districts to produce the district-wide ANA report which follows a national format, provides details on the distribution of learner scores within the district and averages per quintile.

The interviews with district heads for assessment reveals the need for capacity building to develop the district-wide ANA report.

Proposal # 3
The capacity of the District Assessment Unit should be developed so that circuit performance is profiled to enable decisions on interventions at the circuit level, setting targets and monitoring circuit performance in relation to all grades and not just to 3, 6 and 9. Concurrently, it is advisable to improve the capacity of circuit managers to make use of the information within their circuits. This analysis allows for cohort comparison over three years, however, design of the ANA survey as well as
validity and reliability of the ANA results should also be taken into account. The same analysis could be used for reporting to SGBs and parents which may involve parents to assist with improving learning outcomes. Parental involvement is one of the levers of the National Development Plan to improve learning outcomes in the country (National Planning Commission, 2012: 265-266). Parents of primary school children have a crucial contribution to make in reading regularly and in monitoring homework and study time.

5.9.4 Student grouping using ANA information

One may classify data into two types; lead data and lag data. An example of lead data is the response a teacher gets from a student when a question is posed during a lesson. The teacher then responds with feedback and may adjust teaching. An example of lag data is the data from the previous year, such as ANA information. For more effective use of ANA information, the Subject Adviser could support teachers to ensure that learner ‘deficits’ are addressed at the beginning of the year, as early as the first week when school re-opens in January. To illustrate, the class teacher could have the ANA results of the previous year analysed in the following form:

<table>
<thead>
<tr>
<th>2013 ANA Grade 5 Mathematics</th>
</tr>
</thead>
<tbody>
<tr>
<td>L1</td>
</tr>
<tr>
<td>----</td>
</tr>
<tr>
<td>7</td>
</tr>
</tbody>
</table>

The teacher may place the students into three groups in order to provide differentiated teaching. It is likely that group C will need less attention as the top four students could do peer teaching. The remedial lessons (January 2014) will be informed by the diagnostic report prepared by the grade 5 teacher (2013) on problem areas or topics. Kanjee and Moloi (2014) critiqued the current DBE reporting framework that is based on raw score statistical feedback (percentage correct) and
recommended a performance-based reporting framework whereby the scores are linked to the skills and knowledge that learners at different performance levels are able or not able to demonstrate. Using a performance-based reporting framework, one would know exactly what learners at each level can or cannot do and what knowledge they have or have not mastered. Accordingly, remediation would then be based on and targeted to identified individual and/or group learning deficiencies.

The remedial teaching at the beginning of the year on grade 5 work ensures better preparedness for the new curriculum. This process goes with remedial exercises and a remedial test so that there is sufficient mastery of the previous year’s work. Another use of the above table is to set targets using the intervals, for example, in grade 6, the number of students in levels L1 and L2 will be reduced from 20 to 2 out of 38.

**Proposal # 4**

In the first 2 to 3 weeks of term one, Subject Advisers direct, support and monitor the use of the previous year’s ANA results to conduct remedial teaching and assessment so that there is a smooth transition from one grade to the next.

**5.9.5 On-going training and support in data use**

One of the consistent findings of the study is the request by all respondents for training and support in the use of ANA information. The demand for training could be met in various ways, starting with marking and moderation. Firstly, the newly-introduced practice (since September 2014) of discussing the memoranda or expected answers before commencement with marking is considered to be useful by Subject Advisers and is therefore strongly suggested as the first method. Secondly, the central moderation process conducted by teachers under the guidance of Subject Advisers is proving to be an excellent opportunity for teacher development. The ‘moderators’, once they have become competent in data use, could serve as Lead Teachers to provide training to others at decentralised venues with guidance from the Heads: Assessment and Curriculum at districts. This calls for the development and implementation of a short course on the use of ANA information.
Proposal # 5

The DBE or province, preferably the DBE, in collaboration with relevant experts and/or partners such as universities, develops and rolls out a short course or module on the use of ANA information by provinces and districts in order to build capacity at a systems level to make more effective use of ANA information in planning, implementing and reflecting on interventions to improve teaching and learning. It is advisable to develop one course for school based educators: teacher, HOD and principal and another for office-based educators: Subject Advisers, Circuit managers, District and Provincial Officials from the Curriculum, Assessment and School Management Units.

5.9.6 Integrated use of multiple data types

Bernhardt (2013b) highlights the intersection of one set of data with another data set, as illustrated in the question: Do students who attend school regularly (not absent for at most 5 days in a year) do better in the ANA? This question requires two types of data: demographic data (attendance) and performance data (test score).

The four types of data normally used by districts and schools are illustrated in figure 5.4. Of particular importance is process data which refers to curriculum coverage, assessment for learning, SMT support to teachers and in-school continuous professional development activities, all of which influence ANA results and are influenced by ANA information. The empirical investigation conducted in this study reveals that decisions on which interventions to use are made primarily from a single source, namely, ANA results, though this skill is still evolving. The next level in data use is to use multiple sources, that is, ANA information and other types of data, for example, learner attendance or curriculum coverage. While this demands greater skill from users, it is more likely to facilitate better decisions on the choice of interventions to improve teaching and learning.
Proposal # 6
Leadership at province, districts, circuits and schools should support the integration of various data sources in planning and reflection meetings, to get a better understanding of the variables that influence student learning. Sanders (2008: 533) asserts that the educational leader’s capacity to participate in and guide the collection, compilation, analysis and dissemination of data is a critical aspect of effective leadership. To illustrate, the use of multiple data sources is particularly useful in conversations with parents, where the question of improved learning may be discussed with reference to learner punctuality, attendance, homework and study habits.

