

FROM DATA-INFORMED TO DATA-LED?
SCHOOL LEADERSHIP WITHIN THE
CONTEXT OF EXTERNAL TESTING

Submitted by

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Statement of Sources

This thesis contains no material published elsewhere or extracted in whole or in part from a thesis by which I have qualified for or been awarded another degree or diploma. No other person's work has been used with due acknowledgement in the main text of the thesis. The thesis has not been submitted for the award of any degree or diploma in any other tertiary institution. All research procedures reported in this thesis received the approval of the Australian Catholic University Human Research Ethics Committee.



Signature

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Date

Abstract

Schools now have access to an enormous range of data that can be used to improve student achievement. These data can include classroom-based assessment information together with individually tailored results from literacy and numeracy testing programs and from other sources. Also, there is an expectation at system and national policy levels that data on student achievement are collected for the purposes of program accountability and for improving student learning. However, there is evidence that schools are not effectively utilising such data for this purpose.

This research explored how the experience of external literacy and numeracy testing and data utilisation affects attitudes to the tests, teaching practice and school leadership. This is a new area for research in Australia, given the relatively recent government emphasis on accountability, transparency and public reporting of student achievement. The research investigated the nature of and relationship between the themes of *student achievement*, the nature of *educational change* and school improvement and the consequent impact on the perceptions, by teachers and principals, of the efficacy of external testing within the wider context of *educational accountability*.

With the research grounded in a Constructivist epistemology using a Pragmatist theoretical perspective, the emphasis was on understanding the nature of the research problem and on finding a way forward for planned action. Symbolic Interactionism was employed as the interpretivist lens through which to view how the actions of teachers and school principals reflect their understandings of, and their approaches to, the applicability of external testing programs to student learning, teaching practices and leadership within the school.

The methodology for the research was based on case study using ‘mixed methods’ to collect and analyse data. Following the initial phase of meetings with school principals, three further research phases utilising survey, semi-structured interviews and focus group instruments employed a mix of qualitative and quantitative data collection methods designed, firstly, to generate themes for questionnaire design and implementation, then to obtain rich information from one-on-one interviews of selected participants from a range of schools. The final phase of the research considered the perceptions of key system

leaders about the results of the school-based research for their support of teachers and principals in the use of literacy and numeracy testing data to enhance student achievement.

The research findings produced four themes for analysis to explain the factors affecting how literacy and numeracy testing data are being used and led in schools. These themes are: ‘Attitudes towards External Testing’, ‘Leadership in Using Testing Data’, ‘Effective Data Analysis’, and the ‘Impact on Teaching Practices’. The study found that differences in perceptions of the value of data from external testing exist within and between schools. Accountability for testing results was viewed according to their perceived purpose, and the role of leadership in data analysis was seen as critical, but often missing. Further, differences were found in the way that leadership in data analysis and use is perceived within the school, particularly in relation to staff involvement in data analysis and whole-school planning using testing results. Finally, linking external testing data with classroom-based assessment was seen to have value, but was not necessarily operationalised in any systematic way across the school system. The lack of explicit leadership within the school was found to inhibit the potential effectiveness of data analysis and use. The associated low levels of access and engagement of teachers in this process further affected the ability and willingness of teachers to incorporate the testing feedback information into classroom teaching practices.

The findings from this study demonstrate the importance of the perceived value of such data in informing decisions about student outcomes, and the central role of evidence-based leadership at the school level in utilising such evidence of learning. The concept of ‘Professional Purpose’ was developed from the research findings as a possible framework to explain the relationship between the value one places on external testing and the link between data analysis and use in an operational sense. This involves the interplay among three elements related to the use of external testing: its moral purpose, practical purpose and public purpose.

Within the context of increasing policy interest in measuring and reporting student achievement in Australia, the central role of data leadership at the government, system and school level has been placed in sharper focus. The findings from this research advocate the crucial role of leadership in the analysis, use and reporting of data from national tests of literacy and numeracy as an element within the wider context of evidence-based leadership. For schools and systems to be ‘data-informed’ is not sufficient; to be

‘data-led’ suggests the need for an understanding of the ‘professional purpose’ of such data and its relationship with other performance information to effect improvements in student achievement.

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Glossary

ACARA	Australian Curriculum, Assessment and Reporting Authority
ACT	Australian Capital Territory
ACTAP	Australian Capital Territory Assessment Program
ANOVA	Analysis of Variance
BST	Basic Skills Test
CEO	Catholic Education Office
COAG	Council of Australian Governments
DEST	Department of Education, Science and Technology
ELLA	English Language and Literacy Assessment
ETP instrument	External Testing Profile instrument
HSC	Higher School Certificate
MCEECDYA	Ministerial Council for Education, Early Childhood Development and Youth Affairs
MCEETYA	Ministerial Council on Education, Employment, Training and Youth Affairs
NAPLAN	National Assessment Program – Literacy and Numeracy
NSW	New South Wales
OfSTED	Office for Standards in Education
SMART	School Measurement and Reporting Toolkit
SNAP	Secondary Numeracy Assessment Program
VCE	Victorian Certificate of Education

CHAPTER 1: INTRODUCTION AND RESEARCH CONTEXT

1.1 INTRODUCTION

Educational literature and academic research over the last 15 years have attempted to address the issues associated with leading educational change and school improvement along with the relative merits of large-scale reform and school-level change. Moreover, much has been written about the role of the teacher in improving student achievement together with increasing calls for school and system accountability in measuring student performance.

Traditional models of school leadership have been questioned. New paradigms involving “broad directional vision” (Fullan, 2009, p. 109), “moral action” (Sergiovanni, 2005) and a leadership based on “moral praxis” (Frick, 2009) have highlighted the central role of leaders in producing improvements in student achievement. Further, increasing demands by governments and the community for results accountability and the transparent reporting of student and school performance have meant that schools, and particularly school leaders, are being faced with increasing pressure to make conscious adaptations to their practices (Fullan, 2009; Rowe, 2000), often resulting in “intrapersonal moral discord” (Frick, 2009, p. 50). Such research suggests there are increasing calls for principals and teachers to adapt to change, to not only improve student learning, but also to be held responsible for student achievement.

As a result of these pressures, school leaders are required to be explicitly positioned at the nexus of leading change, improving learning and reporting performance. Research suggests that this has created a tension between being accountable for the measurement and reporting of student performance on the one hand (Rowe, 2000; Fullan, 2008), and the adoption of processes to use information on student achievement to effect improvement in student outcomes on the other (Hattie, 2005). With an increasing array of data available on students from external testing and classroom-based assessment, the reporting of student and school performance has produced new challenges for teachers, school leaders and school systems.

This dissertation attempts to understand and address the issues involved in this debate for schools and systems by researching how one educational jurisdiction makes use

of data from national testing of literacy and numeracy, particularly in relation to the role that school leadership plays in this process. The purpose of the study is to examine the role of school leadership within the context of external testing.

This introductory chapter provides an overview of the international, national and local contexts in which the study is situated, and the processes undertaken to identify the research problem and formulate the main research question and sub-questions. A discussion of the purpose and significance of the study is also included, together with the key assumptions made for the study.

1.2 CONTEXT OF THE STUDY

The present research is situated within the context of international, national and local forces operating to affect the ways schools and their leadership view and use the results of national tests of literacy and numeracy. At each level, anecdotal information suggests that these forces influence, to some degree, the attitudes that teachers and leaders have of external testing, the processes that operate within the school to analyse and use data feedback, and the impact these have on classroom pedagogy.

1.2.1 The International Context

The international context for this research has been dominated by the issues surrounding leadership of educational change and school improvement at the national, system and school level. The pioneering work of Lewin in the 1940s envisaged planned organisational change in three stages – unfreezing, changing and refreezing. This approach assumes that organisations are static and that change is a linear process. Recent writers, however, stress the multidirectional nature of change. Eccles and Nohria (1992) speak of the fluid motion of complex organisations and see planned change as the identification of some aspect of the motion and redirecting it by creating conditions that facilitate reorientation, alter responsibilities and responsibilities. Moss Kanter et al., (1992) use a similar metaphor – organisational movement. They see organisations as constantly moving where real change occurs in the internal structures or governance arrangements.

Research has also shown that leadership and change are both multidimensional (as well as multidirectional), and their effects are felt differently (Fullan, 1991, 2005; Harris, 2005; McWilliam & Perry, 2006). In the educational sense, whole-school change

has been seen in terms of “creating cultures” (Hargreaves, as cited in Fullan, 1997, p. 3) to develop more collaborative working relationships within the school setting – between principals and teachers and among teachers themselves. Schools are faced with choices about educational change. It can be imposed by deliberate attempts at reform by system authorities or government legislation, or initiated to remedy problems inherent in the current situation. The former breeds resentment and an adherence to the status quo, while the latter has the potential to effect real and lasting changes to practices that become embedded into a newly (re)formed school culture (Geijsel & Meijers, 2005). This reculturing of schools (Fullan, 2001a, 2005a), then, has been seen as providing the essence of educational change, and forms the basis for whole-school improvement (Harris, 2000).

During the 1990s, education systems throughout the world were exposed to considerable reform and change with the (at least stated) purpose of improving the quality of educational provision (Fullan, 2009). In the USA and UK, detailed public accountability of schools and systems has been based on performance data of students across a wide range of contexts. The USA’s ‘No Child Left Behind’ program and inspections by the UK’s Office for Standards in Education (OfSTED) have targeted widely-published school performance indicators as key drivers for initiating whole-school improvement. OfSTED’s database contains detailed numerical judgements derived from such inspections of the majority of schools in England. The resulting so-called ‘league tables’ publicly compare schools for the stated purpose of improving parental choice for the education of their children. However, the efficacy of such comparisons have been challenged on many occasions (Fullan, 2009; Gray, 2004; Rowe, 2000; Schagen & Weston, 1998) by researchers who question the causal linkages between inspection for accountability and school-generated improvement as means for improving student achievement.

In the United Kingdom, the dichotomy facing schools has been one of greater central accountability and control, with an “increased responsibility for self-management and development” (Harris, 2000, p. 1). In analysing specific projects, Harris (2000) specifies the types of characteristics implicit in successful school improvement, including a greater emphasis on specific and explicit planning, systematic evaluation of improvement projects, developing relationships and refocusing on the classroom. Research findings by Levin and Fullan (2008) regarding sustained improvement and system renewal also support this view. This last point is important: if system- and school-level improvement

does not drill down into the classroom, it runs the risk of “manipulating variables that are school-level variables only” (Harris, 2000, p. 9). She again reinforces the point that the classroom accounts for greater variation in student achievement than school-level variables. Starratt (1993) also makes the point that school improvement involves energising all levels of the school – from the largely broad belief systems and goals to the day-to-day organisation and operations within the classroom.

Further research has demonstrated that a key player in the promotion of educational change and improvement at the school level is the role of the principal in leading educational change, together with the teacher as manager of teaching and learning in the classroom. It is the relationship between these two key people in the school context that provides the essential elements in promoting improvements in student achievement (Fullan, 2005b). Earl and Fullan (2003) stress the importance of school principals and leaders as being informed professionals in using data for school improvement. To complement this, Cotton (2003) uses research to show how principals achieve success as instructional leaders, and the effects this can have on student achievement, especially making the compelling case for a direct link between school leadership and well-motivated staff and students as essential ingredients of school improvement.

In the international context, then, research has called for the central role of the principal to be an agent of change with the ability to seek and obtain commitment and to build capacity within the school at all levels. In this sense, not only must the principal be a “cultural change principal” (Fullan, 2002, p. 17), but also one who promotes “sustainability” (Fullan, 2005b, p. 14). The body of research has indicated that the focus is and should be always on student learning, with an openness to new, external ideas that support the central aim of improvement. Moreover, the use of student performance data as a driver of school improvement has been at the centre of government policy in the UK and USA, and has been complemented by research on the link between leadership and school improvement.

A similar experience has been developing in Australia by the increasing concentration on student performance data as a national policy driver for the provision of government funding related to improving student achievement. This is discussed in the next section.

1.2.2 The National Context

The Australian experience of school and system accountability is relatively recent and has focused on assessing and reporting student achievement through external testing and school-based assessment. Since the late-1980s, there has developed a sharpened focus on national approaches to increase accountability of Australian schools and schooling systems, particularly with the reporting of student achievement. This section discusses the increased emphasis placed on benchmark achievement and standards-based reporting of literacy and numeracy and other information about school performance. With this, an increasing array of data on student achievement has been made available by recent government requirements for schools and systems to report on specific measures of student achievement.

Beginning in 1989 with the '*Hobart Declaration on Schooling*', the State, Territory and Commonwealth Ministers of Education made a commitment to improving Australian schooling within a framework of national collaboration through common agreed goals for schooling and the introduction of annual national reporting on schooling in Australia. One of the aims of this approach was to develop in students the essential skills of literacy and numeracy. Similarly, the annual national report on schools was designed to "monitor schools' achievements and their progress towards meeting the agreed national goals" for the purpose of increasing public awareness of the performance of schools and to "make schools more accountable to the Australian people" (MCEETYA, 1989).

The '*Adelaide Declaration on National Goals for Schooling in the Twenty-first Century*' (1999) reinforced the national approach to common goals for schools across the nation. The Ministers of Education restated these by attempts to "strengthen public confidence in school education through explicit and defensible standards" (MCEETYA, 1999). One of the emphases was placed on students attaining the skills of numeracy and English literacy such that, "every student should be numerate, able to read, write, spell and communicate at an appropriate level" (MCEETYA, 1999). From this, the various state/territory-based programs for literacy and numeracy testing were established to provide information on 'benchmark' standards of proficiency.

The ‘*Schools Assistance (Learning Together – Achievement Through Choice and Opportunity) Act*’ (2004 and 2008) extended these requirements into ‘plain English’ reporting using a five-point grading scheme and, importantly, directly linked these to the receipt of funding over the 2005-2008 and 2009-2012 quadrennial funding agreements between the Australian Government and the eight state/territory governments. In 2008, the various state-based tests of literacy and numeracy were replaced by one national test, the National Assessment Program – Literacy and Numeracy (NAPLAN), including, for the first time, testing of students in Year 9.

The Ministerial Council on Education, Employment, Training and Youth Affairs (MCEETYA) released the ‘*National Declaration on Educational Goals for Young Australians*’ (the so-called ‘Melbourne Agreement’) in December 2008. For all students to have “the essential skills in literacy and numeracy” (MCEETYA, 2008, p. 8), one of the commitments to action called for a strengthening of accountability and transparency where “Good-quality information on schooling is important for schools and their students, for parents and families, for the community and for governments” (MCEETYA, 2008, p. 16). Here, the emphasis has been placed firmly on the need for schools to have reliable data on student achievement, for parents and communities to obtain these data and related information on student achievement and school performance, as well as the need for governments to have access to the information for analysis and reporting.

This increasing involvement of the Australian Government in education reinforced and formalised the ‘Melbourne Declaration’ by entering into a ‘*National Education Agreement*’ with the states and territories in 2009 through the Council of Australian Governments (COAG). The objectives of the National Education Agreement included statements about the broad outcomes for schooling and “performance indicators and performance benchmarks, which outline a number of outcomes-focussed targets, and progress measures towards the outcomes specified in this Agreement” (COAG, 2009, p. 4). Specifically, “The Parties commit to national reporting on the performance of individual schools, with details to be agreed by MCEETYA, for accountability, school evaluation and resource allocation” (COAG, 2009, p. 10). This represents the placement of significant emphasis on accountability and transparency at the *individual school* level. The Australian Curriculum, Assessment and Reporting Authority (ACARA) was formed in May 2009 to

enable such reporting on a national scale. Importantly for this research, from December 2009, ACARA will:

“provide the public with information on each school in Australia that includes data on each school’s performance, including national testing results and school attainment rates, the indicators relevant to the needs of the student population and the school’s capacity including the numbers and qualifications of its teaching staff and its resources. The publication of this information will allow comparison of like schools (that is, schools with similar student populations across the nation) and comparison of a school with other schools in their local community” (COAG, 2009, p. 10).

The cumulative effects of greater government involvement in measuring and reporting the *outputs* of schooling, and tying these to jurisdictional funding, means that external testing has assumed a new importance compared with the former state/territory-based testing programs (Cumming & Maxwell, 2004; Rowe, 2005).

At the time the present research was conducted, anecdotal information suggested that these government demands for accountability of student results and transparent public reporting of student achievement were seen by some principals and teachers to be disconnected from the real contextual and educational needs of students, and to be largely unrelated to student learning outcomes described in state and territory curriculum policies and documents. This research, then, has been designed to obtain information on the apparent disconnect between external testing and leadership of school-based curriculum, assessment and pedagogy within the Catholic Archdiocese of Canberra and Goulburn. The context for this study is explained in the next section.

1.2.3 The Local Context

The Catholic Archdiocese of Canberra and Goulburn includes all of the ACT and most of the southern part of NSW. This is a unique context in Australia since no other diocese crosses state borders. It presents the Catholic Education Office with a set of challenges: it is responsible for 55 schools across two very different educational jurisdictions – the ACT with school-developed curriculum and NSW with centrally-developed syllabuses and external credentialing examinations at the end of Years 10 and 12. Here, different approaches to curriculum and pedagogy are evident and these are

based on a mix of teachers' experiences, curriculum documentation and assessment, credentialing and certification practices.

The present research was undertaken wholly within the Catholic Archdiocese of Canberra and Goulburn and was framed against the backdrop of evidenced-based decision making for schools and school systems. With increasing calls for accountability for student and school performance, coupled with mandated transparency in reporting student achievement by the Australian Government, the local context for the research was framed within the unique structure of the Archdiocese and the external testing regimes operating at the time of the study. These elements influenced the design of the research.

Three different types of schools operate across the Archdiocese: ACT/NSW Primary schools (Kindergarten to Year 6), NSW Central schools (Kindergarten to Year 10) and ACT/NSW Secondary colleges (Years 7 to 12), with a varied mix across rural and urban situations. This variety is important in understanding the particular school contexts for the study. ACT schools (Primary and Secondary) tend to have school principals and teachers who are quite mobile and who move from school to school, but usually *within* the ACT. The four NSW Secondary colleges are located in regional centres and the remaining NSW Primary and Central schools are located either in such centres or in towns of varying sizes. In these situations, school principals and teachers tend not to be mobile, with some moving to a particular area or school and teaching there for many years.

For the present study, it was posited that this demographic situation had implications for teachers' and school leaders' exposure to, and adoption of, innovative ideas in curriculum and pedagogy. The research was undertaken to shed some light on a range of participants' views of school leadership within the context of external testing, the usefulness of these programs, and their relationship with classroom-based curriculum, teaching and assessment practices across a range of different contexts.

With regard to the external testing programs operating within the Archdiocese, prior to 2008, in meeting the requirements of the '*Hobart Declaration on Schooling*' (1989) and strengthened by the '*Adelaide Declaration on National Goals for Schooling in the Twenty-first Century*' (1999), each state and territory conducted its own tests to provide data on literacy and numeracy achievement. In the ACT, the 'ACT Assessment Program' (ACTAP) was conducted with students in Years 3, 5, 7 and 9 in August of each year. Results were provided to individual schools through Government, Catholic and

Independent education systems in November of the same year. However, at the school and system levels, the researcher and other CEO personnel observed that this left little time for any analysis and diagnosis of results before the end of the year. By this time, it was generally considered too late for meaningful work to be done with students before they progressed to the next year level. Further, feedback of the results was in the form of .pdf files and paper copies which was seen not to enhance their value to teachers or principals.

In the NSW part of the Archdiocese, on the other hand, state-based testing of literacy and numeracy was undertaken at different times of the year. Students in Years 3 and 5 sat the 'Basis Skills Test' (BST) in August, with results released in November. Year 7 students sat the 'English Language and Literacy Assessment' (ELLA) in March, while the 'Secondary Numeracy Assessment Program' (SNAP) was undertaken by Year 7 students in May. Results for the Year 7 tests were provided in June and August respectively. Year 9 students were not tested.

However, the main difference between the two jurisdictions occurred in the quality of testing feedback. In NSW, the results were provided as a web-downloadable application that was highly interactive. This was called the 'School Measurement and Reporting Toolkit' (SMART). Teachers could interrogate the data to produce graphs, tables and other information in a variety of ways to suit their needs. For schools, reports could be constructed to show comparison between cohorts, classes and students. Skill deficiencies and strengths could be identified readily and individual students could be targeted with specific information on their achievement.

In 2008, national testing of literacy and numeracy began. The 'National Assessment Program - Literacy and Numeracy' (NAPLAN) was introduced as a national test to replace each state/territory testing regime. For the first time, with all students in each testing cohort across Australia sitting the same group of tests in May, national comparisons could be made and reported from September of that year. Students sat tests in reading, writing, grammar and punctuation, spelling and numeracy. The previous 'benchmark' was replaced by a 'National Minimum Standard' against which student achievement could be judged. To aid in the analysis of results, the ACT began using the SMART application which was seen as an important step in providing quality feedback and the assistance for teachers to engage with the testing results. Importantly for the Catholic Education Office from a system perspective, and for this research, the

introduction of the NAPLAN tests and the SMART application in the ACT meant that, for the first time, results from external testing of literacy and numeracy could be analysed across the whole Archdiocese.

Such anecdotal and observational data within the Archdiocese helped to inform the researcher's interest in how schools use such information from the external tests. As a Senior Officer with the CEO, the researcher's duties involved working with schools across the Archdiocese in the areas of student achievement. Specifically, the role was focused on the implementation of curriculum and pedagogical practices that promote improved learning outcomes for students. Previous experiences as Curriculum Coordinator in a NSW Catholic senior high school and Assistant Principal (Curriculum) in a large ACT Catholic Secondary college allowed the researcher to develop insights into the role that data on student achievement could play in making evidence-based decisions about curriculum, pedagogy, assessment and reporting. Further, observations indicated that perceptions of the value placed on student achievement data can contribute to how such information is actually used within the school setting at leadership and classroom teacher levels.