5.10 Summary and conclusion
This chapter presents the findings made from interviews, document analysis and sustained observations by the researcher in three districts (D1, D1 and D1) located in three provinces (P1, P2 and P3). The findings are related to the five research questions posed in Chapter 1. A summary of the five key findings are as follows:

- The DBE Assessment Office ensures the administration of ANA in all schools (nationally) with grades 1-6 and 9 in September of each year, collects the data and produces a report which is released by the Minister in December; the report is then disseminated to provinces and districts. The DBE Curriculum Office uses the V-ANA learner scripts to do the item analysis out of which the Diagnostic Report is written and published in February. The DBE relies on the provinces, districts and the SMTs to facilitate
the use of the reports and guidelines. Provinces, districts and circuits look up to the DBE for leadership and capacity building on data use. There is a need for the DBE and Provinces working together to develop a vision for data use and an integrated strategy that strengthens data driven decision making right across the system, starting with the classroom.

- The **Provincial Curriculum Directorate** should lead and guide the process of ANA data use by utilising the Action Plan, DBE ANA reports and the Guidelines, existing structures and adding of moderation panels for Universal ANA. The findings call for stronger leadership in the use of ANA data at the Province, district and circuit levels;

- The analysis of ANA data by the **District Assessment Unit** is limited to the type of analysis reported in the national ANA report, namely comparison of national, provincial and district performance. There is a need for districts to undertake similar analysis and write the District wide ANA report;

- The interpretation and use of ANA information by the **District Curriculum Unit** is done to decide the target audience and the content for teacher support, using workshops and classroom support. The need for separate support for HODs in developing specific curriculum leadership skills has been highlighted; and

- **Circuit Managers** communicate the ANA report to principals with little agency to improve management practices that could support teaching and learning. There appears to be little or no communication of learner performance reports to SGBs and parents to get greater involvement of parents in the education of their children. Therefore, there is a need for stronger communication of ANA reporting protocols, use of reporting templates and use of common timelines.

Figure 5.5 provides a proposed framework to track the development of the system in using ANA information, on a continuum from compliance to deep analysis to drive interventions and reflection. Based on this study, the three provinces and districts have moved from Compliance towards Awareness of the utility value of ANA information and are beginning to operate on Simple Analysis to Drive Interventions and Reflection.
As the system matures through improved conditions for data use, which was consistently reported as a constraint for effective use of ANA information, it is possible for provinces and districts to move to complex analysis to decide and drive interventions, review and reflection on improving teaching, learning, assessment and management practices.
CHAPTER SIX
CONCLUSION

6.1 Introduction
The purpose of this chapter is to present a summary of the study, with emphasis on the main findings, recommendations relating to policy and further research, as well as reflecting on some conceptual and methodological insights.

Chapter one introduces the main research question that the study seeks to answer, namely, how do provinces and districts use ANA information to improve teaching and learning based on policy directives from the DBE. The answer to this question is important for three reasons: (a) the study describes the role of the DBE in providing policy directives and guidelines on the use of ANA reports, (b) it illuminates how the data and reports generated by the ANAs are used, or not used, at the provincial district and circuit levels, and (c) it offers new insights on what needs to be done to make better use of the ANA information in order to maximise the return on the national investment of about R200 million made by Government annually (SADTU Conference Brochure, 2014). While the introduction of ANA places an additional burden on the schooling system at all levels, including the fiscus, this study contributes to knowledge on system reaction to the reform initiative, and how assessment and management practices at provincial and district levels are adapting to the reforms. In so doing, the study highlights critical challenges and obstacles in the implementation of ANA in South Africa, and reflects on its impact, whether intended or unintended, on teaching and learning outcomes and ultimately education quality.

While the imperative to improve education quality in South Africa and elsewhere is ubiquitous, the strategic choice to introduce and use ANA as an additional means to improve education quality, the spin-off in improving equity and efficiency in learning needs to be mentioned. Although currently neglected, ANA results have huge potential for improving equity in learning opportunities through comparative analysis of learner performance between classes, schools, circuits, districts and provinces. It is incumbent on educational leaders, for example, the district director, to be able to find ways of reducing the performance and achievement disparities between circuits,
while the principal does this for different classes across the school. Improving quality and equity in learning will invariably improve *efficiency*, that is, the rate of learner progression and retention; both affecting future learner performance and educational cost to the state (Andersen, Case and Lam, 2001).

The search for an answer to the main research question required a study, firstly, of two broad areas in education, namely, ‘large scale national assessment’ and ‘districts’ - the privileging of the districts–level focus over the provincial-level focus was motivated by the former’s close proximity to schools; secondly, straddling the two focus points is ‘data or evidence-based decision making’, which is widely recognised as an important education management tool (Wayman, 2005; Datnow, Park and Wohlstetter, 2007; Doyle, 2003). These three areas, when viewed as a conjoined unit of analysis in education, it is proposed, can shed light not only on the implementation of national assessments, but on the mechanics of the schooling system itself. This applies specifically in relation to the Foundation Phase, English First Additional Language and Mathematics, all identified as critical leverage points to enhance education quality in South Africa. These three focal points and its impact on teaching and learning is illustrated in Figure 6.1.

**Figure. 6.1 Broad areas in education brought together**

<table>
<thead>
<tr>
<th>National Assessments</th>
<th>Data driven decision making</th>
<th>Education districts</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Teaching and learning</td>
</tr>
</tbody>
</table>

In the sections that follow, attention is given to sub or specific research questions; research design and methodology; some conceptual issues; key findings; and recommendations.

The chapter then closes with a reflection on the research project and concluding remarks.
6.2 Re-statement of research questions

The study is framed by the following five questions to guide the search for an answer on how provinces and districts use ANA information to improve teaching and learning:

- What policy guidelines are issued by the DBE to provinces on structures, processes and on the use of ANA information?
- How do participating provinces interpret and direct the implementation of the national assessment policy and/or guidelines?
- How do the selected districts (led by the assessment unit) analyse ANA data?
- How do the selected districts (led by the curriculum unit) use ANA information to support teachers?
- How do Circuit Managers use ANA information to support principals and report ANA results to parents?