One area of interest was centred on how schools make use of feedback data from external tests of literacy and numeracy and the implications of these for both the school and system. This was especially the case for testing of literacy and numeracy due to its cross-curricular focus and potential for targeted, diagnostic assessment of students' literacy and numeracy skills. The researcher's observations and experience indicate that the extent to which testing data are analysed and used in schools is highly contextual and seemed to depend, at least in part, on how teachers and the school's leadership view its importance for student learning and teaching practices. This was regarded as an area for fruitful study from both a school and system viewpoint, and helped to identify the problem for research.

1.3 IDENTIFICATION OF THE RESEARCH PROBLEM

Since there are now great demands placed on schools and school systems regarding student performance, this research focused on how schools analyse and use data on student achievement, the interplay between the role of leadership in school improvement, and the increased accountability requirements for schools and school

systems from governments and the community. These areas of inquiry helped to identify the research problem.

The role of the teacher in student achievement is well-documented. Hattie (1999) sees this role as one of the key influences on student learning. Similarly, Hattie, Brown, and Keegan (2003) discuss the role that teachers play in improving student outcomes, and the consequent links between external testing and student achievement. Rowe (2005) emphasises the important function of the teacher in providing feedback data to students as a key element in supporting student learning. Axworthy (2005) also sees the role of the teacher as crucial in the analysis and interpretation of testing data, in conjunction with classroom observations, assessments and judgements.

Given that the school principal and classroom teacher both play a crucial role in enhancing student learning, a body of research demonstrates the call to measure student achievement in order to show the degree of improvement that has occurred (Noyce, 2000; Rowley, 2005). ‘Value-added’ measures can be for essentially *accountability* reasons, as in the UK experience with the Office for Standards in Education (OfSTED) and the USA ‘No Child Left Behind’ program (Shaw et al., 2003), or for *diagnostic* purposes to aid in improving student outcomes (Williams & Ryan, 2000). More recent studies have concentrated on the importance of *measuring changes* in student performance by obtaining valid and reliable data. This information provides the rationale for the collection of evidence to support changes to teaching and learning in the classroom and, indeed, for whole-school improvement (Harris, 2000; Hattie, Brown, & Keegan, 2003; Rowe, 2005).

Evidence-based measurement is, therefore, designed to give educators ‘hard data’ on student achievement. Its purpose is to give principals and teachers a large measure of control over data on which curriculum and learning decisions are made at the school level. Holmes-Smith (2005) makes the case for using the results of statewide literacy and numeracy tests as vehicles for valuable formative, diagnostic information. Bruniges (2005) calls for the accumulation of evidence about the performance of students in order to inform teaching and learning in the classroom. However, she goes further by indicating that evidence alone is not enough to maximise student outcomes; what is also needed is an increase in the professional capacity of teachers to use this information in their own classroom situations. Angelico (2005) reinforces this point in the context of the Catholic Education Office, Melbourne by recognising the importance of data collection as an essential component of student achievement as well as for overall school improvement.

In the secondary school context, Richardson (2005) also calls for the judicious use of data for the individual classroom and for whole-school improvement. Again, Rowe (2005) makes the point of using evidence-based data to value add student achievement in both the classroom and school contexts.

This research literature has stressed the importance of collecting evidence on student performance and taking into account the roles of the principal and classroom teacher in enhancing achievement as key factors in promoting a climate of data-informed or data-led school improvement. At this point, it is also imperative to consider the various Australian Government policies and implementation procedures for reporting student achievement, since these have provided the impetus for change in current school practices.

In the Australian context there have been similar calls for, although distinctively different approaches to, increased accountability of schools through policy revisions aimed at increasing educational governance and accountability (see Section 1.2.3). The Australian Government has strengthened the nationwide reporting of student achievement by a succession of policies and implementation requirements since the end of the 1980s. Consequently, these have had a direct impact on the direction of curriculum and reporting of student achievement in states and territories as well as on teaching and learning in the classroom.

However, observations by the researcher and others suggest that it cannot be assumed teachers, on the whole, are familiar with the relationship between external testing and classroom assessment and pedagogy, nor are many able to interpret the data in meaningful ways. It is also uncertain whether school leaders and teachers within the Archdiocese are convinced of the ability of the testing results to provide meaningful information that can be integrated into school improvement programs or classroom teaching and assessment processes. Such anecdotal information suggests that the effective analysis, interpretation and use of literacy and numeracy testing results at the school level has been very much dependent on the willingness and ability of the individual members of the school's leadership and staff to utilise the results to improve teaching and learning in the classroom. Despite the level (and cost) of professional development provided, there have been mixed results in the improvement of student outcomes over the past few years. Some schools are performing consistently well. In others, results for some strands of literacy and numeracy are very inconsistent from year to year, while student performance

in several schools has been is consistently below an acceptable standard. Although CEO Education Officers work with school principals, leadership teams and teaching staff to unpack the testing results and determine the implications of them for teaching and learning, in many instances there is still an observed lack of school-wide focus on the results themselves for student improvement or on their uses for planning. This has involved issues in, firstly, recognising the value of using the testing results, and, secondly, interpreting the results and their implications for improving student achievement in the classroom. Anecdotally, many teachers and some principals see the tests as an externally-driven agenda, with very little relevance to classroom activities.

This apparent disjunction between perceptions of the value and subsequent use of information from the external testing of literacy and numeracy, and the role of school leadership in this process, is the central problem for the present research. There seems to be a tension between how these tests are viewed, led and used within the school. This was viewed by the researcher as worthy of further investigation. The importance of the study is outlined in the next section.

1.4 PURPOSE AND SIGNIFICANCE OF THE STUDY

The purpose of the present research was to explore the experiences that schools have had of external testing and data utilisation, and how these have shaped attitudes, teaching practices and leadership within the school.

This research was considered important because of its potential to provide a basis for system-wide planning to link student literacy and numeracy achievement with the provision of support for schools within the Archdiocese. Significantly, prior to this study, little work had been done on how schools use the testing results and the role of leadership in this process. Anecdotal information from within the Archdiocese and other educational jurisdictions had indicated the sporadic use of testing feedback to improve student outcomes, as well as a limited role of leadership at both the school and system level. The significance of the research builds on three related themes of educational research: *student achievement* and the role of the teacher, the nature of *educational change* related to school-level leadership and school improvement, and *educational accountability* to governments and the consequent impact on the perceptions of teachers and principals. These themes are developed in Chapter 2. In the context of the present research, it was proposed that these

themes impact on the perceived worth that external testing regimes have on the ways principals and teachers lead and use feedback data to improve student achievement and promote school improvement. This is also situated within the context of increasing accountability to governments and the community.

1.5 THE RESEARCH QUESTION AND SUB-QUESTIONS

The forgoing analysis suggests there is an expectation at system and national policy levels that data on student achievement is collected for the purposes of program accountability and for improving student learning. However, there is anecdotal information that schools are not effectively utilising such data for this purpose. This apparent dissonance led to the development of the research question:

**How does the experience of external testing and data utilisation
affect attitudes of teachers and principals to the tests, teaching
practice and school leadership?**

To operationalise this research question and to enable the study to obtain specific information for analysis, a series of contributing questions was developed. Firstly, before any analysis could be done on how the data from national testing is used at the school level, it was important to gain insights into how teachers and principals view the efficacy of such tests and the contribution they can make to providing information about student achievement. This led to the generation of the first two contributing questions: *‘What attitudes do teachers and principals hold about external literacy and numeracy testing?’*, and *‘What factors influence these attitudes?’*.

Next, the issue of data use and leadership in this process is a central focus of the research. The identification of people actually leading the process of data analysis was considered to be a possible indicator of, and precursor for, the effective use of such information from external testing. This led to the third and fourth contributing questions asking: *‘How is external testing data analysed and feedback given in the school?’*, and *‘Who is leading the process of analysis and feedback?’*.

Apart from identifying the personnel and processes involved in this data analysis at the school, the third area for study indicated by the research question involved obtaining information on the perceived effectiveness of such leadership in analysing and

making appropriate use of feedback data from external testing at the school. Thus, the fifth and sixth contributing questions asked: *‘How effective is leadership in data analysis?’*, and *‘What factors influence leadership in data analysis?’*.

The impact of the external tests of literacy and numeracy on classroom pedagogy and teaching practices within the school was considered to be an important marker as to how the feedback from these tests is being used. Consequently, the seventh and eighth contributing questions ask: *‘In what ways, and to what extent, are teaching practices shaped by testing data?’*, and *‘What factors influence the shaping of teaching practices by testing data?’*

The contributory nature of these questions to the study was the focus of the final contributing question to the study: *‘What do system leaders find significant about the findings of this school-based research?’*. This was posed in the last phase of data collection and it considered the reactions of key school and system personnel to the research findings. This question was included to not only understand the issues identified by research, but to provide insights into finding solutions for further action.

1.6 DEFINITION OF KEY TERMS

Key definitions are included in this section. These helped to focus the research and to provide clear and unambiguous understandings when used throughout the dissertation.

1. **Catholic Archdiocese of Canberra and Goulburn:** This contains 55 schools operated by the Catholic Education Office (CEO) on behalf of the Trustees of the Roman Catholic Church. These schools are sometimes referred to as ‘systemic’ since they belong to the CEO school system. It does not include the three Catholic colleges owned and operated by religious orders within the Archdiocese.
2. **Catholic Education Office (CEO):** This organisation services the systemic schools throughout the Archdiocese through six main service areas: religious education and curriculum, human resources, school services, information and communications technology, finance and planning, and the directorate. The CEO Director is the chief executive officer of the organisation.

3. **External testing:** This refers to the government mandated testing of literacy and numeracy. Prior to 2008, each state/territory conducted its own set of tests to satisfy reporting requirements of the Australian Government. Since 2008, the National Assessment Program – Literacy and Numeracy (NAPLAN) replaced the previous tests and was introduced to test all students across Australia in Years 3, 5, 7 and 9 using a common set of instruments. The reporting of testing results is required for educational jurisdictions to receive funding from the Australian Government. For the first time, comparisons have been made with national average scores in reading, writing, grammar and punctuation, spelling, and numeracy. From December 2009 this and other information on school performance will be available on one website operated by the newly-formed Australian Curriculum, Assessment and Reporting Authority (ACARA). For the research, Year 9 students were excluded from the study since, during the period of data collection, students only in Years 3, 5 and 7 undertook the state-based tests across the entire Archdiocese.

1.7 ASSUMPTIONS AND LIMITATIONS

In planning the research, several assumptions were made to delimit the study and to promote representativeness in data collection and analysis. Firstly, key people in the research were identified. It was assumed that principals are the leaders of their school communities and that they are responsible for decisions about curriculum, student achievement, teaching practices and staff engagement, as well as many other facets of leadership. Further, teachers of students in Years 3, 5 and 7 during the survey period were included in the study and it was assumed that they are involved in the test administration and follow-up processes of analysis and use of the feedback data. Thirdly, key CEO personnel were identified as those having responsibility for curriculum and pedagogy in schools, and who work closely with teachers and principals.

The second set of assumptions concerned the tests themselves. The research centred on the state/territory-based (and then national) tests of literacy and numeracy that are held on an annual basis. Since these are ‘population’ rather than ‘sample’ tests, virtually all students in Years 3, 5 and 7 (and Year 9 since 2008) were included throughout the Archdiocese and across Australia. This meant that both staff and students were

familiar with their purpose, form and content and, consequently, would provide reliable information for research.

The third assumption underpinning the study centred on the selection of a mixed-methods approach to data collection and analysis. The use of both quantitative and qualitative data collection and analysis techniques was considered by the researcher to be an important way to obtain rich data and to promote inferential trustworthiness and results generalisability. With the Archdiocese as a multi-site case study, the research was designed to provide data that could be useful for planning purposes, from both a school and system perspective. The design of the study is explained in Chapter 3.

1.8 OUTLINE OF THE THESIS

Apart from this introductory chapter, this dissertation has seven chapters. Chapter 2 provides a review of the academic literature associated with the three major themes of the study: student achievement, educational change and educational accountability. From these, the main research question and sub-questions were developed, providing the framework for the next stage in the research process.

Chapter 3 is concerned with the development of the research methodology and design. Following the justification of the theoretical framework upon which the study is based, the research methodology and research design are explained, along with the data collection phases. An explanation for the particular mix of qualitative and quantitative data collection instruments is provided with statements about legitimization of the instruments, the appropriate ethical issues involved, as well as the limitations and delimitations of the research.

The presentation of the results from the four data collection phases of the study is the subject of Chapters 4, 5 and 6. Each chapter provides a report on the data collected from Phase 1 (pre-research meetings), Phase 2 (identification of themes from a focus group, development of the pilot survey and administration of the main survey), Phase 3 (exploration of themes through semi-structured interviews) and finally, Phase 4 where the initial focus group was reconvened to explore the research learnings from the previous phases of the study.

The purpose of Chapter 7 is to discuss the research findings from the four phases and to develop a model and framework that explains the relationships found from

the study. This is followed by the final chapter which presents the implications of this research for theory as well as for policy and practice. It examines the broad conclusions from the study and identifies areas for further research and practice.

1.9 CHAPTER SUMMARY

This chapter has provided an introduction to the context in which the study has been situated as well as the process to identify the research problem and a discussion of the purpose and significance of the study.

Situated within the Catholic Archdiocese of Canberra and Goulburn, the research concentrated on how schools use the feedback data from external tests of literacy and numeracy and who leads its use. The four phases of the study identified key issues for research based on the three related themes of student achievement, educational change and educational accountability. During the course of the research, the third theme gained significant currency with the move from state-based tests to a national set of tests of literacy and numeracy, and consequent reporting requirements based on transparency of information.

The importance of this research is underscored by the lack of similar studies on how schools utilise such feedback data from external tests. Numerous studies have been undertaken on the effects of test construction and types of data involved (Rowe, 2000), however, research of the type encompassed by this thesis is in its infancy in Australia.

The following chapters provide a theoretical basis for this research as well as detailed explanation, analysis and synthesis of the results. Implications of the study for theory, policy and practice, together with recommendations for further work in this field are then presented.

To begin this process, a review of the relevant academic literature related to the research problem is undertaken in Chapter 2.

CHAPTER 2: REVIEW OF ACADEMIC LITERATURE

2.1 INTRODUCTION

The purpose of this research was to examine how literacy and numeracy testing data are being analysed and used to effect changes in teaching practices and to determine who is driving this process in schools.

Schools now have access to an enormous range of data that can be used to improve student achievement. These data can include classroom-based assessment information together with individually tailored results from external literacy and numeracy testing programs and from other sources. However, anecdotal information suggests that the manner and degree to which such data are used to improve student achievement at both the classroom and whole-school levels can vary widely across primary and secondary schools.

Further, there are system and government demands for accountability of student results and the public reporting of student achievement, as evidenced in the Australian Government's '*Schools Assistance (Learning Together – Achievement Through Choice and Opportunity) Act*' (2004 and 2008) regulations. Observations by the researcher indicate that these externally imposed measurement and reporting requirements are seen by some principals and teachers to be divorced from the real educational needs of students, and to be unrelated to student learning outcomes described in state and territory curriculum policies and documents.

Consequently, this dissonance has produced a challenge for the leadership of the school principal. Chapter 1 suggested that a tension exists in relation to the ways that the principal and teachers need to demonstrate accountability to governments and systems while recognising the potential of the reforms for effecting school-based improvement. The former implies issues of compliance with regulations, while the latter involves the use of data about student achievement to make an impact on teaching, learning and assessment that enables real changes to current practice. This chapter explains the conceptual framework adopted for the research and reviews the academic literature based on the three themes of the study: student achievement, educational change and educational

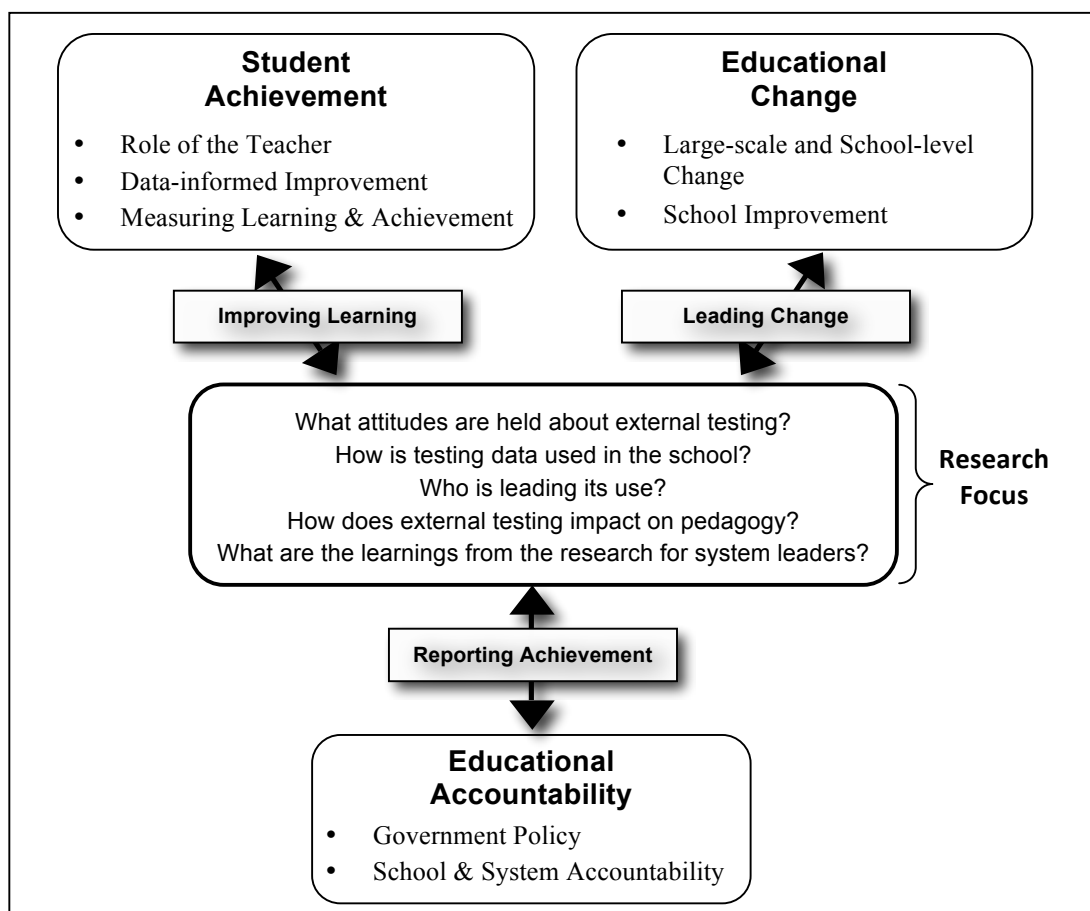
accountability. These are discussed in the following sections and form the basis upon which the research questions were developed.

2.2 CONCEPTUAL FRAMEWORK

The purpose of the review of academic literature in this chapter is to identify and examine the main issues related to the research problem and, in doing so, to establish the conceptual framework for the research. This grounds the research problem in a deep understanding of the existing knowledge base of the key themes explicitly related to the research problem and provides a critical analysis and synthesis of the main fields of related enquiry. In doing so, it is imperative to understand the conceptual framework on which the research is based.

The review of literature identified several themes that define the conceptual framework: in the wider sense, educational change and educational accountability and, at the school level, school improvement, leadership and student achievement. The common element linking these themes encompasses the use of testing data to inform decisions about student achievement and the role of leadership in its utilization. This relationship is shown in Figure 2.1 which conceptualises the challenge to school leaders in using data to improve student achievement. In the broader socio-political sense, the concepts of educational change and educational accountability intersect to affect the climate in which the individual school (and school system) operates. Here, forces for change and reform in the macro sense have an impact on the way the school organises its teaching and learning. In fact, the need for change and consequent requirements for accountability often can set the parameters under which the school delivers its curriculum and undertakes practices to improve assessment and reporting of student achievement (Fullan, 2002). At the school level, the way the principal's leadership interacts with these forces can have a profound impact on the nature, scope and pace of school improvement programs designed to improve student achievement (Hargreaves, 1997). If decisions about using achievement data are to lead to changes in teaching and assessment practices in the classroom, then the importance of leading school improvement comes to the fore (Harris, 2005a).

FIGURE 2.1
CONCEPTUAL FRAMEWORK



A ‘reculturing’ of schools has been shown to be the essence of whole-school improvement and forms the basis for improving student outcomes right down to the classroom level (Fullan, 2000). The focus of this research, then, considers the use of data as an integral component in the provision and subsequent use of quality information about student achievement (Earl & Fullan, 2003; Richardson, 2005).

In the educational sense, school improvement has been seen in terms of “creating cultures” (Fullan, as cited in Hargreaves, 1997, p. 3) to develop more collaborative working relationships at various levels within the school setting – between principals and teachers and among teachers themselves; from the school-level to the classroom.

The key question here is: what can schools do about educational change and accountability? Change, per se, does not necessarily lead to school improvement (Fullan, 1991). And not all change automatically promotes reassessment of beliefs and

improvements in practices operating within a school (Romero, 1998). For change to be effective there needs to be a sustained effort at changing the internal conditions with the ultimate aim always of improving student outcomes. This requires a change in the way that learning is planned, conducted and evaluated. It requires a modification in behaviour that becomes part of the new norm (Hargreaves, 2004).

Figure 2.1 also shows a relationship between educational accountability and student achievement. In the Australian and overseas contexts, there have been calls for increased accountability of schools through policy revisions aimed at increasing educational governance and accountability (*'Schools Assistance (Learning Together – Achievement Through Choice and Opportunity) Act'*, 2004 and 2008). The Australian Government has strengthened the nationwide reporting of student achievement of literacy and numeracy by a succession of policies and implementation requirements since the end of the 1980s. These have had a direct impact on the direction of curriculum and assessment in states and territories as well as on teaching and learning in the classroom, with the range of data available to schools on student achievement increasing markedly over the last five years.