The cycle diagram in Figure 6.2 shows that the study is located in the shaded circle, namely, the use of ANA information by provinces and districts. Since 2011 the DBE and provinces made good progress in setting up structures, systems and procedures for the planning, preparation and administration of ANA, notwithstanding the magnitude of the task, which involves assessing in excess of 7.3 million learners (DBE, 2014b) from 81 education districts over four days.

However, the more challenging and important step is firstly to continuously improve the quality of assessment instruments for comparability across years (RSA, 2014: 16), and secondly to make effective use of the ANA data at the provincial, district, school and classroom levels to improve teaching and learning.
The research study focuses on the system level (DBE, provinces, districts and circuits) rather than the school and classroom levels. The literature on ANA use at provincial and district levels in South Africa is rather thin, and therefore the study drew heavily on current policy guidelines spelt out in the education sector plan referred to as the Action Plan, annual ANA reports and guidelines. However, there is significant scholarship on data use at district level in Latin America, Canada and the United States, which provided useful theoretical, methodological and experiential markers to draw on.

6.3 Research design
The case study method within the qualitative research paradigm was used, given its usefulness in yielding rich data through the use of interviews and study of documents and observation. Three cases were selected; comprising Province P1, P2 and P3 and one district from each province, namely D1, D2 and D3. This required planning and interviewing of key officials at DBE, province, district and circuit levels to understand the use of ANA information. Data from interviews was confirmed using available documents, observations while working with districts for over a decade and comparison of responses from key actors (Directors, Heads of Units, Subject Advisers and Circuit Managers) who are located at critical management and
operational levels in the system (DBE, Province, District, and Circuit). This allowed for triangulation of data, not only between the main research strategies of interviews and document study, but in the responses of interviewees from different viewpoints based on their organisational location. The research design thus afforded the researcher a methodological lens through which the contradictions and commonalities of responses of ‘diversely-located’ officials in the system (province, district and circuit levels) could be unearthed. As evidenced from the interview data, in particular, there was a high degree of consistency in the views, observations and experiences of interviewees at the different levels of the system.

6.4 Theoretical and conceptual issues
Building on the frameworks on conditions for data use discussed in Chapter 3, namely the Andersen et al model (2010) for schools and classrooms, the Mandinach et al model (2006) for the classroom, school and district, and the Ronka et al model (2010) for systemic use, this study proposes a more encompassing model for data-based interventions in relation to national education assessments and its impact on educational outcomes. As illustrated in Chapter Five (section 5.9.1), the proposed Intervention-Based Model for Data Use, takes account of creating an enabling environment to address the main challenges that influence data use, namely, shortage of skills, absence of a culture of data use, effective leadership in data use and the availability of expertise and resources. Moreover, emphasis is attached to two new features, namely, asking the right questions to guide selection of the appropriate data for analysis, and the process of decision making involved in choosing a specific intervention to address the identified question with a view to improving learning and teaching.

From an operational or implementation perspective, the adoption of the model or its variation – due to its cyclical and flexible nature – could guide the province and districts to systematically collect, analyse and interpret assessment data to make decisions on interventions to improve teaching and learning. A key accommodating feature of the model is that it allows users to hone in on specific phases or steps in the data process. For example, if the challenge lies in asking the right questions, more expertise, resources and time can be brought to bear on the departments and
personnel charged with this function. This will then have a ripple-effect on the entire cycle.

An important theoretical question, with policy implications, highlighted in the study relates to whether more testing is the solution to improving learner achievement. This is especially relevant in the administration of annual national assessments, given the criticism by some of the research participants that ANA tests takes away valuable teaching and learning time. In this regard, the study proposes a stronger focus on finding a balance between assessment of learning (as in the quarterly and ANA tests) and assessment for learning through clarification of learning outcomes and feedback to students during teaching (see, for example, Black et al, 2003:14).

6.5 Key findings and recommendations
The empirical investigation reveals that the introduction of formal ANA in 2011, after trials in 2008 and 2009, has been changing the way ANA information is used for decision making. In the three provinces and districts, there appears to be a shift from collecting ANA data merely for compliance, to data organisation and analysis (information) that leads to the development of a knowledge base from which decisions on appropriate interventions can be made. Thus, as the ANA establishes itself within the education system, it can help produce innovations or wisdom on data-driven solutions with the potential to improve teaching and learning. In addition to the six proposals made in Chapter five, the following recommendations are made in relation to the five research questions.

6.5.1 Use of ANA information by the Provincial Directorate for Curriculum
A key insight gleaned from the data is the importance of releasing the ANA Diagnostic report in January to help inform provinces in undertaking specific interventions based on item analysis that is usually done in February. In this way, time may be saved so that the report can be used for implementation of interventions soon after schools re-open in January. Related findings with the potential to impact teaching and learning are that the ANA reports can be used for targeting support to specific schools, as well as to refine the content of teacher development workshops at both the provincial and district levels. From an organisational or structural point of view, there is a strong suggestion that a close working relationship between the
Curriculum and Assessment Units and the School Management Unit at the Province and district levels can positively impact processes of ANA data interpretation and decisions on interventions. Significantly, all of the above require the province to play a key leadership role in co-ordinating ANA data management processes and identifying training, support and other needs.

From the three interviews done at Provincial level, the consistent response is that while no policy exists on ANA, four important documents published by the DBE are interpreted and used to lead the ANA process: (a) Action Plan to 2014, (b) Technical and Diagnostic Reports for each ANA, (c) Guidelines on the use of ANA information and (d) Manual for the Administration of ANA. All three provinces make extensive use of (b) and (d), which firstly ensures delivery of a successful ANA (technical) and secondly, provides impetus for the use of ANA results in the educational sense. The neglect of the Action Plan and the Guidelines for the use of ANA information is a weakness noted in all three districts; probably the reason that contributes to the lack of understanding of the place, interconnections and value of ANA.