However, and importantly, Figure 2.1 identifies the challenge now for schools and school systems: for the principal and teachers to use such data to inform decisions on student achievement; to ensure that this information can be used to effect changes in teaching, learning and assessment practices in the classroom. Significantly, the arrows in Figure 2.1 are two-way, reflecting the importance of feedback affecting decisions on the use of such data: the use of data that measures learning should impact on the role of the teacher in improving student achievement ('improving learning'); in 'leading change', evidence-based leadership by the principal has a responsibility to use data on student achievement to inform decisions on implementing change for school improvement; and the reporting of student achievement through the use of data informs school and system accountability as well as government policy.

The problem for the present research involves a critical study of the use of literacy and numeracy testing information and an investigation of who is driving its use to effect changes in teaching practices in the school as well as an examination of the effectiveness of such leadership. The remainder of this chapter critically analyses and

examines the academic literature around the three themes pertinent to the research: student achievement, educational change and educational accountability.

2.3 THEME 1: STUDENT ACHIEVEMENT

The first theme - Student Achievement - explores the elements that contribute to improvements in student performance, and primarily involves consideration of the teacher's role in such improvement, the impact of 'good teaching', and teacher leadership. The attitudes to learning through academic optimism, and the role, use and measurement of achievement using data are also examined. Their contribution to the research is explored in the following sections.

2.3.1 The Meaning of 'Student Achievement'

The many facets of 'student achievement' are discussed in the research literature, and its meaning is related to particular contexts. A study by Ruebling et al., (2004) sees improvements in student achievement as the "school's reason for being" (p. 243). Tan and Prosser's (2004) research defines achievement in terms of four conceptions of 'grades' received by students, but their study showed that these have subjective meanings, even in a standards-based framework. Hofman et al., (2002) link student achievement to school governance and the climate that shape "conditions in schools that positively affect student achievement" (p. 268). Others (Edgerson et al., 2006; Tschannen-Moran & Barr, 2004) see achievement enhanced by the professional and personal relationship between teacher and principal.

However, a trend emerging from a review of the literature specifically links student achievement with task competence (Grobe & McCall, 2004; Petterway, 2006; Stake, 2002). Associated with this is the notion that the conceptualising of student achievement by teachers has a profound impact on its purpose and how it is measured. The conclusion from Stake's (2002) research is that "achievement is not thought of so much as enhancing a trait or increasing an ability, but as successfully completing a task" (p. 303). This places the measurement of a student's success firmly in the realm of achieving particular, objectively-described (or prescribed) standards.

When a student's achievement becomes equated with successfully performing a particular task, as measured by a test score or grade, 'student achievement' can become narrowly defined and interpreted (Rowe, 2005). And with growing emphasis on the measurement of achievement linked with accountability (Angus, 2004; Fullan, 2005; Kelly, 2004; McWilliam & Perry, 2006), the literature suggests there is a danger that "when success of teaching or schooling is interpreted in terms of test scores, the teacher is pressed to reconceptualize teaching and, directly or indirectly, to teach for the test" (Stake, 2002, p. 303).

This trend has implications for the present study. By considering student achievement on the mandatory, large-scale literacy and numeracy testing across schools in the Archdiocese of Canberra and Goulburn, this research explored the way that 'achievement' is viewed by the classroom teacher and its impact, firstly, on the way external testing data on student achievement is perceived and, secondly, on the degree to which teachers use such information to inform teaching and learning.

Grobe and McCall (2004) signal a warning from the experience of external testing in the USA. Their research indicates that large-scale tests measure only the cognitive domain of learning, and the uses of such testing regimes provide an incomplete and misleading picture of achievement. They argue for a "clear distinction between tests used for accountability and monitoring purposes and those used for the improvement of student learning" (Grobe & McCall, 2004, p. 134). Petterway (2006) extends this to students with an English as a Second Language (ESL) background, calling for assessment data to be "culturally neutral", and "whether, for purposes of establishing parity in benchmarks, schools are dealing with students who are more or less equally equipped to handle the assessments" (p. 4).

This academic literature suggests there is a difference of intent between testing for monitoring purposes and testing for student improvement. One implies testing for accountability, the other as a diagnostic tool to further enhance student progress. Here, 'assessment for learning' and 'assessment of learning' have different emphases. Even though both supply information on student progress, 'assessment for learning' provides for a continuous flow of information between teacher and student with meaningful feedback, not merely to "check on student learning" (Grobe & McCall, 2004, p. 137).

Again, the purpose of the present research was to ascertain the degree to which such information from external testing is used for diagnostic, ‘assessment-for-learning’ purposes in the classroom and how teachers conceptualise ‘student achievement’ in this process.

2.3.2 The Teacher’s Role in Student Achievement

The role of the classroom teacher in affecting student achievement has been the subject of much research over recent years (Bonesronning, 2004; Connolly, 1998; Hopkins, 1997; Reed, 2001; Ross, 2004; Tschannen-Moran & Barr, 2004). The input of the teacher consistently has been shown to be a key element in any measure of student improvement, particularly with regard to the present study involving the use of data to improve student outcomes. In this respect, a review of the literature suggests there are four main areas involving the effect of teachers on student learning: good teaching, teacher leadership, academic optimism and the use of quality data.

2.3.2.1 Good Teaching

‘Good teaching’ is regarded in the literature as an essential element in improving student outcomes. Hayes (2004) argues for explicit, high quality teaching by classroom practitioners whose pedagogical practices are “focussed on enhancing student’s learning outcomes with an emphasis on challenging, connected and valued tasks” (Hayes, 2004, p. 13). In working with faculty leaders and the school’s leadership team, the teacher is seen to be a key person in an organisational structure that emphasises “aligning programs across departments and subject areas in schools” (Hayes, 2004, p. 13). In making her point, Hayes cites related studies (Christie, 1998; Lingard et al., 2001; Newmann & Associates, 1996) that stress the contribution of good teaching to improving student outcomes.

However, for this to occur, the literature suggests the need for a coordinated approach throughout the school in a “sustained professional dialogue about how to engage students in supported learning experiences”, where the “core responsibility of teachers working in teams is to align their interpretations of the curriculum, develop authentic assessment tasks and design pedagogical experiences that support learning” (Hayes, 2004, p. 14).

This is a view shared with Stephens (2000) in his endorsement of the 1997 UK study by the School Education, King's College, University of London: "*Effective Teachers of Numeracy – Final Report*". Its aims were to analyse the factors promoting the effective teaching of numeracy and to determine the strategies which would enable a wider application of those factors. While the report concentrated on the teaching of numeracy to primary school students, it singled out teachers who were "highly effective" because they believed that the "discussion of concepts and images is important in exemplifying the teacher's network of knowledge, and in revealing pupils' thinking" (Stephens, 2000, p. 15). Furthermore, these teachers believed it is the "teacher's responsibility to intervene to assist the pupil to become more efficient ..." (Stephens, 2000, p. 15).

The concept of 'good teaching' is also found in Leithwood and Riehl's (2003) study of successful school leadership. Even though the principal is a major influence in setting the tone, climate and direction of the school, it is the staff who must operationalise this in the day-to-day interactions with one another, the students, parents and the community. A key ingredient of 'good teaching' is found, on the one hand, in the expectations the principal has for the staff, and, on the other, with those expectations the classroom teacher has for the students: "Done well, expressions of high expectations ... result in perceptions that what is being expected is also feasible" (Leithwood & Riehl, 2003, p. 18).

These studies strongly suggest that the notion of 'good teaching' is seen as an important element affecting student achievement in the classroom. Coupled with this, however, is the second area of interest from the research literature - teacher leadership.

2.3.2.2 *Teacher Leadership*

The second factor from the literature impacting on the teacher's role in promoting student achievement is teacher leadership. This involves not only the formal positions held by some teachers (promotions positions such as coordinators of curriculum areas/stages, pastoral care, and so on), but also the more informal, non-promotion leadership roles that are often filled by classroom teachers with a time allowance. These positions include a mentoring role for newly-inducted teachers, various committees (such as timetabling, magazine), careers advisor, etc. that are a vital component of a school's organisational structure.

Such opportunities for teacher leadership allow for an increased participation of teachers in whole-school decision making, and represents another (albeit indirect) effect on student achievement. The effective professional development of staff in curriculum, pedagogy or other areas within the school can support the learning that occurs. Gurr et al., (2003) make a strong point by referring to King and Newmann's (2001) study of building school capacity where "student achievement is influenced by the quality of instruction (curriculum, instruction and assessment), which is influenced by school capacity (teacher knowledge, professional community, and program coherence" (Gurr et al., 2003, p. 33).

Hayes (2004) also connects teacher professional development with improvement in student achievement by using the term "technology of resilience" to build coherence between the pedagogical practices of the principal, department/stage coordinators and classroom teachers "in ways that ultimately support student learning" (p. 14). In this sense, she is arguing for an agreed practice and approach to learning throughout the school – from principal to classroom teacher – where the improvement of student outcomes is at the centre.

Rowe (2005) agrees with this approach by stressing the importance of targeted teacher professional development by "building teacher capacity in terms of extending their repertoire of pedagogical strategies [that] meet the developmental and learning needs of their students" (p. 136). Since quality teaching and learning are at the centre of any discussion about student achievement, the development of teacher expertise in both interpreting and using information about student achievement is vital (Robinson, Lloyd, & Rowe, 2008).

2.3.2.3 *Academic Optimism*

The third aspect of the teacher's role identified by the literature involves a relatively recent development in research on the effect of teachers on student achievement. This relates to the concepts of "academic optimism" (McGuigan & Hoy, 2006) and "collective efficacy" (Ross et al., 2004; Tschannen-Moran & Barr, 2004). Student achievement can be (positively and negatively) affected by factors that are contextual to the school and are directly attributable to the school's influence. "Academic optimism" (McGuigan & Hoy, 2006, p. 204) is seen as an enabling property that promotes enhanced student achievement through the school's academic emphasis and pursuit of high standards

for teachers and students, building trust in students and parents as partners and, hence, “collective efficacy” (McGuigan & Hoy, 2006; Ross et al., 2004). It refers to the perceptions of teachers that they constitute an effective team in having a positive effect on students.

In moving from the individual teacher’s expectation that he/she will be able to make a difference to student learning to the group (faculty, year level or stage), collective efficacy is more than the sum of the parts. It refers to the “expectations of the effectiveness of the staff to which one belongs”; it encompasses a collective expectation of standards, success and, as such, is a “powerful predictor of student achievement” (Ross et al., 2004, p. 165).

2.3.2.4 *Using data to Improve Student Outcomes*

A fourth factor from the literature influencing the teacher’s role in student achievement involves teachers using data to improve student outcomes. In citing the 1997 UK Mathematics tests by 7 and 14 year-olds, Williams and Ryan (2000) argue for the essential (but often missing) link between national testing programs and teacher awareness of how to use these results as a diagnostic tool for assessment and learning in the classroom. Specifically, they make the point that “many teachers do not use diagnostic methods, and seem to be unaware of their potential for improving classroom practice” (Williams & Ryan, 2000, p. 50). The researchers suggest that if teachers view national testing regimes as a summative tool, then the impact of student results on teaching and learning will be minimal. If, however, these tests are regarded in the formative, ‘assessment for learning’ paradigm, the teacher can then identify areas of strength and weakness in different concepts and incorporate these into the classroom learning framework. Williams and Ryan (2000) also go one step further and identify diagnostic assessment to “focus on specific symptoms which may require specific treatments, i.e. focused feedback and teaching” (p. 52). This is an important point for the research study. Irrespective of the role and impact of the school principal, the research suggests that the image the teacher has about external, national testing and assessment will colour how the results of such testing are used to improve student achievement in the classroom.

Herman & Golan (1991) looked at this relationship by considering the effects of standardised testing on teachers and learning. They refer to ‘high stakes’ testing which

carries with it important consequences that are based on the testing results by citing Romberg et al., (1989): "... the greater the consequences attached to the test, the more likely it would be to have an impact [on teaching]" (as cited in Herman & Golan, 1991, p. 6). However, this impact could be positive or negative. If the dominant school climate is one of collaboration and shared decision-making, with an emphasis on continuous learning and professional development of staff, then the impact of such 'high stakes testing' would be felt positively in the classroom, and its results would be used to inform teachers and students in a formative or diagnostic sense (see Williams & Ryan, 2000). Alternatively, if the dominant school leadership model is one of accountability to external sources (parents, system, government), then "anxiety would increase when [for example] principals wanted to know why there had been a decline in scores" (Herman & Golan, 1991, p. 7). Teachers would be wary of any publication of results which could possibly be used to create league tables or their equivalent.

Consequently, these impacts also demonstrate the important relationship that exists between the principal and the classroom teacher in affecting student achievement. Previous research suggests that it is the way in which these tests are viewed that will determine how (and if) results will be used to improve student learning.

Another variant could be found if teachers themselves viewed the tests to be largely irrelevant and disconnected from their teaching, with the results being viewed as unreliable (Bonesronning, 2004). In this case, the validity of the tests would be under question and their results largely ignored. The perception that principals and teachers have of external testing was an important area for the present research.

Richardson (2005) sheds some light on the use of data in schools. By emphasising the importance of "monitoring...each student's learning progress at regular intervals (Richardson, 2005, p. 122), she provides us with a way to evaluate student attainment. However, in doing so, Richardson (2005) also exhorts teachers to "identify the factors that affect student learning, both positively and negatively then adjusting their practice accordingly" (p. 123). This view indicates the potential importance of data to inform improvements in student achievement

2.3.3 Data-Informed Improvement

The research literature is replete with discussion, analysis and evaluation of the importance of school improvement and the role that data and information on student achievement can play in this (Earl, 2005; Earl & Fullan, 2003; Noyce, 2000; Rowley & Congdon, 2005). Indeed, discussion about the role of, and links between, performance feedback, student learning and school improvement (Rowe, 2005; Visscher & Coe (eds), 2002) firmly place these linkages within the context of educational leadership in relation to school and teacher accountability and measures to improve student achievement.

Indeed, while some authors use the term “data driven” school improvement (Noyce, 2000; Rowley, 2005), Rowe (2005) prefers reference to school and student improvement as “data informed” by linking it with the powerful diagnostic process of “assessment for learning” (p. 133). In this sense, he argues that performance feedback to students (and teachers and schools) needs to be grounded in the context of school-initiated strategic, developmental interventions aimed at improvement from within, not from an externally-generated accountability agenda.

Two issues that arise in any discussion of data-informed school improvement centre, firstly on the validity, reliability and accessibility of the data itself and, secondly on the role of the teacher in providing feedback by using the data, analysing the information contained therein and in constructing valid interpretations for his/her students. This is in conjunction with leadership given at the school and system level to incorporate the information into school-based action.

Visscher (as cited in Visscher & Coe (eds), 2002) argues for the establishment of a framework for studying ‘School Performance Feedback Systems’ as a way of promoting the effective use of performance data and its impact on school improvement through the use of formative evaluation. This framework sees the progression from data description to diagnosis, explanation and remediation as an essential process in improving student achievement. Visscher (2002) suggests it is also important for the process to be congruent with two well-defined standards by which to judge its effectiveness: *accuracy standards* which concentrate on “objectivity, reliability and the validity of the procedures”, and *utility standards*, “i.e. the relevance of evaluations for educational practice” (Visscher, as cited in Visscher & Coe (eds), 2002, p. 49).

Hence, the integrity of the data and the processes for their use are paramount if any meaningful contribution towards improving student achievement is to be made in the school context. This has implications for the implementation of school improvement informed by analysis of student achievement data: the school needs to have its own structures and processes in place in order to manage such improvement, with student achievement firmly at the centre (Harris, 2000).

Hattie (2005) agrees with this approach. Not only does he argue that the teacher is a “critical [element] in the ‘evidence’ cycle” (Hattie, 2005, p. 11), he reinforces this with the stronger case for the teacher as “the major agent that influences teaching and learning” (p. 17). Further, in asking the question “What data would support a teacher to enhance teaching and learning?” (Hattie, 2005, p. 14), Hattie stresses the need to devise systems to feedback performance information in a way that makes a difference to student learning and classroom practice – both of which are intimately connected.

Coe (as cited in Visscher & Coe, 2002) provides compelling evidence of the role and impact of feedback in data-informed improvement by firstly tracing the development of feedback theory over the 20th Century, and then relating this to performance feedback in the school context. Thorndyke’s (1913) ‘Law of Effect’ was one of the first theories used to analyse the effects of feedback. Put simply, positive feedback promotes reinforcement of actions whilst negative feedback has a punitive and discouraging effect. This view was held for most of the first three-quarters of the Twentieth Century until Abramson’s “Learned Helplessness” (1978) approach went one step further. Here, “repeated experience of failure leads individuals to adopt maladaptive performance strategies” (Coe, as cited in Visscher & Coe, 2002, p. 8).

During the 1990s, more sophistication was introduced by further considering a person’s response to feedback. Research suggested that “feedback-focused interventions can have substantial effects” (Coe, as cited in Visscher & Coe, 2002, p. 11). These can be both positive and negative, suggesting that it is not only the feedback itself that is important, but the manner in which it is given can affect the very desire to improve. Coe then concludes by reinforcing the view that “the evidence is ... clear that, under the right conditions, feedback can have a substantial effect on improving task performance” (Coe, as cited in Visscher & Coe, 2002, p. 23).

These studies show that feedback, involving the process of transforming data into information, interpretation, diagnosis and action, is a crucial element in data-informed school improvement. Axworthy (2005) supports this view by suggesting that teachers are key people in any process of performance feedback to students, hence it is imperative that such data and information reaches classroom teachers “in a way that informs their approach to teaching practices” (p. 127). In discussing the Western Australian Literacy and Numeracy Assessments (WALNA) experience, Axworthy (2005) reminds us that people without information cannot make good and defensible decisions: “Despite - or perhaps because of - the fact that [teachers] are surrounded by a plethora of data on student behaviour and performance, there is no automatic and universal adjustment to their teaching practice in response” (p. 127).

Thus, what is important for the present study is for student performance data to be turned into the kind of information that the classroom teacher can understand and use. In this context, the teacher should be able to not only diagnose students’ strengths and weaknesses, but also, just as importantly, to evaluate their own pedagogical practices within the classroom (Earl & Fullan, 2003). The teacher needs to be able to ask questions of the information about student performance and to appraise its congruence with their own classroom observation and evidence (DeCourcy, 2005). In other words, the information must be relevant to the teacher. Put simply, “Data helps teachers, Heads of Department and the Senior Leadership Team identify underperformance, and do something about it” (Kelly, 2004)

Gray’s analysis of performance feedback in the UK since the early 1990s (as cited in Visscher & Coe (eds), 2002) reinforces the strong link between the provision of meaningful feedback and improved student achievement through teaching and learning. He makes the point that school improvement strongly correlates with the development of policies for supporting teaching and learning, changing the way that teaching and learning is operationalised at classroom level, and providing greater responsibilities to pupils for their own learning. Gray’s research (as cited in Visscher & Coe (eds), 2002) sees the connection between data feedback and teaching and learning as an important element in school (and student) improvement. He concludes with three results of his analysis:

“First, schools and teachers are more likely to respond when the data are perceived to have something worthwhile to say, but at the level of the school and of the subject department”;

“Second, culture and context matter. Performance data are unlikely to shift entrenched attitudes and positions ... School improvement must take place on several fronts at the same time”; and

“Third, for a school to make effective use of performance data it is almost certainly necessary to have someone available at the school (and preferably within it) who is both willing and able to act as an ‘interpreter’.” Gray, as cited in Visscher & Coe (eds), 2002, p. 161)

Indeed, perhaps this relationship is best explained by Rowe, Turner and Lane (as cited in Visscher & Coe (eds), 2002) as a comment on the relationship between data and school improvement:

“Whereas feedback of data about student performance is a *necessary* condition for subsequent improvement, we would argue that access by schools to the data *per se* do not constitute a *sufficient* condition to engender change for the better. Rather, such change is crucially dependent on careful and responsible management of performance information by school administrators and leadership teams within the context of a shared commitment to strategic, continual improvement.”

(Rowe, Turner & Lane, as cited in Visscher & Coe (eds), 2002, p. 169).

With regard to the issues surrounding data-informed improvement, this study explored the existence of a combination of three elements: firstly, good, valid, reliable and accessible data, secondly, the (preferably in-school) expertise to understand the data and convert it into information to enable meaningful interpretations to be made, and, finally, teachers and principals who value and understand the relevance of such information at the classroom level to improve student achievement. These findings are important for the present research, especially for the impact such data could have on pedagogy for the classroom teacher.

The aforementioned studies have demonstrated that school improvement, the type that becomes sustained and self-regenerating, can be achieved through the targeted

and strategic use of data that impacts on teaching and learning at the classroom. However, in order to arrive at this data in the first place, issues surrounding the measurement of student achievement need to be discussed.

2.3.4 Measuring Learning and Achievement

“Without data, I’m just another person with an opinion.”
(McGaw, 2002, in DeCourcy, 2005, p. 93)

The quotation places data at the centre of school-based decision-making about student achievement. Indeed, Noyce, Perda, and Traver (2000) remind us of the importance of using data “systematically to reveal important patterns and to answer focused questions about policy, methods and outcomes” (Noyce, Perda, & Traver, 2000, p. 53). At all levels, there is a need for decision makers to use data to ascertain the performance of individual students, interpret patterns over time or between different groups, and evaluate and make decisions about program efficacy, pedagogy, resource use and curriculum provision (Hattie, 2005; Koretz, 2002; Rowe, 2005). Without such data on which to base these decisions, the location of evidence for change can be imprecise and somewhat meaningless.

Herman and Golan’s (1993) analysis of the effects of standardised tests on teaching and learning strongly suggests that, although there is some debate over the causal link between improvements in test scores and improvement in learning, such testing has “substantial effects on schools and the teaching and learning processes within them” (p. 24). Testing, and the feedback information derived from it, enables a powerful argument to be made for school- and system-based policy decision making that focuses the school on the achievement of externally verifiable standards that guide classroom pedagogy (Rowley & Congdon, 2005).