6.5.2 Use of ANA information by the District Assessment Unit
A shortcoming in the ANA data analysis process appears to be a neglect or failure to recognise the key role that the circuit level can play, especially the role of the circuit managers, as it is at this level that data-driven decisions on appropriate interventions could be made on a manageable scale, that is, for a specific number of schools within the circuit parameters. Therefore, the missing element in ANA data analysis is that of circuit performance which is primarily the responsibility of the district assessment and examinations unit. The recommendation is that the District Director ensures that a District-level ANA Report be prepared and disseminated with details of circuit performance and the District ANA Improvement Plan.

6.5.3 Use of ANA information by the District Curriculum Unit and SAs
The need for training and support in the use of statistical tools, data analysis, interpretation and evidence-based planning was highlighted by all heads of Curriculum units. The support to HODs to undertake a leadership role in teaching and to supervise the work of teachers is seriously lacking. Given their ‘on-site’ presence and roles at schools to influence teachers’ practices, HODs could be
targeted to lead professional development in subject/phase committees and the alignment thereof with the findings of the ANA diagnostic report. Further, for more effective use of ANA information, Subject Advisers could support teachers directly to ensure that learner ‘deficits’ are addressed at the beginning of the year, as early as the first week when school re-opens in January. In a nutshell, the District Curriculum Unit will be the primary custodian of the District ANA Improvement Plan together, with the School Management Unit and Circuit Managers.

6.5.4 Interpretation and use of ANA information by the Circuit Managers
The key finding with regard to Circuit Managers is the lack of skills in data interpretation and knowledge of policy guidelines to support principals, School Governing Bodies (SGBs) and parents. Specifically, reporting learner performance to parents using a report card is not done in all six circuits. Evidence suggests that Circuit Managers offer minimal support to principals in data use and could do much more to create and sustain a culture of data use in schools. It is also recommended that Circuit Managers play a stronger agency role in mobilising and involving parents in education through the SGBs by making use of ANA, NSC and other assessment information.

6.5.5 Recommendations for policy direction by the DBE
The following recommendations are offered on the role of the DBE in ensuring effective use of ANA information: firstly articulating a vision and policy for the use of ANA data in the system, secondly, conceptualisation and communication of a clear reporting protocol for ANA results through the provinces up to the community; thirdly guiding the provinces to conduct an audit of the professional needs of school based educators and office based educators in data use and the design of training programmes, fourthly, investigate the need for a provincial or district data warehouse or platform to store assessments and other data sets and finally, reconsider the frequency and timing of ANAs so that sufficient time is given for the use of ANA information to adjust or introduce interventions to improve teaching and learning. The advice from Kanjee (2014b) regarding the development of low stakes diagnostic instruments for use by teachers in their classrooms should be taken forward. Specifically, Kanjee (2015) notes that the purpose of the Diagnostic Assessment should be to provide relevant information to teachers on what each learner in the
classroom knows and can do, so that teachers are able to develop relevant interventions to address learning gaps and to enhance learner strengths. This means that in practice, the following issues need to be addressed:

- assessment instruments should be developed by the DBE to determine current levels of learner performance in all grades, so as to obtain information on what all learners across the different school types know and can do;
- the instruments should be made available to all teachers in ALL grades, including 3, 6 and 9;
- these instruments should be administered and analysed by schools/teachers at the beginning of the year, thus allowing adequate time throughout the year for teachers to work on addressing learning gaps identified;
- results should be reported based on learners’ levels of performance, as opposed to mean scores only, so as to enable teachers (and parents) to identify specific learner weaknesses and strengths;
- specific interventions for improving learning can be implemented at the beginning of year, e.g. two weeks of targeted revision or implemented during the year, when the relevant sections of curriculum are covered;
- the Diagnostic Assessment should be a low stakes assessment and thus test results should not be used for rewards or sanctions, nor for promotion or retention purposes.
- results should be reported to parents as well, while systems should be developed to enlist input and support from parents in improving learning,
- the instruments and tools should be updated in three-year cycles, thus saving costs while also addressing any changes to the curriculum.

A matter for the attention of the DBE is policy harmonisation in relation to school improvement planning. Currently, the WSE policy (RSA, 2001) and the Integrated Quality Management System policy for teacher appraisal (ELRC, 2008) require schools to produce an annual School Improvement Plan (SIP), that includes activities to improve learner performance, amongst other objectives. The Education Laws Amendment Act (RSA, 2007) requires poor performing schools to develop an Academic Performance Improvement Plan which seeks to improve learner achievement. More recently, the ANA Diagnostic Report (DBE, 2014a) introduces the School ANA Improvement Plan (annual), which is a requirement to improve
school performance in language and mathematics. The three types of plans often causes confusion or duplication in school improvement planning and therefore calls for harmonisation of policy in school improvement planning so that a school, preferably, produces a single plan to improve learning outcomes.

6.6 Suggestions for further research

From the literature study on districts in South Africa and elsewhere, it is clear that the research base relating to annual national assessments is rather thin. This becomes worse when one looks at research on the use of evidence based decision making by districts. This study focused on the use of ANA information by provinces and districts. However the two other areas for study are, firstly, the use of National Senior Certificate (NSC) information by the same two levels, and secondly, the use assessment and other data by circuit managers. Further research on the role of circuit managers is crucial as they could use the appropriate assessment data to point the direction (which schools, which teachers and what subject areas) towards which Subject Advisers may intervene. Circuit Managers, being in direct contact with principals have the potential to influence the use of assessment and other information by school managers.