Caution needs to be exercised, however, when discussing such ‘evidence-based’ decision making to avoid an approach to data and information that is too narrow (Grobe & McCall, 2004; Herman & Golan, 1993). The measurement of student achievement is a much broader process than merely relying on standardised test scores or even raw data on student achievement without any attempt to link this with what actually happens in the classroom. Hence, the *context* of learning is also significant in measuring the ‘value-added’ nature of student learning. For Bruniges (2005) there are four ways we can and should use data on student performance: to “improve the focus of our teaching”,

to “focus students’ attention on their strengths and weaknesses”, to “improve programming and planning”, and to “report on an assessment” (p. 103).

That said, there has been emphasis placed on the design of evidence-generating tests of literacy and numeracy in Australia and the subsequent use of this information in the interpretation of such data at the school and classroom level to support student learning (COAG, 2009; MCEETYA, 1999). However, building capacity at the school and system level has also been an important feature of an evidence-based approach (Harris, 2001). The use of evidence and the interpretation of information have become tools for professional learning for school and system staff to inform decision making about student and school improvement (Rowe, 2005). Here the guiding principle is the integration of empirical evidence with professional wisdom as essential components in the decision-making cycle. In this respect, the use of HSC data in New South Wales (De Courcy, for the Catholic Education Commission, NSW), the VCE Data Service (Victorian Curriculum and Assessment Authority), WALNA (Western Australian Literacy and Numeracy Assessment), the ‘Count Me In’ and ‘Count Me In Too’ strategies for Number, the ‘Reading Recovery’ program throughout many dioceses, and ‘SMART Data’ in NSW (to analyse the results of external tests of literacy and numeracy in Years 3, 5, 7 and 9) are all examples of the methods used to ascertain and report on some measures of student achievement. These approaches rely on the collection of valid, reliable and accurate data on student learning to provide an evidence base to allow teachers, principals and systems to make informed decisions affecting teaching and learning in the classroom.

Hence, evidence-based measurement of student achievement and the use of the information distilled from such data are located firmly in the classroom and have implications for evidence-based school leadership. The collection of data provides us with an “external point of reference” (DeCourcy, 2005, p. 97) that enables teachers, school leaders and systems to discuss pedagogy and the ways it can improve student achievement. It is when we align current practice with student achievement, and then to compare this with curriculum expectations and external standards, that we are able to see the real power of evidence-based feedback. If there are significant gaps or inconsistencies between current achievement (as indicated by the evidence) and expectations of student performance, the school is in a position to remedy such anomalies. Until we obtain ‘hard’

evidence, we just do not know the true situation with regard to student achievement (Hattie, 2005).

The challenge is that, as the climate of educational measurement and reporting becomes more sophisticated with the introduction of a national testing agenda in literacy and numeracy, schools and systems will be inundated with a range of data and information that will enable direct comparisons between students, teachers and schools to be made. This is important for the present research which identified and analysed the problems associated with data interpretation and use by the principal and classroom teacher, and the reporting of student achievement at the school level. These issues are directly related to accountability of schools for student achievement against externally-generated criteria.

2.3.5 Summary of Theme 1

Research has demonstrated that the identification and measurement of student achievement is highly contextual and depends to a large extent on the perception of the importance such data have for improving student learning. Measuring changes in student performance by obtaining valid and reliable data provides the rationale for the collection of evidence to support changes to teaching and learning in the classroom and, indeed, for whole-school improvement.

Research has suggested that evidence-based measurement is designed to give educators 'hard data' on student achievement. Its purpose is to give principals and teachers a large measure of control over data on which to base decisions about curriculum and learning at the school level. Using the results of tests of literacy and numeracy as vehicles for valuable diagnostic information provides for the accumulation of evidence about the performance of students in order to inform teaching and learning in the classroom. However, previous studies have shown that evidence alone is not enough to maximise student outcomes. What is needed also is an increase in the professional capacity of teachers to use this information in their own classroom situations.

Collecting evidence on student performance and taking into account the roles of the principal and classroom teacher in promoting achievement can provide for a climate of data-informed school improvement – a major focus of the present research. In this context, the study examined the extent to which the school principal and classroom

teachers understand the role that data plays in promoting improvements in student achievement and how such information can inform teaching practices.

2.4 THEME 2: EDUCATIONAL CHANGE

The second theme providing a basis for the present research involves the identification of issues around educational change, its dimensions and impact, as well as leadership at the school and system levels. These are examined in relation to relevant academic literature in the following sections.

2.4.1 Dimensions of Educational Change

In linking with Theme 1 of this dissertation, an understanding of the uses of data on student achievement requires a consideration of the nature of educational change and its impact on teaching practices in the school. Change, whether a large-scale, mandated system-wide reform process or the simple adoption of new pedagogies by an individual teacher, has the potential to impact on student achievement. The way that educational change is managed and led can determine, to a large extent, the impact it has on teaching practices.

The concept of educational change has been explored in depth (Ellsworth 2000; Fullan, 1991, 1993, 2000a, 2000b, 2001a, 2009; Fullan & Earl, 2002; Gardner, 1998; Hargreaves, 1997, 2004; Hargreaves & Fink, 2000; Harris, 2005; Retallick & Fink, 2002). The major discourse running through the literature on educational change is related to the multi-faceted dimensions of the term and its application to both large-scale reform and individual school contexts.

Ellsworth (2000) presents a comprehensive overview of the many change models that have been proposed over the past 50 years. Ranging from General Systems theory in the 1950s through to the 1990s, he explores the early traditions of change research and the practical applications of change theory to educational contexts. His overriding thesis is that there is no “fixed sequence” for change (Ellsworth, 2000, p. 242) and that there is no one way of viewing change in all contexts. Instructively, Ellsworth (2000) challenges us to:

“consider your relationship within the system being changed.

You’ll want to lay all your assumptions about the nature of that

system – what its purpose is, who its members are, how it works, what constraints govern it, and others – on the table. You’ll want to question those assumptions, to see whether they still hold true. But you mustn’t stop there. You’ll need to look inside the system, seeking the best possible understanding of its subsystems, stakeholders, and other components, and how they relate to one another and to the system as a whole. And you’ll need to look outside the system as well, to understand how other, coequal systems ... are interrelated with it, and how these (and other systems) in turn relate to the larger systems of community, nation, or human society.”

(Ellsworth, 2000, p. 240)

This approach is instructive for informing the nature of the present study. Research literature and scholarly writing about educational change shows that the concept is highly contextual (Fullan, 2001, 2009; Hargreaves, 2004). Its effects on an organisation (whether at the school level or with large-scale reform, whether it is internally-generated within the school or imposed from the outside) depend on the context of the change, the meaning attributed to it and on the perceptions of the effects of the change on the individual. The present research explored this concept of individualised meaning-making and the actions which result, as well as the impact these actions have on school improvement and student achievement.

Change is about re-evaluating meaning and context and is highly personal and subjective in its effects. Hargreaves (2004) reminds us that “Educational change is not a self-evident, commonly agreed or technically straightforward process” (p. 291). This view echoes Ellsworth’s (2000) exhortation and the main thrusts of research into educational change – that of taking into account the characteristics of change itself, the importance of local and contextual features together with the external factors that operate to influence the change process.

Whether it is mandated, self-initiated or the result of other factors, the important aspect of educational change for this research is “how individuals come to grips with change situations” (Fullan, 1991, p. 30). This approach implies that change has a “subjective reality” for each person (Fullan, 1991, p. 33), and that the “emotion side of

change processes” (Geijsel & Meijers, 2005, p. 420) are important in a person’s response to change. Consequently, “change and emotion are inseparable” (Hargreaves, 2004, p. 287).

Change also involves an inducement or requirement to act, to evaluate current practices and move one’s stance, to upset the status quo and move to a new position. How one perceives educational change will be determined by the way the change itself affects the individual in a personal sense. In referring to work done by Hargreaves (1994), Romero (1998) calls for an “understanding of the desires and emotions in change experiences” (p. 50). This “letting go” (Romero, 1998, p. 50) becomes a pre-requisite for the “transformation of subjective realities [as] the essence for change” (Fullan, 1991, p. 36).

However, one issue needs to be addressed. Inertia is a powerful constraint to change. Change is easily resisted. Since it involves a significant shift in one’s subjective reality and calls for a different requirement for action, any change can be perceived to be threatening and confusing (Hargreaves, 2004). Again, the present research explored this dimension and analysed the powerful forces in people’s acceptance of, and resistance to, educational change in the school setting.

Hargreaves’ (2004) research also attempted to ascertain whether there was a consensus about the ‘meaning’ of educational change. His study found that 60% of the teachers interviewed “associated educational change overwhelmingly with external, legislated, government-imposed change” (p. 291), with very few teachers viewing change in a positive manner. However, it is important to note that Hargreaves’ (2004) research was undertaken in Canada in a climate where large-scale reform and government-mandated educational change had existed for over a decade prior to the study (Fullan, 2000). Similarly, the prevalence of “large scale and sustainable reform” projects in the UK (Fullan & Earl, 2002, p. 1) have been undertaken within a framework of ‘educational accountability’. It is important to note that attempts to generalise these results to different contexts are liable to be fraught with interpretative difficulties. Again, a consideration of situational context is important in understanding the meaning and nature of educational change. Romero (1998) refers to this as “situated educational change” (p. 66) that focuses on the circumstances of the specific school setting.

This approach raises the issue of the source of educational change. That is, what is the genesis of the change? From whence does the change originate? Is the change generated internally (within the school) or is it initiated and mandated by an external agency? These questions are important since they can affect a person's attitude to the change process itself and, consequently, can determine the ultimate success or otherwise of the change.

Much has been written about educational change characterised by its origin (Angus, 2004; Fullan, 2000; Hargreaves, 2004; Harris, 2005). Its type is usually defined by regarding the beginning of educational change as a dichotomy: either internally derived and driven (within the school), or externally generated, usually imposed or mandated as part of some large-scale reform agenda. Educational change that is "self-initiated" (Hargreaves, 2004, p. 294), implemented and controlled by members of the individual school community is regarded as engendering greater ownership by the very people who have to work in that environment. Research has demonstrated that participants have a greater stake in making the change work in their particular setting – in the "emotional side of the change process" (Geijsel & Meijers, 2005, p. 419). However, internally-derived change processes are not guaranteed success (Fullan, 2000). The school context is not enough by itself to drive effective or sustainable change (Harris, 2005).

On the other hand, large-scale reform attempts have had varying degrees of success, at least in the medium to longer term. Although Fullan (2000) has advocated the return of large-scale reform (as evidenced in the UK and Canada since the 1990s) and an increased sophistication in understanding its complexities, other research raises issues about the "emotional disappointment with reform" (Hargreaves, 2004, p. 289) where early success starts to "plateau" (Harris, 2005, p. 417). In these cases, top-down, mandated educational change is often based on punitive measures of accountability that concentrate on "limited instructional priorities while ignoring the wider social, organisational and contextual influences on schools and teachers" (Harris, 2005, p. 417).

In the Australian context, the educational change processes operating in Victoria during the 1990s reinforced the distinction between the external and internal settings. Pascoe and Pascoe (1998) argue that the '*Schools of the Future*' reform agenda of the Kennett government had a "focus on clear accountability for results for public agencies" (p. 3), but this was pitted against a strong culture of school-based curriculum

development where teachers had “substantial control over the design and delivery of learning programs” (Pascoe & Pascoe, 1998, p. 6). There was a pervasive culture of resistance to externally-mandated monitoring of school results and teacher performance.

This ‘either/or’ dichotomy, then, may not be the most productive way to view educational change and its impact on the school. In fact, it is unhelpful to make the assumption that all internal change is somehow preferable to externally-derived and mandated change (Hargreaves, 2004). Research has demonstrated that it is possible for externally-derived change to provide a new platform on which to initiate positive within-school changes to practices that are accepted as a positive emotional force for teachers. Hargreaves’ (2004) study of fifteen Canadian elementary and secondary schools found that educational change needs to be viewed not as internally or externally derived, but whether it is ‘inclusive’ or ‘exclusive’ in its design and conduct: “External change can lead to positive and productive teacher emotions if it is inclusive of teachers’ purposes, respectful of their priorities and sensitive to their working and implementation conditions” (Hargreaves, 2004, p. 301). In his study, this approach has significant implications for the role of the principal in leading the educational change process within the school. Its significance is that mandated (external) educational change can be a stimulus for a school response that taps in to the positive and highly-situational aspects of the culture of the school. This is relevant for the present research. The fact that an educational change program or process is externally-derived does not preclude it from being internalised as a source of positive internal change. Further, the implementation of a national approach to the testing of literacy and numeracy, and the public reporting of results, does not of itself prevent the change from improving student outcomes.

Fullan and Earl (2002) agree with this approach to some extent. Whilst arguing the merits of large-scale reform, they do make the point that “a fair degree of top-down initiative is required at the beginning, followed by investment in local capacity-building, followed in turn by greater attention to local creativity, reflection and networking” (Fullan & Earl, 2002, p. 4). Here, the door is open for considering the contextualisation of large-scale reform programs into the school setting. This is a tacit acknowledgment that for external, mandated reforms to work, they must be contextualised into the particular school setting. And for this to occur, local conditions need to be capable of creating an ‘inclusive’ environment for the change.

The present research takes up this point by considering whether educational change through the introduction of external literacy and numeracy testing is perceived as inclusive or exclusive of the needs of leaders and teachers within the school, rather than a discussion of whether it is internally or externally derived. This approach provides a much more powerful analysis of both the nature and effects of educational change in a framework that is context-based. It does not pre-judge a particular response to educational change based solely on its source, but, rather, on its perceived congruence with the goals and norms of the particular context in which the change takes effect.

Another important dimension of educational change concerns the degree to which the change process can be sustained to effect real transformation in practice. This concept of ‘sustainable change’ has been the subject of scholarly writing and research over the past several years (Fang et al., 2004; Fullan, 2001, 2002, 2005; Harris, 2005). For educational change to be sustainable, it must centre on the process of ensuring “continuous improvement” (Fullan, 2005, p. ix) and sustainability (Hargreaves, 2004) that is contextual. In promoting this, the importance of “moral purpose” (Fullan, 2005, p. 15) that is “socially just” (Hargreaves & Fink, 2000, p. 3) has become a key element in re-forming school cultures and building capacity for change. Sergiovanni (2005) makes the link between ‘moral action’ and leadership as “the struggle to do the right thing according to a sense of values and what it means to be a human being” (p. 115). This is reinforced by Frick (2009) who, in referring to the work of Shapiro and Stefkovich (2005), makes the point that “moral considerations should be grounded in the *prima facie* principle: Serve the best interests of the student. This principle is affirmed as a moral “ideal [that] must lie at the heart of any professional paradigm for educational leaders” (Frick, 2009, p. 53). Further, Levin and Fullan (2008) extend this and specifically appeal to educators’ sense of moral purpose in what they do: “... their belief that education is about success for all students is a great potential motivator ...” (p. 294).

Educational change and sustainability, then, needs to be brought into focus by grounding them in a principal of ‘moral purpose’ and praxis, and relating them to the school context in which they are set. Rather than regarding these concepts as somewhat isolated and removed from the school situation, Harris (2005) extends the challenge to school leaders and teachers: “In the end sustainable change is dependant upon what individual teachers do in classrooms. To disenfranchise teachers from the process of

designing and implementing educational change is not only unwise, but also guarantees a continued legacy of initiatives and reforms that make little impact, long term, on the quality of teaching and learning” (Harris, 2005a, p. 419).

For educational change to be sustainable, then, changes in practice must extend below the whole-school level and into the classroom. Since the purpose of educational change is to make differences in the core business of schools - teaching, learning and student achievement - it is in the classroom that significant differences are able to be operationalised. And for this to occur, previous research has demonstrated that teachers and principals need to become partners in this process that involves significant, sustained and meaningful improvement in school culture, pedagogy and organisational structures (Edgerson, Kritsonis, & Herrington, 2006; Fullan, 2009; Harris, 2005b). It is in using this approach that we are now able to relate the concept of educational change to a more concrete analysis of what this actually means for the school and its community.

2.4.2 School Improvement

Research into the notion of ‘school improvement’ has developed a level of sophistication over the past 20 years and its relationship with the ‘school effectiveness’ movement has undergone significant change during this period. Hopkins & Reynolds (2001) trace the development of the school improvement movement since the mid-1980s, with particular emphasis on what they call, the “third age paradigm” (p. 459). With initial emphases rooted in organisational change and school self-evaluation, these changes were centred on a whole-school approach to improvement that bore little or loose connection with improving student learning outcomes. The emphasis was on development planning of the school as an organisation, with a tendency to concentrate on the management of prescriptive, context-free educational change. As such, the individual school situation was not necessarily taken into account in the quest towards school improvement.

This phase essentially characterised the approach taken by the ‘school effectiveness’ (as opposed to school improvement) paradigm. Bennett and Harris (1999) take up this point by stressing the main differences between the two approaches: “School effectiveness research tended to view organisational development in terms of structural change, while the school improvement field has conversely placed an emphasis upon the cultural dimensions of organisational change” (Bennett & Harris, 1999, p. 533). With an emphasis on organisational theory and power, the school effectiveness approach measured

key organisational traits, and was regarded as the true indicator of the rational achievement of goals set in terms of measurable targets. The model inferred a ‘one-size-fits-all’ approach that could be applied in many school situations. It was, in fact, context-free.

Creemers (2002) provides a concrete explanation of the differences between the two paradigms: “School effectiveness and school improvement have different origins: school effectiveness is more directed to finding out ‘what works’ in education and ‘why’; school improvement is practice and policy oriented and intended to change education in the desired direction” (Creemers, 2002, p. 343). Further, Scheerens and Demeuse (2005) explain a causal relationship existing between the two models: “School effectiveness yields school characteristics that optimise particular learning outcomes, and school improvement addresses factors and processes that establish these effectiveness-enhancing factors” (Scheerens & Demeuse, 2005, p. 382).

Byrne and Gallagher (2004) raise another problem with the school effectiveness research – that of the “commodification of education” where “governments promote a narrow ‘standards’ agenda in which measurable attainment outcomes are represented as the most important, if not the sole, purpose of education” (Byrne & Gallagher, 2004, p. 164). Here, education is viewed as a commodity with specific, narrowly defined outputs to be measured.

Subsequent refinement of the School Effectiveness model extended this and was characterised by “guidelines and strategies for implementation” (Hopkins & Reynolds, 2001, p. 460). Schools were encouraged to plan for whole-school development, to use the current research on school effectiveness and to focus on the classroom to improve student achievement. Here, the ‘value-added’ concept was beginning to be applied to improvements in school effectiveness which linked organisational and classroom change. However, the unit of change was still at the whole-school level with little attention being paid to the classroom or the stakeholders’ personal attitudes to, and relationship with, change.

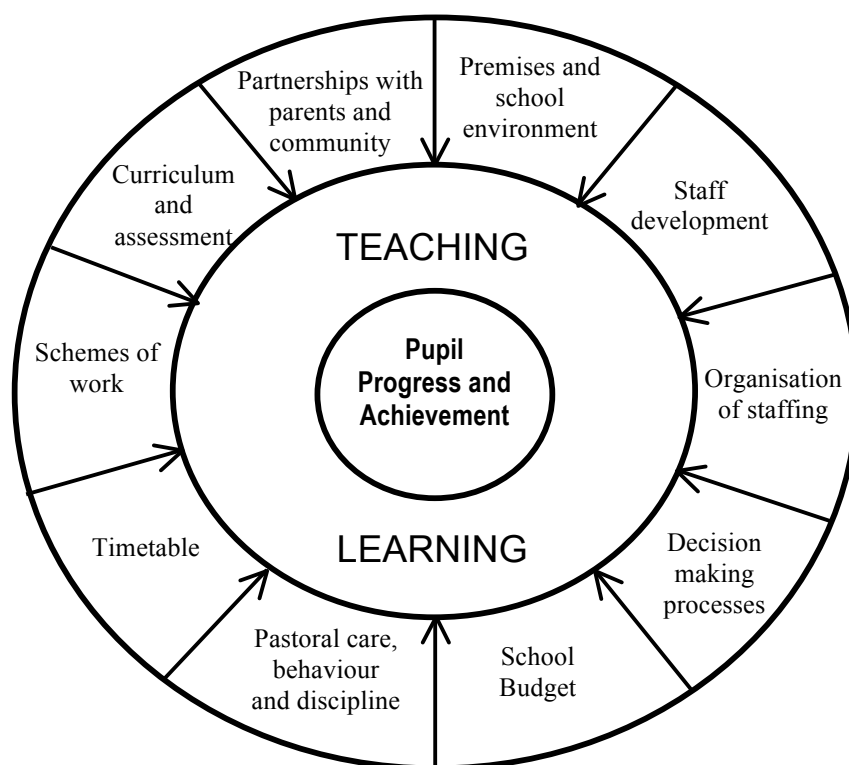
The next development, according to Hopkins and Reynolds (2001), began in the late-1990s with the realisation that the large-scale national educational reforms, especially in the UK and USA, were not particularly successful in promoting school improvement, especially if such improvement is measured in advances in student

achievement. Again, many of the reforms neglected to focus on the classroom, teaching and learning, or the importance of capacity building (Fullan, 2005).

This change in emphasis engendered an enhanced focus on student achievement, teacher pedagogy and the role of targeted professional development to build the teacher's (and school's) capacity for further development together with cultural change in order to embed and sustain school improvement. Fullan (2005) further develops this concept by emphasising the eight elements of 'sustainability' (p. 14) and the central role of adopting a 'moral purpose' for leadership in changing school cultures - a point that had been developed previously by Starratt (1993).

This significant change of emphasis from school effectiveness to school improvement moved the research focus from a measurement approach to a concentration on cultural change, and inward from the school level to become centred on the classroom and its impact on student achievement. This change is reinforced by Hopkins and MacGilchrist (1998) and is shown in Figure 2.2.

FIGURE 2.2
THE INTERFACE BETWEEN WHOLE-SCHOOL IMPROVEMENT
AND CLASSROOM PRACTICE



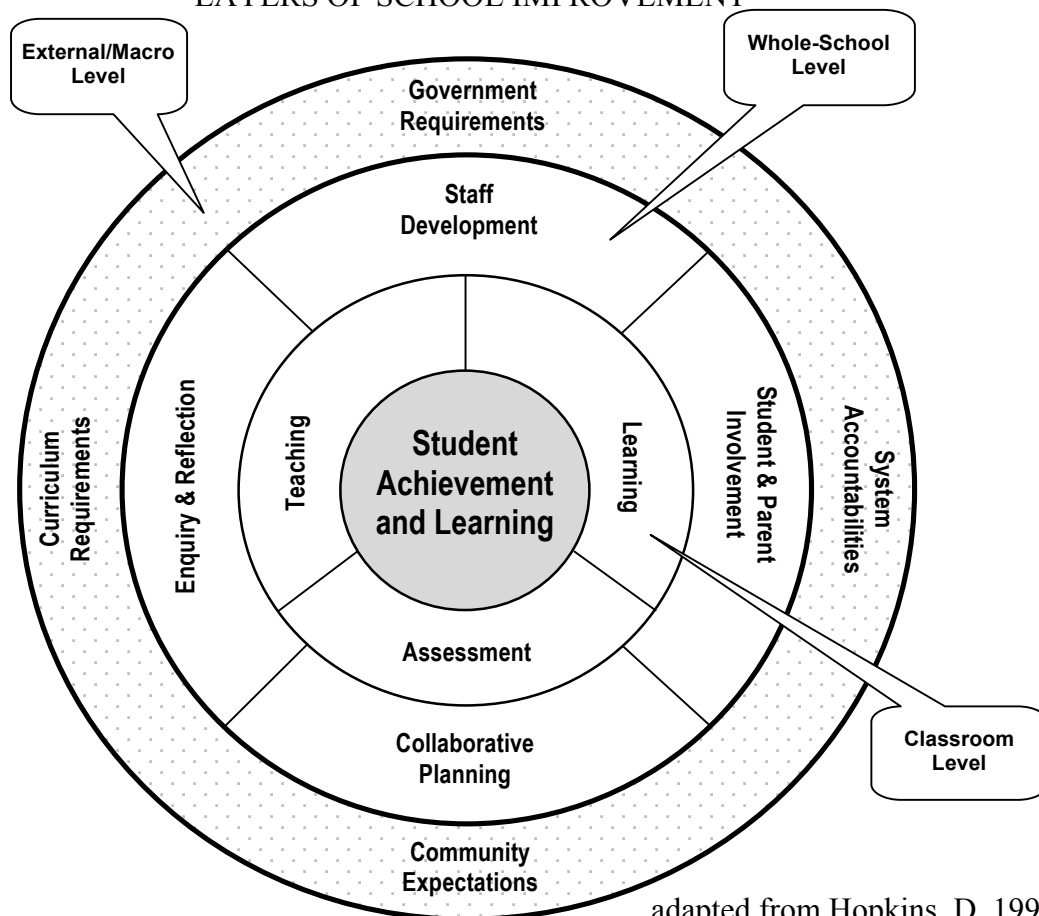
after Hopkins and MacGilchrist (1998)

Figure 2.2 shows the relationship between the elements of improvement and classroom practice. In this, the student is firmly at the centre of the improvement process, with teaching and learning providing the interface with the myriad of school improvement practices. What is noteworthy here is that the organisational structures involved with school improvement are secondary to its primary focus of student achievement, whereas the earlier 'phases' centred on changes to the school as an organisational entity in its own right. Thus, teaching and learning in the classroom have become recognised as the "core business of schools" (Hopkins & MacGilchrist, 1998, p. 415) where, not only should the emphasis for school improvement be on the student in the classroom, but, importantly, priorities for improvement need to be developed to make the process manageable and realistic. Their "Five Stage Cycle for School Self-Improvement" (Hopkins & MacGilchrist, 1998, p. 417) points to a rational, planned approach to improving student achievement whilst utilising the collection, analysis and interpretation of evidence on which to add value to learning. Subsequent research (Beresford, 2003; Goldenberg, 2003; Harris, 2000) confirms this approach and firmly places the essence of school improvement at the classroom level where the business of teaching and learning, and the relationship between teacher and student are paramount. With earlier research not concentrating on the classroom, Harris (2000) calls for a refocusing, since "many school improvement efforts have until recently neglected the primacy of instruction". She makes the explicit point that "...by not focusing at the classroom level, school improvement runs the risk of manipulating variables that are school-level variables only" (Harris, 2000, p. 9).

Harris (2001) further develops this view of extending school improvement inwards from the whole-school level (in the secondary school context) by considering the important work done at the department level. At that time, contemporary approaches did not adequately reflect or consider the significant interaction that occurs between teaching/learning in the classroom and the whole-school approaches to improvement. In basing her own research on previous studies of school effectiveness that highlighted the contribution of the classroom and department to whole-school effectiveness (Creemers, 1994; Scheerens, 1992), Harris (2001) rejects the emphasis on school-level change as the means of school improvement. Her conclusions are unequivocal: "...where heads of department had become more focused upon specific developments related to teaching and learning issues, there was more evidence of positive change at the classroom level" (Harris, 2001, p. 481).

With the failure of school-level approaches to adequately explain the dimensions of school improvement processes, a more targeted (and powerful) model was developed. This includes not only school-level approaches, but also the relationship between the school and the external or macro context in which the school exists. Significantly, the internal layers of operation within the school itself – at the classroom level – are shown to have a direct impact on student achievement. This is shown in Figure 2.3 which depicts the multi-layered approach to school improvement. In this model, student achievement and learning is at the centre of the improvement process and is directly related to, and is affected by, teaching, learning and assessment at the classroom level. Importantly, using Hopkins' (1997) analysis, the concentric nature of the rings, and the fluidity between them, links the student in the classroom with whole-school level improvement, as well as with the external influences that affect these processes. In the model, all the rings need to “exist in a reciprocal relationship if student achievement is to be enhanced” (Hopkins, 1997, p. 165).

FIGURE 2.3
LAYERS OF SCHOOL IMPROVEMENT



adapted from Hopkins, D, 1997

This multi-layered view of school improvement is also supported and extended by further research in the UK and Canada (Beresford, 2003; Harris and Hopkins, 2000; Jackson, 2000; West, 2000; Potter et al., 2002). In researching and evaluating the ‘Improving the Quality of Education for All’ (IQEA) project which was based on the “conceptual, strategic and methodological aspects of the school improvement process” (West, 2000, p. 43), these studies reinforced the importance of the multi-layered approach to school improvement. They also extended the research to include internal and external change agents (Harris & Hopkins, 2000; Harris & Young (2000), the role of “cultural change” (Potter et al., p. 245) and “building capacity for change” (Harris, 2000, p. 261). Further, according to Stoll (1999), the importance of internal capacity cannot be overstated due to its role in “developing and sustaining the teacher and organisational learning necessary to promote and enhance student learning” (p. 503).

The IQEA research also showed another element of school improvement that had been largely ignored in earlier work on large-scale reform. The role of ‘context’ was beginning to be considered as a key determinant of success for school improvement and was one that emphasised the important contribution of school-initiated reform. Here, “contextualising school improvement” (Harris, 2000, p. 263) provides the main impetus for considering the unique set of circumstances in which each school is situated - from the particular external socio-political forces operating on the school, to its leadership and organisational structures, and the particular combination of parents, staff and students that affect the type of teaching and learning and approaches to student achievement.

Building on the shortcomings of previous approaches to school effectiveness and school improvement, empirical research in the first decade of the 21st Century now has begun to develop a model that synthesises the two – ‘effective school improvement’ (Creemers, 2002; Creemers & Reezigt, 2005; Harris, 2005; Wikeley et al., 2002; Wikeley et al., 2005; Wikeley & Murillo, 2005). This movement integrates the two paradigms and considers the process of change as central to any understanding of how and why schools undertake improvement. The importance of “context, the role of internal and external change agents, and the complexity and interconnectedness of all factors and influences on school improvement are emphasized” (Wikeley & Murillo, 2005, p. 357).

Thus, the academic literature has emphasised that school improvement is multi-faceted, multi-layered and deeply contextual. Attempts at school improvement need

to take into account the particular circumstances of the school and, most importantly, must be student-centred. They must attempt to improve, explicitly, student achievement and learning and “engage with those processes that are more deeply associated with teachers’ skills in teaching and learning” (Reed & Learmonth, 2001).

In focusing on the use of data on student achievement, the present research considered how such information is used by the teacher at the classroom level in conjunction with data leadership at the whole-school level. This backs up earlier research by Harris (2000) which shows that “A focus on achieving specific student outcomes is the main feature of highly effective school improvement programmes” (Harris, 2000, p. 6).

In the Australian context, the ‘Innovative Designs for Enhancing Achievements in Schools’ (IDEAS) project supports earlier overseas research (Andrews et al., 2004; Harris, 2000; Harris & Young, 2000; Reed & Learmonth, 2001) concerning the crucial role played by the classroom teacher in schools. This approach “recognises the extraordinary complexity and subtlety of pedagogy and the capacity of the teaching profession to exercise forms of leadership that have historically been obscured” (Andrews et al., 2004, p. 5). The establishment of “professional communities” (Harris, 2000; Harris & Young, 2000) allows for the building of capacity by teacher “collaboration, empowerment and inclusion” (Harris, 2000, p. 261).

In this approach, then, a synergy exists between the classroom teacher as leader of *pedagogical* development and the principal and school leadership team as leaders in *strategic* development – both promoting schoolwide changes in learning, pedagogy and culture building designed to enhance the school’s capacity for improvement. This approach also supports Reed and Learmonth’s (2001) contention that “school improvement needs to be driven by teachers’ own reflective study in classrooms rather than imposed ‘standards’” (Reed & Learmonth, 2001, p. 11). In Foster’s (2004) case-study research of two secondary schools in Canada, successful school improvement was found to be brought about by leadership that encourages the “enhancement of student learning through focusing on the teaching-learning process and the conditions that support it” (Foster, 2004, p. 35).

Consequently, this analysis of the literature on school improvement has implications for the third component of the theme of educational change, and involves

approaches to educational change at the school and the role that the principal's leadership plays in this process.

2.4.3 Leading Educational Change

The role of leadership in school-level change is a common element in the review of literature on educational change and school improvement. Many authors refer to the term 'instructional' leadership (Cardno & Collett, 2003; Leithwood & Riehl, 2003; MacNeill et al., 2003) as the dominant paradigm for viewing the leadership traits of principals in schools. Cardno and Collett (2003) discuss the "instrumentally focussed" idea of leadership (Cardno & Collett, 2003, p. 2) which seeks to directly influence teachers in their classroom instruction of students. Their study of principal traits in the New Zealand context also raises the dichotomy of this rather narrow view of leadership on the one hand, with the much broader and complex array of variables that impact on the way principals lead.

However, MacNeill et al., (2003) regard the concept of 'instructional' leadership as a "narrow, clinical term that relates to one part of the teaching and learning cycle" (p. 4). It discounts the role of the other aspects of leadership commonly practised by principals and others in the school setting. It excludes the possibility that leadership has a far wider and more comprehensive concern with leading people in a school setting. Fullan (2002) also sees the term 'instructional leadership' as "too narrow a concept to carry the weight of the kinds of reforms that will create the schools that we need for the future (p. 17).

The academic literature views leadership as a multi-layered, complex set of inter-relationships that influence the way leaders (and followers) act. Terms such as "academic" leadership and "professional" leadership (Cardno & Collett, 2003, p. 2), "transactional" and "transformative" leadership (Power, 2004, p. 1), "educative" leadership (Day, Harris & Hadfield, 2001, p. 27) and "pedagogic" leadership (MacNeill, Cavanagh, & Silcox, 2003, p. 2) reflect the multi-faceted nature of leadership in schools and the particular stance taken by researchers in the field.

Regardless of the terms used, the literature strongly suggests that the essential nature of leadership at the school level has two important facets: its multi-layered nature and the impact it has on student achievement. This was the stance adopted for the present

research. Much of the literature emphasises the prime role played by the principal in the school setting where the purpose of his/her leadership is to improve the learning outcomes of students and to provide direction and influence.

Cotton (2003) presents the results of many empirical research studies on the behaviours of principals in promoting improvement in student achievement. In discussing the nature of the broader areas of school improvement and school reform, she casts the principal as the central, key person in both initiating and sustaining educational change in the school setting. The movement towards increased accountability and emphasis on results over the past fifteen years has also placed a closer focus on the role of principal leadership, the use of data for evidence-based decision making, and the explicit behaviours that contribute towards student achievement.

In her analysis, Cotton (2003) cites one of the most important elements of effective schools: “The principal’s expression of high expectations for students is part of the vision that guides high-achieving schools and is a critical component in its own right” (Cotton, 2003, p. 11). Further, she makes the clear point that one does not find effective schools without effective principals. Along with a vision and attainable goals focused on high levels of student learning, Cotton then cites research that stresses the importance of the school principal having shared leadership and decision-making, encouraging a “norm of continuous improvement” (Cotton, 2003, p. 29) and the use of data to monitor student progress and to guide program improvement, to name a few.

The central theme of these behaviours is that the principal has a large impact on student outcomes, albeit “indirect [and] mediated through principal-teacher interactions” (Cotton, 2003, p. 58). This view is also supported by her reference to the work of Hallinger and Heck who state that “achieving results through others is the essence of leadership. The fact that principal effects are mediated by other in-school variables does nothing whatsoever to diminish the principal’s importance” (Hallinger & Heck, as cited in Cotton, 2003, p. 59).

In recent years, there has been a renewed focus on educational leadership due to the recognition of the complex role played by school principals within the context of a trend for increased accountability. Research by Leithwood and Riehl (2003) discusses the essential elements of successful school leadership: “The outcomes of schooling are coming

under greater scrutiny, and there is strong interest in how school leaders can influence these outcomes” (Leithwood & Riehl, 2003, p. 4). This accountability includes not only the traditional areas such as the school curriculum, building and finances and human resources, but, increasingly, the performance of students and teachers. Since student outcomes have been difficult to measure, both within and across schools and systems, the introduction of externally derived standards for student achievement have changed the nature of the school curriculum, including pedagogical practices, assessment and the reporting of student achievement (Coe, 2002; Goldstein, 2001; Levin, Graze, & Fullan, 2008). By inference, then, the measurement of student achievement by some external measures also extends into teacher performance and principal leadership. And here lies the importance of the principal as an educational leader. This approach is a focus of the present study and is also taken up in the themes of ‘Student Achievement’ and ‘Educational Accountability’.

In viewing leadership as contextual and setting-related, Leithwood and Riehl (2003) make a strong case for the impact of successful school educational leadership on improving student learning. They cite several examples of two different types of research – qualitative case studies (Gezi, 1990; Mortimore, 1993; Scheurich, 1998) and quasi-experimental quantitative case studies (Bossert, 1998; Epstein, 2001; Smylie & Hart, 1999) that show that “the impact of educational leadership on student achievement is demonstrable” (Leithwood & Riehl, 2003, p. 13).

In studying many principals in New Zealand, Cardno & Collett (2003) place particular emphasis on the principal’s role in “leading learning and teaching (or leadership related to the curriculum and its delivery)” (p. 2). Their research found that principals saw their primary role very clearly in terms of curriculum leadership related to “high quality of curriculum delivery” with “teaching/learning [as] the reason for the school’s existence” (Cardno & Collett, 2003, p. 6). This is also reinforced by their reference to Kleine-Kracht’s (1993) research which demonstrated that “principals must make choices about the way in which they will lead curriculum” (Cardno & Collett, 2003, p. 10). Their discussion of the factors impacting negatively on the principal’s role as curriculum leader (specifically, workload complexity and size, property and financial management, school marketing, and so on) must be weighed against those factors that impact positively (especially in the areas of delegation, and quality of staff). Consequently, they call for a

model of “strategic curriculum leadership” where there is a “determination to maintain teaching and learning as the paramount consideration underpinning decision-making” (Cardno & Collett, 2003, p. 11).

More recently, research by Robinson, Lloyd and Rowe (2008) examined findings from 24 previous studies as part of the New Zealand Ministry of Education’s ‘Best Evidence Synthesis on School Leadership’. Its purpose was to determine the relationship between leadership and student outcomes. Their analysis identified five dimensions of leadership from the studies, the third of which involves direct involvement by leaders in planning, coordinating, and evaluating teaching and the curriculum, as well as alignment with school goals. The studies showed that this dimension had a moderate impact on student outcomes (mean Effect Size = 0.42). Their findings suggest that higher performing schools exhibited explicit leadership, coordination and active oversight of teaching and learning, with a greater emphasis on ensuring systematic monitoring of student progress. In these studies, “teachers’ use of data to evaluate student progress, adjust their teaching, plan their weekly program, and give students feedback was a strong indicator of school quality, and level of school quality had a significant influence on student achievement” (p. 662).

In Australia, Gurr’s et al., (2003) research into successful school leadership in three Victorian schools supports this link between leadership, teaching and learning, and student achievement. Their research on the leadership behaviour of principals included a “number of interventions that focussed on teaching and learning and on a range of factors that supported teaching and learning” (Gurr et al., 2003, p. 33). Their study identified student outcomes as a key area of focus for schools where the leadership of the principal showed “interventions in ... teaching and learning and capacity building” with “high achievement goals” (Gurr et al., 2003, p. 33).

Recent research has also demonstrated the impact of various aspects of leadership in the school, and, importantly, has stressed the role of the principal as educational leader – one who sets directions, exerts influence and plays a large part in affecting student outcomes (Fullan, 2005b, 2009; Levin & Fullan, 2008; McWilliam & Perry, 2006). By direct and indirect means, the principal has a significant effect on school climate, teacher expectations of students, classroom pedagogy and student achievement. Power (2004) also exhorts schools to see themselves as a “community of

scholar/professionals”, with teachers as “like-minded professionals” and principals as leaders who can “create the environment in which others [students and teachers] can perform to the highest levels” (Power, 2004, p. 3).

However, it is also important to note that the principal is not the only source of leadership within the school. A growing body of literature describes the dominant conceptions of the principal’s role as “over-rated as they are out-dated” (Crowther, 2002, p. 167). Research suggests an alternative, more powerful, way of viewing leadership through the lens of the teacher; recognising the notion of ‘shared’, ‘distributed’ or ‘parallel’ leadership that involves the important partnership jointly played by the principal and teachers (Andrews & Crowther, 2002; Crowther, 2002; Harris, 2005; Harris & Muijs, 2003).

This view of leadership is a powerful paradigm for initiating and sustaining school improvement focused on improving student learning and achievement. The approach recognises a move away from the Weberian view of power, authority and bureaucracy where a “singular view of leadership continues to dominate equating leadership with headship” (Harris & Muijs, 2003, p. 437) towards the concept of leadership based on “shared power” (Brown, Rutherford, & Boyle, 2000, p. 237).

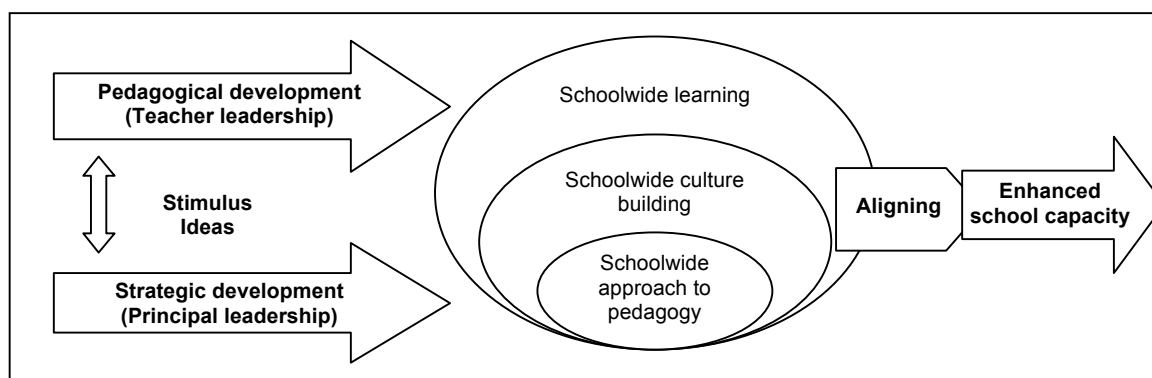
While the link between leadership and school improvement has been shown by research to be strong (Cardno & Collett, 2003; Fullan, 2000, 2001, 2002, 2005b; Harris 2001, 2004), the nature of the relationship is somewhat less clear. The correlation between the two has been assumed “without the adequate empirical basis on which to rest such claims” (Harris, 2005b, p. 255). The term ‘leadership’ has assumed the involvement of the principal as the key leader of educational change at the school level.

Analysis of the literature on school improvement emphasises the importance of ‘capacity building’ as the key element in generating and sustaining school improvement (Fullan, 2005; Fullan & Earl, 2002; Hargreaves & Fink, 2000). This can be extended by claiming that the core of capacity-building is firmly rooted in “distributed leadership along with social cohesion and trust” (Harris, 2005b, p. 256). Harris (2005) makes the strong case of a clear association between school culture and improvement by citing various studies that underscore the crucial role played by the teacher in improving student outcomes, and she concludes that “principal leadership does not stand out as a critical part

of the change process, but that teacher leadership does have a significant effect on student engagement” (Harris, 2005b, p. 256).

The process followed by Crowther and associates (2002) supports this view of the powerful impact of distributed leadership on school improvement. Their research (embodied in the ‘IDEAS’ program for school improvement) has produced the concept of “parallel leadership – a form of distributed leadership that recognises definitive teacher leadership roles and posits a particular form of relatedness between teacher leaders and their principals” (Crowther, 2002, p. 169). The nature of this relationship is expressed in Figure 2.4 which shows the parallel relationship between the school principal and teachers as co-leaders in aligning pedagogy, culture and learning to adopt a school-wide approach to enhancing capacity. In this relationship, teachers and principals jointly “engage in mutualistic working relationships while asserting their individual values” (Andrews & Crowther, 2002, p. 156).