As pointed out earlier, the highest value for money that may be derived from the ANA investment could come from the lessons that ANA gives each year. These lessons on assessment literacy could profoundly shape the way in which the assessment is conducted during teaching, seatwork, homework and the manner in which instruments are constructed, learner responses marked, moderated and used for feedback to learners. Thirdly, a study on the use of ANA assessment to improve teacher assessment practices is also an area for further research.

Finally, what constitutes a well-grounded training and support programme in policy, practice and theory on the use of ANA information by provinces and districts? This is an important study that could shed light on the training and support needs matched by an appropriate training and support curriculum.
6.7 Conclusion

The administration of Annual National Assessments (ANA) in South Africa, as it is elsewhere in the world, remains in the realm of contested education interventions. However, this study has pointed to the educational potential of ANAs to improve education quality, as long as key actors and structures within the school education system are equipped with the requisite data analysis and management skills that can be cascaded from the national/provincial level down to schools. In this regard, the curriculum directorate at the provincial level with the curriculum unit in each district can play a central role in leading and guiding the process of ANA data use based on the analysis done by the assessment units at provincial and district levels.

The findings further call for stronger leadership in the use of ANA data at the province, district, circuit and school levels; and the involvement, in particular, of districts to undertake similar analyses for circuits, which currently leaves a pivotal gap in the execution of data-driven interventions to improve school learning outcomes. The study has also highlighted the importance of providing much-needed dedicated support to HODs in developing specific curriculum management and leadership skills; and to Circuit Managers to play a far more active role in improving data management practices that could support teaching and learning, especially in relation to SGBs and parents.

From a theoretical and conceptual standpoint, the study complements existing frameworks of education assessment data management processes, but goes two steps further to focus attention on Asking of the Right Questions, and using this platform to build a Knowledge Intervention Reservoir that could assist provinces, districts, circuits and schools to maximise data use to improve teaching and learning.

In the final analysis, the study notes that the education sector has demonstrated its ability to successfully deliver a large scale annual national assessment which tests 6.8 million learners from 16 000 schools using 106 different test papers over 4 days. Following administration in September, the DBE provided the system with a technical report in December and a diagnostic report by February of the following year. Provinces, districts and circuits used the ANA information (curriculum frameworks) to prepare learners for the ANAs and then made use of the ANA reports to (a) prioritise
schools and teachers for support, and (b) undertook item analysis using sampled scripts and the reports to identify topics in the curriculum that were problematic; this analysis informs interventions in the form of materials development, teacher workshops and in-school support. However, two challenges still remain. Firstly, the ability of province and district officials to implement appropriate and relevant interventions, based on the analysed ANA data to improve learning and teaching at the school and classroom levels. This challenge may be addressed by improving capacity of schools as well as education officials as well as providing them with relevant tools to support the analysis and use of the ANA results. Secondly, the envisaged aim of ANA to assess system performance over the years has not been fully achieved due to the design features of the current test instruments. This shortcoming may be remedied through the use of two separate appropriate assessments, one for diagnosis, calibrated for grade discrimination and another for evaluating system performance, determining policy effectiveness and teacher development programmes.
References


Department of Basic Education (2009a). Trends in Education Macro Indicators report. Pretoria: Department of Basic Education.

Department of Basic Education (2009b). Review of the implementation of the National Curriculum Statement: A report of the Task Team. Pretoria: Department of Basic Education.


Department of Basic Education (2011a). *National policy pertaining to the programme and promotion requirements of the National Curriculum Statement Grades R-12*. Pretoria: Department of Basic Education.

Department of Basic Education (2011b). *National Protocol for Assessment Grades R-12*. Pretoria: Department of Basic Education.


Department of Basic Education (2012a). *A guideline for the interpretation and use of ANA results*. Pretoria: Department of Basic Education.


Department of Basic Education (2015). Circular S1 of 2015: Release of grade 8 and 9 Mathematics teachers to attend weekly professional learning communities’ sessions. Downloaded from [http://www.education.gov.za/LinkClick.aspx?fileticket=eMldx7Ob9s%3d&tabid=587&mId=1699](http://www.education.gov.za/LinkClick.aspx?fileticket=eMldx7Ob9s%3d&tabid=587&mId=1699)


Doyle, D. P. (2003). Data-driven decision-making: Is it the mantra of the month or does it have staying power? *THE Journal (Technological Horizons in Education)*, 30(10), S19.


Minister’s Media Release. *Millions of learners to sit for the Annual National Assessment this week*, 16 September 2014. Downloaded on 28 November 2014 from


Ramparsad, S. (2004). The effective execution of the management tasks by the
district Foundation Phase Education Specialist for promotion of quality teaching and
learning in Gauteng schools. Unpublished PHd thesis, Faculty of Education,
University of South Africa, South Africa.

Ravela, P. (2005). A formative approach to national assessments: The case of

*Government Gazette*, No. 17118, 24 April.

*Government Gazette*, 377(17579), 15 November.

Whole School Evaluation. Government notice 695. *Government gazette*, no. 22512,
26 July.

gazette*, no. 30637, 31 December, Pretoria: South Africa.

30880 of 14 March, Pretoria: South Africa.

Republic of South Africa (2009). *Final report of Committee on a National Education
Evaluation and Development Unit*. General notice 32133 of 17 April, Pretoria: South
Africa.

General notice 722 of 12 September, Pretoria: South Africa.

Republic of South Africa (2011b). *National Education Evaluation and Development
Unit Bill*, notice 907 of 2011, Pretoria: South Africa.


Annexure 1: Information leaflet and informed consent form

FACULTY OF HUMANITIES

DEPARTMENT OF EDUCATIONAL STUDIES

INFORMATION LEAFLET AND INFORMED CONSENT FORM

PROJECT TITLE

The use of the Annual National Assessments by provinces and districts to improve learning outcomes

Primary investigator: Mr D A Govender, M Ed (Education Management)

Study leader: Prof A Kanjee, Department of Educational Studies, Tshwane University of Technology, Pretoria.