FIGURE 2.4
PARALLEL LEADERSHIP AND ENHANCED SCHOOL OUTCOMES



after Crowther, 2002

This approach, then, questions the stance taken by many researchers that leadership resides chiefly with the principal as head of the school. And it means that, in initiating and sustaining school improvement, it is teacher leadership that “reclaims school leadership from the individual to the collective, from the singular to the plural” (Harris & Muijs, 2003, p. 446). Further, Harris & Muijs (2003) make the bold claim: “student outcomes are more likely to improve where leadership sources are distributed throughout the school community and where teachers are empowered in areas of importance” (p. 442).

This is a challenging proposal since it denies the belief in principal leadership as the key determinant of change in the school. The present research explored this contention to ascertain the leadership roles of principal and teacher in utilising the results

from external testing of literacy and numeracy to improve in student outcomes. The analysis of the research literature on leading change for school improvement stresses the link between leadership and student achievement through the nature of the relationship between the principal and teacher.

2.4.4 Summary of Theme 2

The theme of educational change contributes to the present research by examining the dimensions of change and its impact on the principal and teachers at the school level, the contribution of change towards school improvement, and an analysis of who is the key driver in effecting changes to teaching practices.

In the end, sustainable change is dependent upon “what individual teachers actually do in the classroom” (Harris, 2005a, p. 419). The academic literature shows a lack of empirical research that documents how principals and other school members understand their participation in leadership and its relationship to school improvement (Foster, 2004, p. 36). Similarly, literature about the possibility of a direct, causal linkage between leadership and school improvement implies a need to research how principals and teachers understand the relationship between leadership and educational change.

Consequently, the second theme that emerged from the literature relates to an understanding of how to deal with educational change and how leadership notions and functions are distributed within the school and are understood by the main stakeholders. Leading educational change has been viewed using a traditional, hierarchical model with the principal as the person with “status, authority and position” (Harris, 2003, p. 437). However, this top-down model is being challenged (Andrews & Crowther, 2002; Brown et al., 2000; Crowther, 2002; Harris, 2005) by consideration of a distributed, shared or parallel partnership between principals and teachers in the process of school improvement.

2.5 THEME 3: EDUCATIONAL ACCOUNTABILITY

The third theme identified for this dissertation involves the increasing demands for accountability for student performance. It involves the development of a more prominent role of government policy in shaping decisions at the system and school levels regarding the measurement and reporting of student achievement. This movement has been pronounced in the UK and USA and has gained currency in Australia over the last 15

years, being linked with legislative requirements for education funding agreements between the Australian Government and various state/territory governments. The impact of such obligations on the measurement and reporting of student achievement is discussed in the following sections.

2.5.1 Dimensions of Accountability

Accountability in education has played a prominent role in many reform efforts over the last part of the Twentieth Century (Linn, 2000) and has been linked to measures of educational effectiveness (Rowe, 2000), large scale school reform (Fullan, 2000, 2008; Mitchell, 1997), assessment and student achievement (Nagy, 2000) and comparative reporting (Kane & Staiger, 2002). A defining characteristic of educational accountability, despite its manifestations, is the attempt by governments to measure educational *outputs* and to promote *comparisons* based upon those measures (Rowe, 2000).

As early as the 1970s, the concept of accountability emerged in large part “as a response to the charge that teachers and administrators were evading their responsibility to teach minimum skills to all children” (Johnson, 1979). Further, the discourse on accountability centred on four distinct, but related, concepts: as a technical process, as a political process, as an institutional process and as performance reporting (Levin, 1974). In this sense, a ‘quality assurance’ paradigm based on measurement (Nagy, 2000) was embedded into the way that governments became increasingly aware of the need for public accountability in education (Rowe, 2000).

The move from the provision of inputs to measurement of outputs is significant and represents a shift in emphasis associated with the increasing globalisation of economic systems, business transactions and international competition (Brownlee, 1995). For the first time, education systems were subjected to large-scale reforms that were based on the public’s demand for the maintenance and, indeed, improvement of standards.

During the 1990s, education systems throughout the world were exposed to considerable reform and change with the (at least stated) purpose of improving the quality of educational provision. Since then, in the USA and UK, detailed public accountability of schools and systems has been based on the measurement, provision and reporting of performance data of students across a wide range of contexts. In the UK, the monitoring of standards by the Office for Standards in Education (OfSTED) was established by the

Education Reform Act (1988) and adopted an inspectorial role with the stated aim of “Improvement through Inspection” (Shaw et al., 2003). Inspections by OfSTED have targeted widely-published school performance indicators as key drivers for initiating whole-school improvement. OfSTED’s database contains detailed numerical judgements derived from such inspections of the majority of schools in England. The resulting so-called ‘league tables’ publicly compare schools for the stated purpose of improving parental choice for the education of their children.

However, the efficacy of such comparisons has been challenged on many occasions (Gray, 2004; Rowe, 2000; Schagen & Weston, 1998) by researchers who question the causal linkages between inspection for accountability and school-generated improvement as means for improving student achievement. By concentrating on measurement rather than evaluation (Brownlee, 1995), the use of educational performance indicators tends to be very narrowly focused on a “comparative *ranking* of schools rather than on identifying factors that *explain* school differences” (Rowe, 2000, p. 79). Moreover, the generation of ‘league table’ rankings have called into question the validity of such information as a means of enabling reliable judgements about educational institutions (Goldstein, 2001; Goldstein & Thomas, 1996; Levin, Glaze, & Fullan, 2008; Rowe, 2000).

Achievement tests, such as those used to measure and compare school performance, have become increasingly important as a tool for holding educators (and hence systems) accountable for student results (Koretz, 2002). However, the links between attempts to measure student (and school) achievement and the causes of school improvement have been shown to be problematic (Koretz, 2002). They are often based on false notions of what is actually measured and to what extent those measures reflect improvements (Gorard et al., 2002; Philips, 2000; Rowe, 2000).

What was significant from the literature for the present research was to determine the implied causality between such measures, the publication of comparative results and the impact on student learning and school improvement. Essentially, test-based accountability seems to rest on the assumption that “accountability for scores on tests will provide needed incentives for teachers to improve student performance” (Koretz, 2002). The causal link between such tests and the ways the data is used by the teacher, and led by the principal, needs to be established or dismissed (Rowe, 2005).

2.5.2 Government Policy: the Australian Context

The Australian experience of school and system accountability is relatively recent and is significantly different from the experience in the United Kingdom over the past two decades. It represents a movement away from the provision of inputs into the education system during the 1960s and early 1970s to the strong desire by governments to measure outputs from the education process.

With the 1988 paper '*Strengthening Australia's Schools*' (DEET, 1988) which called for a national focus on student assessment and monitoring of standards, there have been increasing national attempts to improve accountability of Australian schools and to report student achievement in a way that enables comparison across schools, systems and state/territory boundaries.

The 'Hobart Declaration' (1988) on '*Common and Agreed Goals for Schooling in Australia*', 'Adelaide Declaration' (1999) on '*National Goals for Schooling in the Twenty-first Century*' reinforced this approach by requiring Education Ministers from each jurisdiction to agree on a common set of goals for education across Australia. Among others, these included:

“In terms of curriculum, students should have:

- attained the skills of numeracy and English literacy; such that,
- every student should be numerate, able to read, write, spell and communicate at an appropriate level.”

(MCEETYA, 1999)

In the keynote address to the Curriculum Corporation's 6th National Conference (1999), the then Minister for Education, Training and Youth Affairs (Dr Kemp), firmly set the agenda for the implications of nationally-agreed goals for schooling: “This reporting framework of national goals incorporating agreed targets and benchmarks of student attainment provides us with a way of monitoring the key outcomes of Australian schooling” (Kemp, 1999).

In order to achieve this goal and to measure its achievement, the '*National Literacy and Numeracy Plan*' was established in 1999 to create national benchmarks for literacy and numeracy across Years 3, 5 and 7. These represented minimum standards necessary for students to progress through in the Primary and early Secondary years. Prior

to 2008, each state and territory conducted its own set of literacy and numeracy tests to allow for reporting of the benchmarks as well as student achievement related to broader performance bands or levels. However, since each test was designed to report on benchmark achievement in different ways, their test designs did not allow for a common approach for diagnostic purposes; the only point of comparison was whether or not students had achieved the benchmarks.

In 2008, these tests were replaced by one *national* test of literacy and numeracy, the National Assessment Program – Literacy and Numeracy (NAPLAN), and other measures, which included the testing of Year 9 students for the first time. With the stated aim of “driving school improvement and enhanced outcomes for students” (MCEETYA, p. 2), the national testing agenda covers the areas of science, information and communication technology, vocational education, student participation and civics and citizenship education, in addition to literacy and numeracy. In 2004, these areas of accountability were strengthened by the ‘*Schools Assistance (Learning Together – Achievement Through Choice and Opportunity) Act 2004*’ that introduced further requirements for national reporting in the areas of:

- “introducing benchmarks against international comparisons;
- ensuring that reporting is nationally comparable for Years 3, 5 and 7 [and Year 9 in 2008];
- collecting financial data that allows for comparable reporting;
- developing plain English reporting; and
- using data collections to improve Australian education policy.”

(DEST, 2005)

Further, the 2004 Act specified that all students in Years 3, 5 and 7 “will achieve the national benchmarks for reading, writing and spelling ... [and] numeracy ... in each program year” (DEST, 2005, p. 5). The 2004 Act was extended in 2008 to encompass the next four-year funding agreement between the Australian Government and the eight state/territory governments (see Section 1.2.2).

These performance targets and additional elements represent a clear development and movement away from diagnostic information to improve student outcomes towards a firmly-centred policy of school accountability, monitoring and reporting – a similar outcome to the UK experience, but through a very different route.

Moreover, since the previous and current Commonwealth quadrennial funding agreements are tied to these requirements, each educational jurisdiction has developed its own processes and practices to ensure compliance with the regulations of the 2004 and 2008 Acts.

This use of performance or learning targets for accountability purposes has been questioned (Gorard et al., 2002) as a means to improve school performance. Since they are based on measurable outputs, they tend to “exclude important aspects of learning which are not readily presented in this way” (p. 311). Moreover, “through encouraging concentration on measurable items, there is a very real danger that the targets become an end in themselves” (Gorard et al., 2002, p. 313). Cumming and Maxwell (2004) also discuss the differing assessment practices in Australian schools across ten themes, especially with respect to the impact of one Australian government and eight States/Territories, each with its own education system.

More pointed is McWilliam and Perry’s (2006) analysis of accountability in Queensland. By situating accountability within a paradigm of ‘risk minimisation’, teachers and leaders are faced with a “new system of accountabilities that transcend the local, disciplinary-specific or ‘craft’ knowledge of teachers (p. 100). Accountability is now seen within the context of schools being “risk responsive” (McWilliam and Perry, 2006, p. 101), with the important consequence that “risk minimising becomes good for schools at the same time that it is bad for learning ... [thereby producing] moral panics around literacy and numeracy” (p. 102).

This is a theme of interest for the present study since it relates to student achievement data from the national testing of literacy and numeracy. In reflecting the ‘*National Goals*’ for “percentages of students expected to achieve the benchmarks at a satisfactory level” (Cumming & Maxwell, 2004, p. 104), prior to 2008, different testing regimes were in place in each jurisdiction. States and territories extracted benchmark data from the test results to report to the Australian Government on benchmark achievement. However, because of differences in test design and differences in curriculum and procedural issues in each test setting, “the comparative data are problematic. That is, it is not clear how the data can be compared across states” (Cumming & Maxwell, 2004, p. 104). Moreover, since the eight states and territories constructed their own tests of literacy and numeracy and used their data differently, the accountability agenda had no national

approach for the comparison of schools through so-called 'league tables'. Thus, prior to 2008, there were a variety of approaches adopted across the eight states and territories: league tables, 'value-added' analysis, 'like-school' performance, and so on.

However, since the 2008 introduction of the national tests of literacy and numeracy with NAPLAN, the researcher's experience and observations have indicated that the externally-generated Government requirements of accountability, transparency and comparability were beginning to have some effect throughout each education jurisdiction and system, into each school and, importantly, into each classroom. The present research has attempted to ascertain the impact of accountability measures on classroom teaching and learning practices and the impact that school leadership has in driving this.

The measurement of student achievement and issues related to the usage of such data for accountability, monitoring or improvement purposes necessarily involve the reporting of information. Indeed, "external tests come from an acquisition model of learning, and teacher diagnosis from a constructivist model" (Serafini, in Nagy, 2000, p. 263). In this sense, the philosophical basis behind the tests, and the purpose for which the tests are constructed, determine the type of information produced and the way in which it is reported. With the introduction NAPLAN in 2008, national comparisons could be made for the first time, and these have been reported publically. For the first time, schools are compared with the national average and with the proportion of students achieving above the 'National Minimum Standard'. In 2009, the average score for each school on the domains of reading, writing, grammar and punctuation, spelling and numeracy was reported on each student's report. Also from 2009, with the formation of the Australian Curriculum, Assessment and Reporting Authority (ACARA), this and other information on the performance of individual schools will be reported on one website, thereby making the reporting of school performance a very public matter.

The apparent dichotomy between the uses of information for diagnosis or accountability (Macpherson, 1996) and the "assessment-accountability dilemma" (Rowe, 2000, p. 77) creates a potential problem for school systems, principals and classroom teachers. With pressures for accountability forming a significant driving force for the introduction of external testing, and the consequent emphasis on monitoring standards of student achievement and the implications for classroom practice, Rowe (2000) warns that "the existence of an accountability climate that insists on providing published information

which involves comparative judgements about the relative ‘worth’ of schools – and, inevitably, about the teachers who work in them – is problematic” (p. 87).

Further, the potential response of the principal and teachers to “high stakes testing” (Herman & Golan, 1991, p. 6) within a framework of “high stakes accountability” (Linn, 2000) associated with the public reporting of student achievement is an area of interest that could impact on the ways the testing results are utilised for school improvement. The present study attempted to ascertain the degree to which such externally-derived and driven testing is viewed by the leadership and teachers within the school, and how this perception may impact on how the results are used to bring about changes to teaching practices.

Moreover, through the analysis and reporting packages that have been developed, schools and systems have greater access to increasing amounts of data on student achievement. And, if this is to be used to affect student outcomes within the classroom and across the school, the present research was designed to ascertain the role that leadership plays in the school in harnessing such evidence-based information to initiate and sustain whole-school improvement.

2.5.3 Summary of Theme 3

The theme of ‘Educational Accountability’ contributes to the research by examining the reasons for, and motives behind, the introduction of external literacy and numeracy testing in Australia. With the movement away from the provision of inputs to schooling systems in the 1970s to the measurement of outcomes and resource use over the last twenty years, to the more recent and stated purpose of standards monitoring (1999) tied to Commonwealth funding agreements (2004 and 2008), there has been an increasing and explicit shift in emphasis towards using testing regimes for the purpose of monitoring standards on a national scale, rather than to use the results of such testing to enable schools to improve the achievement of students. Even though the route taken (to date) in Australia has been very different to that of the UK’s national curriculum and the USA’s ‘*No Child Left Behind*’ program, accountability processes for standards of student achievement are becoming firmly entrenched as “political realities, and ones that are likely to increase” (Rowe, 2000, p. 87).

2.6 DEVELOPMENT OF THE RESEARCH QUESTIONS

Earl & Fullan (2003) analyse the issues centred on the challenges faced by school leaders to use the increasingly complex array of available data on student achievement for effective decision-making.

On the one hand, data on student achievement have become the “vehicle for ensuring accountability” (Earl & Fullan, 2003, p. 384). The analysis and reporting of student achievement results have become an important instrument for initiating large-scale educational reform linked to government policy, especially in the UK. On the other hand, the availability of data at the school level has placed increasing pressure on school leaders to make sense of the information it contains and then to use the data to inform decision making that affects the curriculum, pedagogy, resourcing and staffing at the school level.

The interplay between these two, often competing, objectives presents the school leader and classroom teacher with a daunting task – one for which he/she is not necessarily trained. This can be seen as a “leadership dilemma in a data-rich world” (Earl & Fullan, 2003, p. 388) in which the issues revolve around turning data into information that is readily understood at multiple levels, the different purposes for which data are gathered and the uses to which the information can be put - for surveillance or improvement - and the possibility of losing control over the reporting of the information and the differing interpretations that can be placed on it.

To resolve this, there is a need for leaders to cultivate ‘assessment literacy’ involving “the collective capacity of teachers and leaders in schools to examine data, make critical sense of it, develop action plans based on the data, take action and monitor progress along the way” (Earl & Fullan, 2003, p. 392). For true educational change to take place in the school setting, the academic literature is replete with calls to move away from the ‘accountability’ and ‘surveillance’ mindset towards one that encompasses the use of data for improvement in student achievement, pedagogy, program evaluation and decision making.

In order to effect change, much of the academic literature points to the school principal, as educational leader, having a central role in initiating, leading, monitoring and evaluating the process of educational change in the school, and to build teacher capacity to use data to inform teaching practices. Using data to improve educational outcomes then becomes the driver for improving student achievement. However, this must be in concert

with the ability and willingness of the principal and teacher to, firstly value such information, then to use it to change teaching practices within the classroom.

The mandated, external literacy and numeracy tests are an example of an educational change instrument. With change being viewed as a “subjective reality” (Fullan, 1991, p. 30) involving “desires and emotions in change experiences” (Romero, 1998, p. 50), the impact that these tests have in informing teaching practices in schools depends, to a large extent, on the value placed on their efficacy by classroom teachers and school principals. Moreover, the link with Hopkins’ (1997) ‘Layers of School Improvement’ (see Figure 2.3) reinforces the influence of government requirements, community expectations and system accountabilities on whole-school level and classroom-based attempts to improve student achievement.

The purpose of this research was to explore how data from literacy and numeracy testing is being used in Catholic schools in the Archdiocese of Canberra and Goulburn and to ascertain who is leading the use of this information. A comprehensive review of the literature has identified the three themes of Student Achievement, Educational Change and Educational Accountability as integral to understanding the issues central to the research process. Consequently, the research question for the study was:

**How does the experience of external testing and data utilisation
affect attitudes of teachers and principals to the tests, teaching
practice and school leadership?**

To support this, the following contributing questions were employed in the research process to guide the research methodology, as well as data collection, analysis and interpretation of results:

1. What attitudes do teachers and principals hold about external literacy and numeracy testing?
2. What factors influence these attitudes?
3. How is external testing data analysed and feedback given in the school?
4. Who is leading the process of analysis and feedback?
5. How effective is leadership in data analysis?
6. What factors influence leadership in data analysis?
7. In what ways, and to what extent, are teaching practices shaped by testing data?
8. What factors influence the shaping of teaching practices by testing data?

The contributory nature of these questions to the study was the focus of the final research question which asked:

9. What do system leaders find significant about the findings of this school-based research?

2.7 CHAPTER SUMMARY

This chapter has reviewed the academic literature pertaining to the research. The development of the research questions from the three research themes – Student Achievement, Educational Change and Educational Accountability – has emerged from the review and has provided the framework upon which to conduct the study. Their significance for the present research lies in the main areas of inquiry related to the attitudes of teachers and principals towards external testing, the extent of leadership in data analysis, the effectiveness of such leadership, and the impact of external testing and subsequent analysis on teaching practices at the school. The final question seeks to both understand the current situation related to data leadership and usage, and to provide insights into system responses to the research data. The relationship among the research questions is shown in Figure 2.5.

FIGURE 2.5
RELATIONSHIP AMONG RESEARCH QUESTIONS

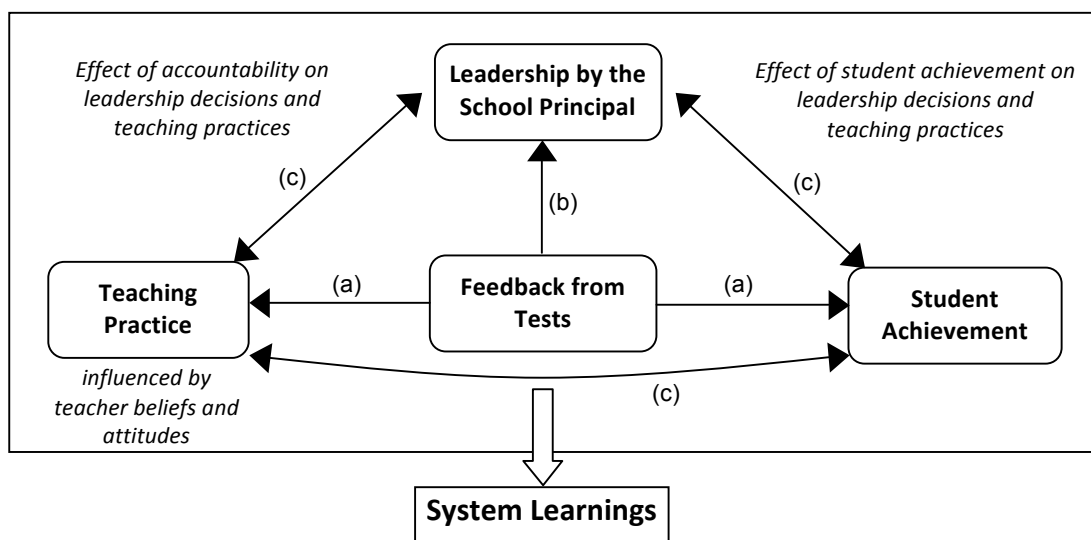


Figure 2.5 shows that the present research has been designed to ascertain the relationship between feedback from the external tests of literacy and numeracy and the capacity to affect teaching practice and student achievement (a), and leadership (b) within

the school. Further, these studies have examined the effects that teachers' attitudes and beliefs have on their teaching practices with respect to the tests as well as the influence that accountability to government has on relevant leadership decisions and teaching practices.