Dear Potential research participant,

You are invited to participate in a structured interview that forms part of my formal D Ed studies. This information leaflet will help you to decide if you would like to participate. Before you agree to take part, you should fully understand what is involved. You should not agree to take part unless you are completely satisfied with all aspects of the study.

WHAT IS THE STUDY ALL ABOUT?

The study investigates the use of ANA information by provinces and districts and therefore collects data from the Director: GET Curriculum at the Province, Heads of curriculum and the assessment units, circuit managers and subject advisers. The objectives of the study are to investigate (a) how the provincial office leads, coordinates and manages data use, (b) how ANA data is organised and analysed by districts, (c) how ANA data is interpreted and used by curriculum and circuit officials, and finally (d) as a cross cutting objective, the factors that promote or impede data use. The study seeks to establish how ANA data is currently used so that it could inform the system to make better use of ANA data in decision making to improve teaching and learning and ultimately to improve learning outcomes.
**WHAT WILL YOU BE REQUIRED TO DO IN THE STUDY?**

The interview will use short questions to elicit your responses in relation to the objectives. You will be asked to substantiate your answers with relevant documentary or electronic evidence. Hence, the study also includes document analysis. Copies of the documents will be collected as we proceed. You will be asked questions on your work in using ANA information and this will take 40 - 60 minutes.

If you decide to take part in the study, you will be required to do the following:

To sign this informed consent form.

To participate in a structured interview. You will be required to provide your opinions and/or insights of the study theme during the discussion that will last for approximately 60 minutes.

**WHAT ARE THE POTENTIAL BENEFITS THAT MAY COME FROM THE STUDY?**

The potential benefits of the study are:

Better understanding of how provinces and districts make use of data produced through great effort and cost,

How the use of annual national assessment data could be improved in the system, and

Recommend ways in which the use of ANA information may be improved so that teaching and learning may be positively impacted.

In participating in the study, you will make a contribution to a better understanding of the role of ANA and add to the literature on districts.

**WHAT ARE YOUR RIGHTS AS A PARTICIPANT IN THIS STUDY?**

Your participation in this study is entirely voluntary. You have the right to withdraw at any stage without any penalty or future disadvantage whatsoever. You don’t even have to provide the reason/s for your decision. Note that you are not waiving any legal claims, rights or remedies because of your participation in this research study.

**HOW WILL CONFIDENTIALITY AND ANONYMITY BE ENSURED IN THE STUDY?**

All information obtained during the course of this study is strictly confidential. The study data will be coded so that it will not be linked to your name. Your identity will not be revealed while the study is being conducted or when the study is reported in scientific journals. All the documents that have been collected will be stored in a secure place. Any information that is obtained in connection with this study and that can be identified with you will remain confidential and will be disclosed only with your permission or as required by law. The information received during the project will only be used for research purposes and not be released for any employment-related performance evaluation, promotion and/or disciplinary purposes.
HAS THE STUDY RECEIVED ETHICAL APPROVAL?

Yes. The Faculty Higher Degrees Committee and the Research Ethics Committee of the Tshwane University of Technology have approved the formal study proposal. Also the Chief Director for curriculum and the District Director have granted approval for interviews to be conducted. Therefore, all parts of the study will be conducted according to internationally accepted ethical principles.

WHO CAN YOU CONTACT FOR ADDITIONAL INFORMATION REGARDING THE STUDY?

The primary researcher, Mr DA Govender, can be contacted during office hours at Tel (011) 276 8428, or on the cellular phone at 074 044 9543. The study leader, Prof A Kanjee, can be contacted during office hours at Tel (012) 382 9475. Should you have any questions regarding the ethical aspects of the study, you can contact the chairperson of the TUT Research Ethics Committee, Dr WA Hoffmann, during office hours at Tel (012) 382-6265/46, E-mail hoffmannwa@tut.ac.za. Alternatively, you can report any serious unethical behaviour at the University’s Toll Free Hotline 0800 21 23 41.

DECLARATION: CONFLICT OF INTEREST

A FINAL WORD

Your co-operation and participation in the study will be greatly appreciated. Please sign the informed consent below if you agree to participate in the study. In such a case, you will receive a copy of the signed informed consent from the researcher.

Sincerely

DA Govender

Date: 12 August 2014
CONSENT

I hereby confirm that I have been adequately informed by the researcher about the nature, conduct, benefits and risks of the study. I have also received, read and understood the above written information. I am aware that the results of the study will be anonymously processed into a research report. I understand that my participation is voluntary and that I may, at any stage, without prejudice, withdraw my consent and participation in the study. I had sufficient opportunity to ask questions and of my own free will declare myself prepared to participate in the study.

Research participant’s name: _________________________________ (Please print)

Research participant’s signature: ______________________________

Date: ____________

Researcher’s name: D A Govender

Researcher’s signature: ______________________________

Date: ____________
## Annexure 2: Interview instrument for DBE Officials responsible for (a) Assessment and (b) GET Curriculum

Name:  
Office:  
Date:  

<table>
<thead>
<tr>
<th>RQ</th>
<th>Main questions</th>
<th>Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>What <strong>policies, guidelines, reports and structures</strong> are used for the analysis, interpretation and use of ANA data at provincial and district levels?</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>What <strong>guidance and training</strong> is given to provinces and districts on the use of ANA information?</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>What are the <strong>conditions</strong> that promote or impede effective use of ANA information at provinces and districts and schools?</td>
<td></td>
</tr>
</tbody>
</table>
## Annexure 3: Interview instrument for Provincial Director: Curriculum