The two-way arrows from leadership to teaching practice and leadership to student achievement (c) in Figure 2.5 are significant. They represent the reciprocal influences and interconnection between leadership in the school, classroom pedagogy and student achievement. As a result of the data gathered from the study, the final research question explored possible influences that these variables have on one another with respect to the learnings of system leaders, and as a forerunner to possible implications for system planning in the use of such feedback.

This relationship formed the framework for the research design and methodology, subsequent phases of data collection, analysis and interpretation of results and discussion of findings. These are discussed in the following chapters.

CHAPTER 3: RESEARCH METHODOLOGY AND DESIGN

3.1 INTRODUCTION

In the previous chapter, a review of the academic literature was undertaken to explore the main issues related to the research problem and, in doing so, established the conceptual framework for the research. The review identified three key themes that defined the conceptual framework for the study: *student achievement*, *educational change* and *educational accountability* involving issues of leadership and classroom pedagogy in data analysis and use at the whole-school level and for the classroom. The common element linking these themes for the present study related to the use of testing data to inform decisions about student achievement and the associated role of leadership in this process.

The purpose of this chapter is to present the methodology used for the research. It involves situating the study within an appropriate theoretical framework (Section 3.2) that forms the basis for the research methodology (Section 3.3) and design (Section 3.4). The phases of data collection are then explained in detail (Section 3.5). Issues pertaining to the legitimization of the study, particularly in relation to the data collection instruments, are explained in Section 3.6. Finally, ethical issues involving the conduct of the research are examined (Section 3.7), together with the limitations and delimitations of the research (Section 3.8).

3.2 THEORETICAL FRAMEWORK

Research is about trying to “make a claim to knowledge, or wisdom, on the basis of systematic, creative and critical enquiry” (Bassey, 1999b, p. 66). It is the theoretical framework that drives the research and becomes the “lens through which you view the world” (Merriam, 1998a, p. 45). The researcher brings to the study an orientation that views the world in a particular way (Chase, 2005) and guides the research process by framing and asking questions according to a particular worldview. In this sense, the research framework provides both the boundaries for the research and the structure underpinning the selection of the appropriate epistemological lens, theoretical perspective and research methodology. The research framework also can be viewed as the

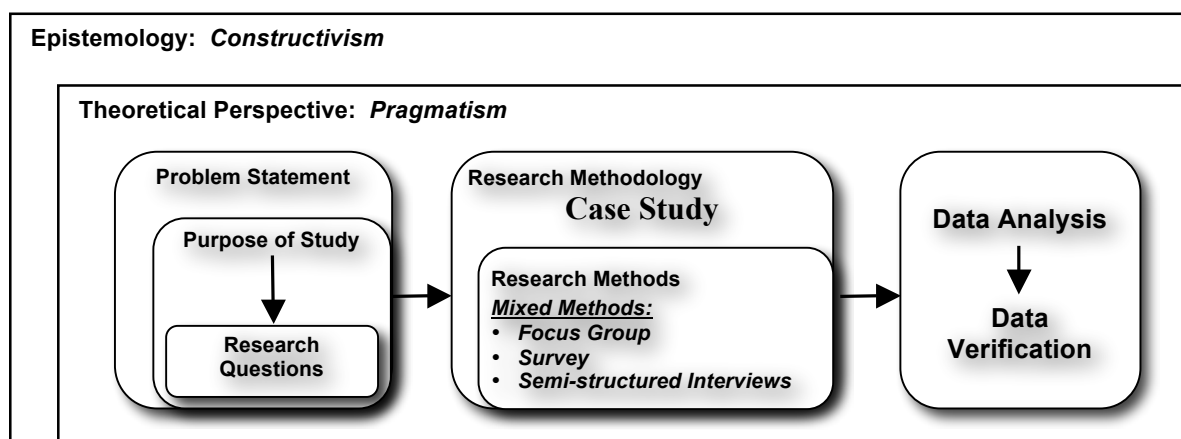
philosophical stance taken by the researcher (Denzin & Lincoln, 1994) and defines for its holder the nature of the world and the individual's place in it.

Cresswell (2002) sees the theoretical framework consisting of three elements -- philosophical assumptions about knowledge claims, strategies of inquiry, and procedures or methods of data collection. He underscores this point by emphasising that all research should be based upon these three “interrelated levels of decisions” (Cresswell, 2002, p. 4) that form the scaffold for inquiry. This is a refinement of Crotty's (1998) simple, but powerful, statement that any researcher must be able to justify the choice of research methodology.

Instead of describing a sequential pattern from paradigm to methods, the approach taken for the present study viewed each phase from research formulation to operation to analysis and interpretation within a *nested* structure (after Merriam, 1998). This is important, since each successive stage in the research is contained within the wider (and more conceptual) framework that precedes it.

The research framework adopted for the study is explained in this section and is shown in Figure 3.1. Built around the approach of Cresswell (2002), Figure 3.1 displays the major elements of the conceptual framework on which the research is based. It attempts to conceptualise how the study is nested and linked. Here, the research methodology and subsequent methods of data collection, analysis and verification are contained within the particular theoretical perspective adopted for the study and how the production and interpretation of knowledge is viewed.

FIGURE 3.1
RESEARCH FRAMEWORK



The elements of this framework are expanded and discussed in the following sections.

3.2.1 Epistemology

Epistemology studies the nature of knowledge and the process by which knowledge is acquired and validated; in other words, how we know what we know (Crotty, 1998). It refers to a researcher's "philosophical orientation" (Ambert, Adler, Adler, & Detzner, 1995), employing assumptions about the nature of knowledge and the manner in which one can best understand the interactions of individuals and groups. Gough (2002) refers to this as understanding the "relationship between the knower and the knowable" (p. 1). Since different researchers make different epistemological assumptions about the nature of knowledge, it is important for any study to acknowledge and declare the theory of knowledge generation and acquisition that forms the basis of the research.

The purpose of the present research was to examine how literacy and numeracy testing data are being used to effect changes in teaching practices, to determine who is driving their use in schools, how effective is this leadership, and what learnings from the research can inform system-wide decisions within the Catholic Archdiocese of Canberra and Goulburn.

The epistemological approach adopted was based on '*Constructivism*' (Creswell, 1998; Gall, Gall, & Borg, 2003; Lincoln & Guba, 2000) that maintains there is no one, objective reality that can be measured or studied. Lincoln and Guba (2000) reject the 'positivist' or "absolutist" view of reality (p. 167), just as Creswell (1998) stresses the "multiple nature of reality" (p. 73). Since individuals seek to understand the world in which they live, they have subjective, personal and contextual meanings of their experiences. Hence, the idea of "multiple social realities" (Gall, Gall, & Borg, 2003, p. 15) infers that different meanings are created by different individuals as they interact with one another. For each person, then, the meaning attached to phenomena *is* their reality. Thus, in the context of the present study, each teacher and school leader was seen to have individual perceptions of the usefulness of external testing data for their own practice and for the leadership of the school.

In supporting the constructivist approach to knowledge, this study used the *Interpretivist* paradigm which infers, not only the existence of a 'lens' that focuses our

attention, but also multiple lenses (Chase, 2005) that allow the research process to use “diverse disciplinary approaches” using both “traditional and innovative methods” (p. 651).

The study adopted *Symbolic Interactionism* as the Interpretivist lens through which to inform the research methodology. Symbolic Interactionism is a way to focus on the “subjective understandings and the perceptions of and about people, symbols and objects” (Berg, 2004, p. 8). The concept is based on three premises (Blumer, 1969): individuals act toward things according to the meaning of those things for them, meanings are learned through social interaction, and individuals can redefine and reinterpret meaning for themselves.

Symbolic Interactionism represents the process by which meanings are conveyed, interpreted and acted upon (Bloomer, 2001). Since it “tries to grasp the multiple forms of social relations” (Balzacq, 2002, p. 471) and study people’s understanding of reality and their attempts to make meaning, Symbolic Interactionism is linked closely to the Constructivist view of knowledge. Here, people are seen to make sense of their *experiences* through a “common set of symbols” (Liamputtong & Ezzy, 2005, p. 20). Moreover, since meanings arise through social interaction (Blumer, 1969), Symbolic Interactionists are interested in understanding how these interpretations are developed and used by individuals in specific situations of interaction.

Interaction is the crucial link between the individual and the group, and Symbolic Interactionism is concerned with understanding how individuals are able to take one another’s perspective and learn meanings and symbols. Not only is the individual’s meaning-making important, but it is the shared meanings of the group through interaction of its members that are crucial in understanding behaviour.

In supporting the Constructivist view of knowledge, Symbolic Interactionism helped to inform the particular theoretical perspective adopted for this research: one that views an understanding of the existence of multiple realities as the basis for individual meaning-making and action.

3.2.2 Theoretical Perspective

The theoretical perspective for this research represents the “philosophical stance” (Creswell, 2002, p. 4) or way of looking at the world and “making sense of it” (Crotty, 1998, p. 8). It provides the context for the inquiry and guides the subsequent selection of research methodology and methods. It must be closely related with the chosen epistemology as well as provide the basis for the particular research methodology selected.

Whilst adopting a Constructivist view of knowledge, the research extended beyond a mere understanding of experiences to a more practical consideration of real-world issues that are based on consequences. Here, ‘*Pragmatism*’ (Creswell, 2002, 2003; Teddlie & Tashakkori, 2003) was chosen as the theoretical perspective to guide the choice of research methodology and design. Whereas Constructivism relies on an understanding of subjective, multiple meanings where the researcher positions him/herself within the study, the Pragmatist perspective seeks to take this understanding one step further – to understand the problem *and* find solutions. This approach was developed as a different paradigm to counter the positivist versus naturalist “paradigm wars” (Teddlie & Tashakkori, 2003, p. 7). Pragmatist researchers look to the “consequences of ... findings” (Cherryholmes, 1993, p. 3). They “look to the ‘what’ and ‘how’ to research based on its intended consequences – where they want to go with it” (Creswell, 2003, p. 12). The focus is on the research problem to find a way forward, not just to ‘understand’ it. Hence, Pragmatist epistemology is problem-centred and is situated in real-world practice (Creswell, 2003). Pragmatism builds on the constructivist approach to meaning, but provides some insights into ‘solving’ the research problem rather than merely ‘understanding’ the situation.

The present research used a Pragmatist perspective to understand how testing data are used in schools and to examine the practical consequences of this. Specifically, this meant a consideration of how school principals and teachers view their roles in the school with respect to the use of testing data, the motivating factors for the principal and teachers in utilising testing data, and how the principal and teachers perceive the links between testing data and teaching practices. Also, the ways in which the information on student achievement from the external testing impacts on teaching practices in the school were considered. The role of accountability in school-based decisions on the use of feedback data from external testing was examined as an important contextual element of

the research. These issues seek to gain an understanding of how principals and teachers see their roles in utilising testing data both within the classroom and for whole-school improvement. Section 1.5 explained how these issues were instrumental in generating the questions for the research.

The Pragmatist paradigm allows for individuals not only to ‘construct’ their own social reality through experience and interaction, but then to look to the *consequences* of any findings; to go further than understanding multiple meanings and to focus on the interpretation and clarification of meanings in personal and highly contextual ways as precursors for planned action (Cherryholmes, 1993). The emphasis on Pragmatism for this study was firmly located on issues related to the use of testing data and their relationship to teaching, learning and leadership in the school.

This approach was relevant to the present research since it was directed at understanding how the participants’ actions (or inaction) concerning the research issues reflect their understanding of, and therefore, their approach to the applicability of external testing regimes to teaching, learning and leadership within the school. Specifically, the research considered how teachers and principals form views of the relevance of testing data and how these views inform teaching and leadership practices within the school; and how principals view the data and utilise the information within the school. Actions emerge (or do not emerge) in particular situations. Individual and shared meanings stem from interactions producing a shared interpretation (Blumer, 1969). Thus, the research was planned to understand and explain how these individual and shared meanings affected the ways external tests of literacy and numeracy are perceived as relevant or otherwise to the school’s leadership, and teaching and learning. Further, the impact of data from external testing of literacy and numeracy on teaching practices in the classroom and for whole-school improvement was also an important element in the research process.

3.3 RESEARCH METHODOLOGY

3.3.1 Case Study

In following the epistemological worldview of Constructivism and a Pragmatist theoretical perspective (see Figure 3.1), the methodology for the research was based upon the use of a *Case Study* approach. This uses in-depth investigations of a given

social unit, resulting in a detailed, well-organised picture of its components. Since the epistemological orientation for the study is Interpretivist, case study research lends itself to using a mix of qualitative and quantitative data collection instruments (Gall, Gall, & Borg, 2003; Scanlon, 2000). In the context of the study, this approach is closely aligned with the Pragmatist worldview (Creswell, 1998; Liamputtong & Ezzy, 2005; Scanlon, 2000; Teddlie & Tashakkori, 2003).

Case study methodology is relevant to the present research. In seeking “depth rather than breadth” (Ambert, Adler, Adler, & Detzner, 1995), the focus for the study was on understanding how and why teachers and school principals behave, think and make meaning of the relevance of literacy and numeracy tests in their specific situations. The case study methodology also allowed the use of an *inductive* approach to the research (Creswell, 1998) to gradually build up conceptual images of the particular settings in which the participants are located. Moreover, this research used a *multi-site* case study (Merriam, 1998b; Stake, 1997) technique that has the distinct advantage of looking at a range of similar and contrasting sites within the case. This approach builds up a composite picture of the research problem while enhancing the inferential quality and generalisability of findings.

Since the purpose of the case study approach is to probe deeply and to understand and analyse in a particular setting or settings, such a methodology has the distinct advantage of being “strong in reality” (Cohen & Manion, 1985, p. 146). Concentrating on the experiential knowledge of the participants is particularly suited to the this research by investigating “a contemporary phenomenon within real life context; when the boundaries between the phenomenon and contexts are not clearly defined” (Yin, 1994, p. 13). Further, the selection of a case study approach, embedded in a pragmatist epistemology, represents a “step to action” (Cohen & Manion, 1985, p. 146) and reinforces the Pragmatist epistemology of going beyond mere ‘understanding’ of phenomena. This approach provides a sound basis for analysing and evaluating current policies and procedures at the case study sites and then formulating appropriate action plans.

The selection of the case study sites for the research was informed by balancing the need for generalisability of findings against the richness of data to be collected. This point is reinforced by Stake (2005) who reminds us that “the more the object of study is a specific, unique and bounded system, the greater the usefulness of the

epistemological rationale” (p. 445). Moreover, there is an optimum number of cases that will enable detailed, rich analysis, beyond which comparisons can be lost (Poulson & Avramidis, 2003). This means that a greater volume of data do not necessarily lead to a more robust analysis of phenomena. This research ensured that each case study site, as part of a bounded system, provided sufficient information for depth of study and generalisability of findings for the Archdiocesan education system.

3.3.2 Mixed Methods Approach

The present research employed a ‘*mixed methods*’ approach to data collection and analysis. Mixed methods research reinforces the Constructivist epistemological worldview (Creswell, 2003) and Pragmatist theoretical perspective. In using a combination of qualitative and quantitative instruments, a mixed methods approach can provide for stronger inferences from richer data (Teddlie & Tashakkori, 2003) and a complementarity in allowing one type of data to assist in the interpretation of the other (Liamputtong & Ezzy, 2005). Also, the use of both qualitative and quantitative data collection methods overcomes the need to view these as dichotomous approaches from different paradigms. Essentially, “Pragmatism provides a single paradigm approach to justify mixed methods research designs” (Teddlie & Tashakkori, 2003, p. 20), thus breaking the “exclusivity of separate qualitative and quantitative epistemologies” (p. 20). In this approach, the emphasis is on the research problem or issue and what plans for action can be formulated to improve practices.

Thus, the mixed methods approach supported the methodology adopted for the present research. It is based on a worldview that extends the socially-constructed knowledge paradigm of Constructivism. Here, an understanding of subjective meanings that create multiple social realities was used to explore the use of pluralist approaches concerned with examining consequences of these meanings and finding solutions to problems.

The Pragmatist approach is essentially Interpretivist in its theoretical perspective and symbolically interactionist in its stance, where the actions of an individual or group are given meanings and are interpreted differently by others, and in different contexts. In this sense, then, meanings are learned through social interaction. Consequently, the research methodology of case study, with a mixed methods approach to

data collection and analysis, allows for an in-depth understanding of the meanings people attach to phenomena, particularly with regard to the way school principals and teachers, in different settings, view the efficacy of external literacy and numeracy testing regimes and their impact on teaching and learning practices within the school. Also, following the Pragmatist perspective, common themes that emerged during the research were used as a guide towards improving practices for the use of such data for school improvement – at both the school and system levels.

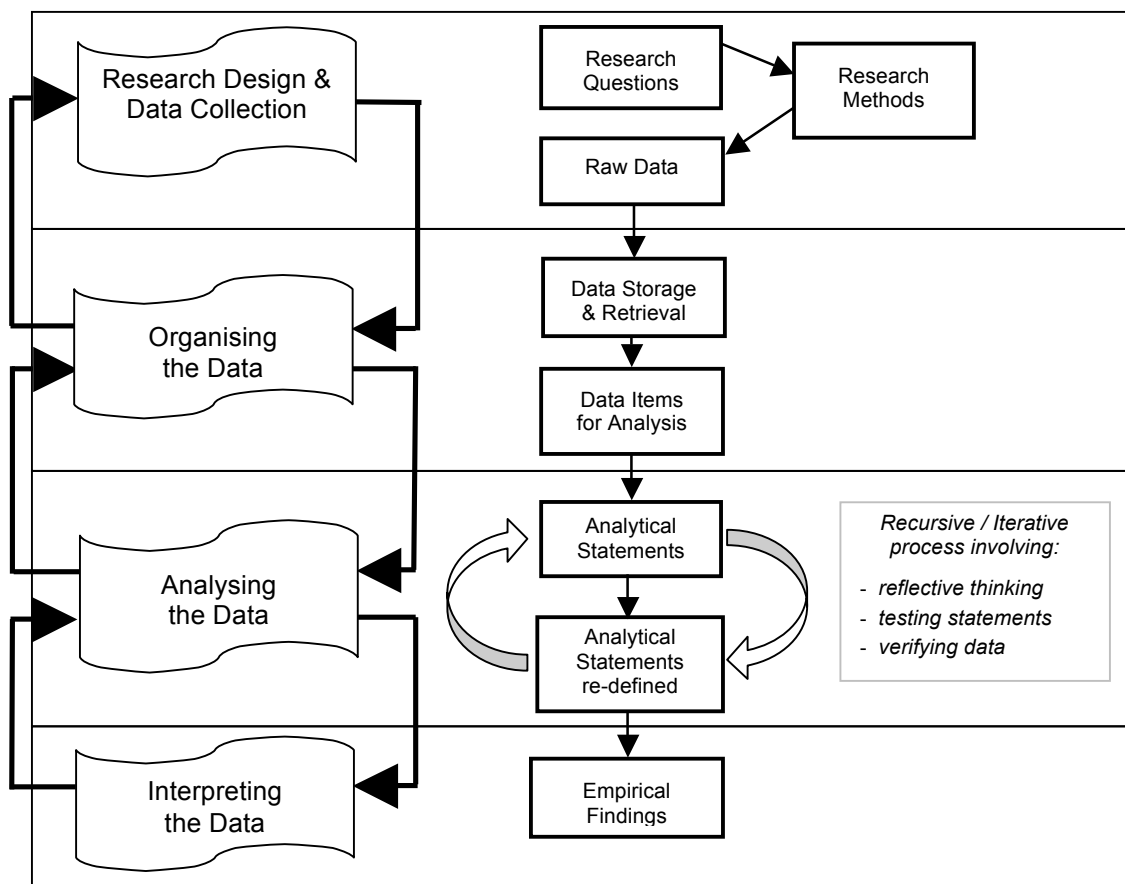
3.4 RESEARCH DESIGN

3.4.1 Introduction

The structure of the research design is shown in Figure 3.2. This shows the main steps involved in the study as well as the recursive nature of Interpretivist research. Due to the essentially sequential nature of the research, it was considered significant that appropriate and sufficient feedback mechanisms were employed. This structure was designed to ensure that the links between research methodology, design and practice were maintained and that the analysis of results from previous phases informed the conduct of subsequent phases of the research employing a recursive and iterative process from the design and data collection stages, through to data interpretation. Figure 3.2 also shows that data are used to construct analytical statements that are tested and explored in later research phases to enhance inferential trustworthiness and generalisability. This is an essential component of the case study methodology and is explained in Section 3.6.2.

The process of organising and reorganising research data is linked with analysis in an iterative process that promotes data interpretation based on reflective thinking and re-defining of information. Hence, the research design informs successive research phases that build information centred on the research questions.

FIGURE 3.2
STRUCTURE OF THE RESEARCH DESIGN



3.4.2 Participants

3.4.2.1 Selection of Participants

The Archdiocese of Canberra and Goulburn education system is contained within the ACT and southern regional NSW, across two very different education systems and state/territory government jurisdictions. It is, therefore, appropriate to define specifically the boundaries of the research. There are three types of schools operated by the Archdiocese across the ACT and NSW: a mix of ACT Primary (Kindergarten to Year 6), ACT Secondary (Years 7 to 12), NSW Primary (Kindergarten to Year 6), NSW Central (Kindergarten to Year 10) and NSW Secondary (Years 7 to 12) schools.

For the research, the boundaries have been defined as those 'systemic' schools operated under the auspices of the Catholic Education Office which employs teachers on behalf of the Trustees of the Roman Catholic Church, Archdiocese of Canberra and

Goulburn. The three schools operated by congregational religious orders within the Archdiocese were not included in the research. Similarly, the determination of boundaries for the selection of research participants was viewed as important for the study to be focused, manageable and verifiable. ‘Teachers’ were eligible to be included in the research if they taught Years 3, 5, or 7 in the year the research was undertaken. These year groups represent the cohorts of students who sat the external literacy and numeracy tests. Teachers of Year 9 were not included in the research since 2008 was the first year this cohort sat the national literacy and numeracy tests (NAPLAN) and the main data gathering strategies were undertaken before any meaningful analysis of the results was able to be undertaken at the school. Thus, since the NAPLAN tests were conducted in May, 2008, specific references to them were excluded from Phases 1 and 2 of the research. However, significance references were made to them in the subsequent interviews during Phase 3 by way of comparison and new possibilities of data use and analysis for the future.