<table>
<thead>
<tr>
<th>RQ</th>
<th>Main question</th>
<th>Sub questions</th>
<th>Interview questions</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>How do provinces, participating in this study, interpret and direct the implementation of the national assessment policy?</td>
<td>a. Which policies, structures and processes are in place across provinces to enhance the effective <strong>analysis and interpretation</strong> of assessment information, focusing specifically on the ANAs?</td>
<td>a(i) What <strong>policies or guidelines</strong> are used for implementation of ANA?</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Action Plan</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Provincial structure</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(ii) What <strong>structures</strong> are functional in the province for data use?</td>
<td>Provinces</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(iii) What <strong>processes</strong> are used for analysis and reporting?</td>
<td>Provincial</td>
</tr>
<tr>
<td>2</td>
<td>How does the provincial office <strong>lead, co-ordinate and organise</strong> the use of ANA data across districts?</td>
<td>b(i) What <strong>directives and guidance</strong> is given by province to districts on use of ANA data?</td>
<td>Directive to provincial curriculum unit on use</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>In province</td>
</tr>
</tbody>
</table>
b(iii) What are the primary interventions organised by the Province informed by ANA information?

<table>
<thead>
<tr>
<th>Use of resources</th>
<th>Teacher Development</th>
<th>SMT development</th>
<th>Engagement of SGBs</th>
</tr>
</thead>
</table>

c. What are the **conditions** that promote or impede effective use of ANA data in provinces?

<table>
<thead>
<tr>
<th>Time for data analysis</th>
<th>Culture of data use</th>
<th>Leadership in data use</th>
<th>Resources for data use</th>
<th>Training in data use</th>
</tr>
</thead>
</table>
### Annexure 4: Interview instrument for District Head of Assessment and Examinations

<table>
<thead>
<tr>
<th>No</th>
<th>Main question</th>
<th>Interview questions</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>a. How does the examination section collect, organise and manage ANA data?</td>
<td>a (i) What structures, systems and processes are used in the <strong>collection</strong> of ANA data?</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Structures</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Systems</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Processes</td>
</tr>
<tr>
<td></td>
<td></td>
<td>a (ii) How is the collected data <strong>organised</strong> for analysis and interpretation?</td>
</tr>
<tr>
<td></td>
<td></td>
<td>All data in Excel</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Tables with averages</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Tables with frequency distribution</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Graphs</td>
</tr>
</tbody>
</table>
a (iii) How is the collected data managed?

| Kept in paper files for year |
| Kept in electronic form for year |
| Data management system for all ANA years |
| Available to other sections through system |

b. What structures and processes are used to analyse the ANAs?

| b (i) Structures |
| Meeting of Assessment Unit |
| MANCO Mtg |
| Meeting with principals |
| Meeting with Curriculum Unit |
| Meeting with HODs |
b (ii) Processes

<table>
<thead>
<tr>
<th>Study DBE reports</th>
</tr>
</thead>
<tbody>
<tr>
<td>Represent data in tables and graphs</td>
</tr>
<tr>
<td>Analysis done by district and report prepared</td>
</tr>
<tr>
<td>Analysis done by circuits in district and report prepared</td>
</tr>
</tbody>
</table>

---

c. What conditions promote or inhibit effective use of ANA data in the assessment unit?

c (i) Do you have a desktop or laptop computer? Do you have internet access?

<table>
<thead>
<tr>
<th>Desktop</th>
<th>Laptop</th>
<th>Internet</th>
<th>Intranet</th>
<th>Printer</th>
</tr>
</thead>
</table>

---

c (ii) What skills training you receive in ANA data use?

<table>
<thead>
<tr>
<th>Prep for administration of ANA</th>
<th>Statistical tools, e.g. mean, mode, median, etc.</th>
<th>Data representation</th>
<th>Interpretation and analysis of data</th>
<th>Planning with data</th>
<th>Use of Excel</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
c (iii) Who provided the training, if provided? How many days?

<table>
<thead>
<tr>
<th>District</th>
<th>Province</th>
<th>DBE</th>
<th>Outside provider</th>
<th>None</th>
</tr>
</thead>
<tbody>
<tr>
<td>Days</td>
<td>days</td>
<td>days</td>
<td>days</td>
<td>days</td>
</tr>
</tbody>
</table>

c (iv) Do you need training in ANA data use? YES/ NO In what aspects?

<table>
<thead>
<tr>
<th>Use of Excel</th>
<th>Statistical tools, e.g. mean, mode, median, etc.</th>
<th>Data representation</th>
<th>Interpretation and analysis of data</th>
<th>Planning with data</th>
</tr>
</thead>
</table>

c (v) What conditions inhibit the use of ANA reports and data in your work?

<table>
<thead>
<tr>
<th>Lack of time</th>
<th>No culture of data use</th>
<th>No support for data use</th>
<th>No computer</th>
<th>Lack of leadership in use of assessment data</th>
</tr>
</thead>
</table>
Annexure 5: Interview instrument for District Head of Curriculum and Subject Advisers

Name:  
Cell no:  
Position:  
District:  

<table>
<thead>
<tr>
<th>RQ</th>
<th>Main question</th>
<th>Interview questions</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>a. How do Subject Advisers and the Curriculum Head interpret and use ANA information to select strategies to improve teaching and learning?</td>
<td>a(i) How do you <strong>interpret</strong> the ANA data represented in tables/ graphs? (Show tables/ graphs)</td>
</tr>
<tr>
<td></td>
<td>Study mean scores <strong>across grades</strong> to identify grades in need of support</td>
<td>Study mean scores <strong>across schools</strong> to identify schools needing urgent support</td>
</tr>
<tr>
<td></td>
<td>Study the distribution of scores <strong>across the seven performance levels in a circuit</strong></td>
<td>Interpretation of DBE Diagnostic Report</td>
</tr>
<tr>
<td></td>
<td>Identify high performing outlier schools</td>
<td><strong>a(ii)</strong> Does the curriculum unit have the following lists for planned school support? (Show)</td>
</tr>
<tr>
<td></td>
<td>Schools that produced good results and could therefore offer lessons to other schools</td>
<td>Schools needing intensive support in key grades and subjects</td>
</tr>
<tr>
<td></td>
<td>Teachers needing intensive support in key grades and subjects</td>
<td>HODs needing intensive support to improve curriculum leadership and oversight</td>
</tr>
<tr>
<td></td>
<td>b. What strategies are selected and used for improving teaching and learning?</td>
<td>b (i) Strategies for HOD development</td>
</tr>
<tr>
<td></td>
<td>b (ii) Strategies for teacher subject and pedagogical knowledge</td>
<td>b (iii) Better use of resources (textbooks, workbooks, teaching aids)</td>
</tr>
<tr>
<td></td>
<td>b (iv) Improving learner assessment practices</td>
<td>b (v) monitoring curriculum coverage</td>
</tr>
<tr>
<td></td>
<td>b (v) monitoring quantity, quality and regularity of written work in topics that present challenges</td>
<td>b (vi) monitoring quantity, quality and regularity of written work in topics that present challenges</td>
</tr>
<tr>
<td></td>
<td>b (vii) target setting for the district and supporting schools to do likewise</td>
<td>b (vii) target setting for the district and supporting schools to do likewise</td>
</tr>
</tbody>
</table>
### c. What conditions promote or inhibit effective use of ANA data in the curriculum unit?

#### c (i) Do you have a desktop or laptop computer? Do you have internet access?

<table>
<thead>
<tr>
<th>Desktop</th>
<th>Laptop</th>
<th>Internet</th>
<th>Intranet</th>
<th>Printer</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### c (ii) What skills training you receive in ANA data use?

<table>
<thead>
<tr>
<th>Prep for administration of ANA</th>
<th>Statistical tools, e.g. mean, mode, median, etc.</th>
<th>Data representation</th>
<th>Interpretation and analysis of data</th>
<th>Planning with data</th>
<th>Use of Excel</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### c (iii) Who provided the training, if provided? How many days?

<table>
<thead>
<tr>
<th>District</th>
<th>Province</th>
<th>DBE</th>
<th>Outside provider</th>
<th>None</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>days</td>
<td>days</td>
<td>days</td>
<td>Days</td>
<td>days</td>
</tr>
</tbody>
</table>

#### c (iv) Do you need training in ANA data use? YES/ NO. In what aspects?

<table>
<thead>
<tr>
<th>Use of Excel</th>
<th>Statistical tools, e.g. mean, mode, median, etc.</th>
<th>Data representation</th>
<th>Interpretation and analysis of data</th>
<th>Planning with data</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### c (v) What conditions inhibit the use of ANA reports and data in your work?

<table>
<thead>
<tr>
<th>Lack of time</th>
<th>No culture of data use</th>
<th>Little opportunity for data use with colleagues</th>
<th>No computer</th>
<th>Lack of leadership in use of assessment data</th>
</tr>
</thead>
</table>
## Annexure 6: Interview instrument for Circuit Manager

<table>
<thead>
<tr>
<th>RQ</th>
<th>Main question</th>
<th>Interview questions</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>a. How do Circuit Managers support <strong>principals</strong> in the use of DBE ANA reports and results to improve learning outcomes?</td>
<td>a (i) Do you have copies of the 2012 and 2013 ANA reports supplied by DBE? Did you find them useful? In what way?</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Has copies filed</td>
</tr>
<tr>
<td></td>
<td>a (ii) What was your role in reporting ANA results to schools to improve learner results?</td>
<td>Prepared summary or used summary provided on comparative school performance up to DBE level</td>
</tr>
<tr>
<td></td>
<td>b. How do circuit managers use ANA reports and results to involve <strong>SGBs and parents</strong> to improve learning outcomes?</td>
<td>b (i) What guidance did you get from the province/district regarding the reporting of ANA results to principals and SGBs?</td>
</tr>
<tr>
<td></td>
<td></td>
<td>No guidance</td>
</tr>
<tr>
<td></td>
<td>b (ii) What was your role in guiding principals to report results to parents in order to get their support to improve learner performance?</td>
<td>Prepared summary or used summary provided on comparative school performance from up to DBE level</td>
</tr>
</tbody>
</table>
c. What conditions promote or inhibit effective use of ANA data by circuit managers?

- **c (i) Do you have a desktop or laptop computer? Do you have internet access?**

<table>
<thead>
<tr>
<th>Desktop</th>
<th>Laptop</th>
<th>Internet</th>
<th>Intranet</th>
<th>Printer</th>
</tr>
</thead>
</table>

- **c(ii) What skills training you receive in ANA data use?**

<table>
<thead>
<tr>
<th>Prep for administration of ANA</th>
<th>Statistical tools, e.g. mean, mode, median, etc.</th>
<th>Data representation</th>
<th>Interpretation and analysis of data</th>
<th>Planning with data</th>
<th>Use of Excel</th>
</tr>
</thead>
</table>

- **c(iii) Who provided the training, if provided? How many days?**

<table>
<thead>
<tr>
<th>District</th>
<th>Province</th>
<th>DBE</th>
<th>Outside provider</th>
<th>None</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>days</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>days</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>days</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>days</td>
</tr>
</tbody>
</table>

- **c(iv) Do you need training in ANA data use? YES/NO In what aspects?**

<table>
<thead>
<tr>
<th>Use of Excel</th>
<th>Statistical tools, e.g. mean, mode, median, etc.</th>
<th>Data representation</th>
<th>Interpretation and analysis of data</th>
<th>Planning with data</th>
</tr>
</thead>
</table>

- **c(v) What conditions inhibit the use of ANA reports and data in your work?**

<table>
<thead>
<tr>
<th>Lack of time</th>
<th>No culture of data use</th>
<th>No support for data use</th>
<th>No computer</th>
<th>Lack of leadership in use of assessment data</th>
</tr>
</thead>
</table>