School ‘principals’ were included in the research. Their role is defined on the basis of their formal leadership position and influence within the school community. These educators are leaders in the schools and play key roles in determining the nature and direction of the school’s planning and operations; in promoting a whole-school focus and coordinating the construction of three-year Strategic Plans and annual Management Plans. Further, they are responsible for ensuring that system and government accountabilities are operationalised within the school.

‘CEO personnel’ are those employees of the Catholic Education Office who have direct curriculum and pedagogical support and oversight responsibilities for Primary, Central and Secondary schools throughout the Archdiocese. They included the Primary and Secondary Religious Education and Curriculum teams as well as the Student Achievement coordinator – a total of six officers. These officers were included in the research because of the nature of their roles in working with school leaders and teachers in curriculum, literacy and numeracy, and assessment across the entire Archdiocese.

3.4.2.2 *Sampling Techniques*

Given the nature of the research methodology with a multi-site case study, the schools and individual participants were selected for study using a non-probabilistic sampling technique called ‘purposive’ (Stake, 2005) or ‘purposeful’ (Creswell, 2005;

McMillan & Schumacher, 2001; Merriam, 1998a) sampling for all research phases. Since the purpose of the research was to explore how data from literacy and numeracy testing are being analysed and used in Catholic schools within the Archdiocese and to determine who is responsible for leading their use in the school, the ultimate goal of the research was to develop a practical (and pragmatist) understanding of the research phenomena to aid in future planning to assist all schools.

Thus, the sampling method employed was based on a “stratified” purposive sampling technique (Gall, Gall, & Borg, 2003, p. 179) where the particular case study sites (schools) and participants (teachers of Years 3, 5, 7 and principals) were chosen based on specific selection criteria (Lovey, 2000) that provided for a set of “information-rich” (Merriam, 1998a, p. 61), defined set of case study sites and participants. The particular sampling strategies employed followed those categorised by McMillan & Schumacher (2001). ‘Concept’ sampling was used for the focus group (research Phases 2a, 4) where participants were selected because they have direct experience with the problem being investigated. ‘Typical-case’ sampling was employed for the pilot survey (Phase 2b) involving the selection of participants who constituted a representative sample from several case study sites. ‘Comprehensive’ sampling involved the use of a survey (Phase 2c) with school principals and teachers of Years 3, 5 and 7 from the 55 Archdiocesan schools. This instrument was called the External Testing Profile (ETP) instrument. Finally, ‘Reputational-case’ sampling, where the input of “knowledgeable experts” (McMillan & Schumacher, 2001, p. 402) is obtained to select participants, was used for the semi-structured interviews (Phase 3).

These approaches encouraged representativeness across each of five school types in the Archdiocese. They allowed for the development of insights into the characteristics of each school type, and provided for an understanding of the variations that exist across school types (Primary, Central and Secondary) and school systems (ACT and NSW). Further, and importantly, the sampling techniques supported the case study focus on generalisability and, in Phase 4, reflection on the research findings to ascertain any system-wide implications.

3.5 DATA COLLECTION PHASES

3.5.1 Introduction

To determine the suitable strategies for data collection for this investigation, it was important to determine, firstly, the most appropriate *sources* of data and, then, to explain the main data collection *methods* required to answer the research questions. This process was employed to ensure the data that were collected and subsequently analysed provided rich information on each of the research questions as the basis for valid recommendations for further research and action.

3.5.2 Data Sources

Data for the research were collected from the three groups of participants (school principals, teachers of Years 3, 5 and 7, and CEO personnel) across the five school types in the ACT and NSW. To situate the study within a valid research framework, the relationship between the participants and each research question is shown in Table 3.1.

TABLE 3.1
RESEARCH QUESTIONS

Research Questions	Participants
1. What attitudes do teachers and principals hold about external literacy and numeracy testing? 2. What factors influence these attitudes? 3. How is external testing data analysed and feedback given in the school? 4. Who is leading the process of analysis and feedback? 5. How effective is leadership in data analysis? 6. What factors influence leadership in data analysis?	• Principals • Teachers of Years 3, 5, 7 • CEO Personnel
7. In what ways, and to what extent, are teaching practices shaped by testing data? 8. What factors influence the shaping of teaching practices by testing data?	• Principals • Teachers of Years 3, 5, 7
9. What do system leaders find significant about the findings of this school-based research?	Focus Group: • Principals • Teachers of Years 3, 5, 7 • CEO Personnel

The first two research questions were centred on how teachers and principals viewed the efficacy of external literacy and numeracy tests and how useful these were perceived as indicators of student achievement. To answer these questions, the most appropriate sources of information were teachers of Years 3, 5, and 7 (the year cohorts that undertake such testing), school principals, and CEO personnel (each of whom had an in-depth knowledge of teaching and learning practices in particular schools). These participants had specific, contextual knowledge of the curriculum and pedagogy within the school.

Research questions 3, 4, 5 and 6 sought to ascertain *how* testing data utilisation was led in the school, *who* has been leading its use and how *effective* such leadership was perceived by the participants. Again, information was obtained from the school principals, teachers of Years 3, 5, and 7 and CEO personnel. The different perspectives of the three groups were used to support the symbolic interactionist approach to understanding multiple meaning-making and the impact that subjective understandings have on explaining different attitudes by participants towards external testing. Further, as data sources, it was anticipated by the researcher that these groups would provide rich sources of information for analysis and data verification – an essential component of mixed-methods research.

Research questions 7 and 8 were designed to ascertain the degree to which data from literacy and numeracy testing impact on teaching practices within the school. Here, information from teachers of Years 3, 5 and 7 and school principals was considered to be instrumental in judging the impact that such data and feedback play in affecting or changing teaching practices.

The last research question was a key feature of the final phase of the research. The purpose was for a small reference group consisting of CEO personnel, school principals and teachers to consider the learnings from the previous research phases and to attempt to identify implications on the practical significance of the study. The purpose of this approach was to reinforce the Pragmatist stance based on consequences and solutions to problems (Creswell, 2002, 2003) and to promote inferential validity and generalisability of the data by synthesising the information gained from the multi-site case study.

3.5.3 Research Phases and Data Collection Methods

Guided by the research questions, a multi-stage strategy for data collection supported the mixed-methods approach and is shown in Table 3.2.

TABLE 3.2
RESEARCH DESIGN OVERVIEW

Research Questions	Research Phase	Participant Selection	Data Analysis	Timeline
1. What attitudes do teachers and principals hold about external literacy and numeracy testing? 2. What factors influence these attitudes? 3. How is external testing data analysed and feedback given in the school? 4. Who is leading the process of analysis and feedback? 5. How effective is leadership in data analysis? 6. What factors influence leadership in data analysis? 7. In what ways, and to what extent, are teaching practices shaped by testing data? 8. What factors influence the shaping of teaching practices by testing data?	Phase 1: PRE-RESEARCH MEETINGS			
	Meetings with Principals to inform them of the nature of the research and to invite their school's participation.			March – April 2008
	Phase 2: IDENTIFICATION OF ISSUES			
	2a: Focus Group	Concept Sampling	• Development of themes for research • Reduction and coding of data • Construction of pilot survey	May 2008
	2b: Pilot Survey	Typical-case Sampling	• Review of survey design and item constructs	May 2008
	2c: ETP instrument	Comprehensive Sampling	• Data collation • Quantitative/Qualitative analysis	June 2008
	Phase 3: EXPLORATION OF ISSUES			
	Semi-structured Interviews	Reputational-case Sampling	• Reduction and coding of data • Verification of data with participants	August – October 2008
Questions 1 to 8 plus:	Phase 4: RESEARCH LEARNINGS			
9. What do system leaders find significant about the findings of this school-based research?	Focus Group	Concept Sampling	• Reduction and coding of data • Verification of data • Examination of the learnings from the research	December 2008

Table 3.2 shows that these strategies involved a four-stage, sequential process, and used a mix of quantitative and qualitative methods designed, firstly, to gain base-line data on the research problem and identify research themes and, subsequently, to explore

these issues and themes that arose using appropriate and targeted qualitative approaches. It was considered important that the research questions drove the data collection methods (Stake, 2005); they were designed to be specific enough to allow the selection of the appropriate data collection instruments with which to obtain valid, analysable and reportable data.

Since it is essential to link the stages of research with the research questions and methods of data collection, Table 3.2 shows the specific phases undertaken in the research and the linkages each has to the appropriate research questions, participants, strategies for data analysis, as well as the research timeline. These research phases are explained in detail in the following sections.

3.5.4 Research Phase 1: PRE-RESEARCH MEETINGS

3.5.4.1 *Purpose of the Meetings*

This phase involved the researcher attending regional meetings of principals for two purposes: to inform them of the nature of the research and to invite their schools' participation, particularly in Phase 2 of the research involving the pilot survey and main survey. Personal contact with the principals was seen to be a more productive method of eliciting support for the research than a letter sent through the CEO's courier system or electronic bulletin board. The researcher's aim was to facilitate the generation of a sufficient number of responses to the External Testing Profile (ETP) instrument (Phase 2c) and an appropriate representation from a comprehensive set of schools across the ACT and NSW sectors of the Archdiocese to provide a critical mass of data for further exploration during Phase 3 of the research.

3.5.4.2 *Practical Organisation*

The researcher attended meetings of Principals in three groupings: ACT Primary principals; NSW Primary, Central and Secondary principals; and ACT Secondary principals during March and April, 2008. An outline of the research process was given, including the main research questions, data-gathering phases, prospective timeline, as well as an invitation for themselves and teachers of Years 3, 5 and 7 to participate. It was stated explicitly that there was no compulsion for their involvement in the research.

The researcher indicated that contact would be made with each principal during Term 2, 2008 for Phase 2 of the research. The findings from Phase 1 of the research are reported in Section 4.2.

3.5.5 Research Phase 2: IDENTIFICATION OF RELEVANT THEMES

3.5.5.1 Introduction

Phase 2 of the research reinforced the mixed methods approach to research by involving the collection and use of both quantitative and qualitative data. Here the emphasis was on the three-stage, sequential process for the development and administration of a survey instrument to all teachers of Years 3, 5, and 7 and principals across the 55 schools of the Archdiocese following appropriate trialling with a representative sample. The purpose of the instrument was to identify issues and themes that related to the research questions, as well as to provide the needed background for further qualitative exploration during Phases 3 and 4. This method of data gathering was particularly suited for the research where comprehensive baseline data was obtained for further, in-depth exploration and analysis from teachers and principals across a relatively diverse group of schools.

Research Phase 2 had three sub-phases. These consisted of, firstly, the identification of survey themes using a small *focus group* of key stakeholders (Phase 2a). From this, tentative questionnaire items were constructed and field tested using a *pilot survey* with a selection of teachers and school principals (Phase 2b). Then, feedback from this pilot survey was incorporated into the revised questionnaire instrument used in the *main survey* (Phase 2c). This data collection instrument was subsequently named the 'External Testing Profile' (ETP) instrument.

During Phase 2, an "intuitive-rational" approach (Murphy & Fraser, 1978) was adopted for the development, pilot testing and administration of the ETP instrument. Questions and logical scales were developed and tested based on the professional and intuitive understanding by the participants. The survey's dimensions and item constructs were formed using an inductive approach by the group of purposively-selected participants, rather than being based on any specific theoretical paradigm or factor analysis approach using pre-determined criteria. This supports the Constructivist approach to research where meanings are highly contextual and emerge as the research unfolds.

3.5.5.2 *Phase 2a: Formation of Focus Group*

3.5.5.2.1 Purpose and Benefits

Focus groups are an important part of social research where several people are invited to participate in a forum for discussion around a particular issue. By definition, they begin with general discussion at a very broad level, gradually becoming more focused on the topic as the session progresses.

Significantly, the focus group is employed where the process of discussion itself is important in providing insight into issues that cannot be appropriately covered in a survey (Gibbs, 1997). The focus group provides a qualitative approach to the ‘how’ and ‘why’ of participants’ opinions, views and attitudes. Further, as well as being a valuable research strategy in its own right, it also complements other qualitative and quantitative data collection instruments used in a mixed-methods approach to research (Gall, Gall, & Borg, 2003).

Thus, the main purpose of the focus group in research is to draw upon respondents’ attitudes, feelings, beliefs, experiences and reactions in an interactive setting (Gibbs, 1997). Viewed as “important formations of collective enquiry” (Kamberelis & Dimitriadis, 2005, p. 888), the use of the focus group strategically develops themes that are generated in face-to-face interactions. Further, and importantly, the focus group can often reveal “unarticulated norms and normative assumptions” (Kamberelis & Dimitriadis, 2005, p. 903) that may not arise in the single interview situation or quantitative survey analysis. The behaviour of the group is more than the sum of individual behaviours; it is the participants who create a collective representation of reality through interaction that does not exist in interviews.

The main benefits of focus group research reside in the wide range of information produced in a short time span, and the fact that they are relatively inexpensive to conduct and often “produce rich data that are cumulative and elaborative” (Fontana & Frey, 2005, p. 704). Further, the role of the researcher is minimised to that of facilitator of the discussion among participants, utilising an egalitarian approach to information sharing within the group.

For these reasons, the focus group strategy was selected for this phase of the research. It involved the initial identification of issues because it can have more power than a survey or series of one-to-one interviews. With the focus group, the process of interaction is at least as important as the discussion of issues. The focus group allows issues to be developed and examined in depth through discussion with multiple views which are not possible when using a general quantitative survey or individual interview. Moreover, the focus group was employed to enhance research design validity and inferential trustworthiness of the findings by enabling the pilot survey to be developed (Phase 2b) from the views of, and interactions between, these stakeholders who were “information-rich” (McMillan & Schumacher, 2001, p. 402) and who were situated within the context of the Archdiocese.

3.5.5.2.2 Limitations of the Focus Group

A major problem with the focus group can be that individuals may not share experiences or some members may tend to dominate the discussion. This can inhibit the purpose of the focus group in promoting frank and informed discussion and in understanding the dynamics of the group. Further, due to the relative unstructured nature of the interaction between group participants, an associated limitation may involve difficulties in keeping the discussion ‘on track’ and focused. Another potential problem can arise due to the open-ended nature of the discussion; the research cannot be pre-determined or controlled as in an experimental situation.

To help mitigate against these limitations, the researcher began the discussion with an open-ended question that required each participant, in turn, to respond according to their own experiences and individual context. This was followed by other questions that were designed to focus the discussion areas without necessarily limiting the discussion itself. Each participant was also given an index card on which to write their own thoughts, questions for later discussion or clarification and comments as the discussion progressed. In this way, no individual points of view were lost, nor were participants’ views and opinions disregarded.

Another potential limitation in the use of focus groups for research involves participants who are in superior/subordinate relationships with each other or with the researcher, particularly if in the same organisation and involving line management duties

(Albrecht, Johnson & Walther, 1993). This can inhibit discussion, especially if participants' views are elicited. In this study, however, there were no such relationships that affected the process. The school participants were from different schools, while the CEO personnel each had separate (but related) portfolios with a system perspective. Moreover, the researcher had been known to each participant in a professional capacity for a number of years. This meant that the relationship among the participants, and between the participants and researcher, was collegial, thus ensuring that this potential limitation was unlikely to impact on the data.

3.5.5.2.3 Selection of Participants

The focus group was the first stage in the development of the survey instrument. Six participants were invited to join the group based on their system knowledge, experience and representativeness across the Archdiocese. Members included three Senior Officers at the Catholic Education Office who had responsibility for Primary and Secondary school curriculum and student achievement, two school principals (ACT Primary and NSW Primary), and one Assistant Principal (Curriculum) who also taught Year 7 (ACT Secondary College). With the large size of the ACT Secondary colleges, the Assistant Principal (Curriculum) took the main responsibility for all whole-school curriculum and student learning matters. This included oversight of the external testing process as well as the links with classroom practice and student achievement.

Since the purpose of the focus group was to develop themes from which tentative items for the pilot questionnaire could be constructed, these participants were selected using the 'Concept' purposive sampling technique (McMillan & Schumacher, 2001). The researcher selected 'information-rich' key personnel since they were knowledgeable about the area under study and had both school and system experience in the relevance and use of external testing of literacy and numeracy. This was an important part of the pilot survey and ETP instrument construction process since it enabled the development of themes particular to the research problem, and assisted the questionnaire to be contextual and relevant. Moreover, and importantly, it drew on the perceptions of key stakeholders who have expertise and experience in the research problem.

3.5.5.2.4 Practical Organisation

After initial conversations, participants were contacted by letter to confirm their attendance and participation in the focus group phase of the research (see Appendix A). A mutually-agreed meeting time was scheduled in May, 2008. Each participant had previously signed a Consent Form (see Appendix B) prior to the conduct of the focus group session indicating their willingness to be part of this research phase. The meeting was held at the Catholic Education Office, a location readily accessible for all participants. At the meeting, participants were given an overview of the research process, the role of the focus group in determining issues and themes from which the pilot survey (Phase 2b) and ETP instrument (Phase 2c) were to be constructed, as well as an explanation of the focus group meeting structure and process to be followed. Each participant was assigned a number which was used for identification during the session and which also reinforced the importance of only one person speaking at a time. The focus group session was recorded using a digital voice recorder from which transcription notes were made.

The meeting began with a general question designed to elicit each participant's experiences in being associated with the use of external testing. The researcher asked the question: "*What have been your experiences of how the results from literacy/numeracy testing are being analysed and used in schools?*". This allowed participants time to 'warm up' to the discussion and to get comfortable with the environment (Breen, 2006) and to discuss their experiences based on their individual roles and contexts within the Archdiocese. Each participant responded in turn to the question.

Following this, the researcher used only minimal prompts to stimulate discussion among the group. These prompts related to the nature of the participants' own experiences and their ability to comment on the following issues and include:

- attitudes of principals, school executive and teachers towards external testing and if they had observed a shift in attitudes over the last few years;
- evidence of teachers using testing feedback in their programming, teaching or assessment strategies;
- identification of the roles occupied by people actually leading the process of testing feedback in the school;
- the inclusion of testing feedback in the school's strategic and management plans;

- observations of changed teaching practices as a result of the use of external testing data; and
- the role of accountability in the use of external testing data.

The focus group lasted for approximately one hour. Following the session, the researcher transcribed the digital recording and analysed the focus group discussion to develop emerging themes and issues along with a set of targeted and relevant questionnaire items for the next research phase – testing of the pilot survey (Phase 2b). A copy of the transcription notes was sent to each participant for verification.

3.5.5.2.5 Role and Observations of the Researcher

For this study, the researcher was also the facilitator of the focus group interviews. The researcher's role became critical, especially in providing clear explanations of the purpose of the study, facilitating interaction among group members and enabling the session to stay on task (Gibbs, 1997). Importantly, the researcher answered questions, clarified processes and promoted debate by asking questions (as needed) to challenge participants and to draw out their perceptions.

There was a high degree of engagement by participants in the focus group session. Each was eager to contribute to the discussion in a professional manner, particularly with regard to their individual school- or system-based contexts. In his role as a Senior Officer at the CEO, the researcher had built up a professional relationship with teachers and principals throughout the Archdiocese. Each participant, therefore, was known personally to the researcher. Also, since no one was a stranger in the group, this proved to be beneficial in promoting professional dialogue, engagement and rapport among members of the group.

Consequently, each participant readily accepted the researcher's offer to reconvene the focus group later in the year to discuss the findings of the research (Phase 4) following the analysis of data collected from the ETP instrument (Phase 2c) and interviews (Phase 3). This was an important component of the research design, reinforcing the sequential and iterative nature of the research process where findings of the study were subsequently analysed and significant learnings were developed. The findings from Phase 2a of the research are reported in Section 4.3.

3.5.5.3 *Phase 2b: Construction and Testing of Pilot Survey*

3.5.5.3.1 Purpose and Benefits of the Survey Method

The survey technique was selected as the data collection instrument in the next two sub-phases (Phases 2b, 2c). The purpose of employing this strategy was to use the themes and issues identified in the focus group (Phase 2a) to ascertain a comprehensive dataset of responses from principals and teachers of Years 3, 5 and 7.

Surveys are important tools of social research. They allow for the collection of large amounts of data over a wide geographic area with a relatively low cost and time. They are an efficient data-collection technique in mixed methods research since both quantitative and qualitative items can be included in the one instrument (Gall, Gall & Borg, 2003).

For the purpose of this study, the decision to use the survey method was also made because of their facility to identify issues from a critical mass of respondents (Creswell, 2005) and their ability to be complemented with more qualitative approaches, such as interviews (Yin, 1994). This was the approach taken in the identification and exploration phases of the research.

3.5.5.3.2 Limitations of the Survey Method

Despite their potential benefits, several limitations of using survey questionnaires to collect data are also recognised for this research. If the survey consists solely of a pre-defined set of questions to answer or statements to rate, they cannot probe more deeply into the respondent's mind to ascertain their attitudes, beliefs and personal experiences (Teddlie & Yashakkori, 2003). To overcome this, the survey contained a section in which respondents could write their responses to specific questions about their attitudes to external testing and its efficacy for classroom pedagogy, based upon their own experiences and individual contexts.

Another limitation of using surveys is that there is no guarantee the wording of questions or statements is unambiguous to each respondent, despite the intent of the researcher. This is particularly the case if attitudinal questions are asked (Creswell, 2005) or if the vocabulary used in these contain jargon that may not have a universal understanding (Jaeger, 1997). Consequently, the use of the technique of pilot testing the

survey (Phase 2b) was employed to help overcome these problems of multiple interpretations and to employ language that contained commonly-understood terminology. The issues of survey length, section design and other potential limitations are also discussed in the following section.

3.5.5.3.3 Development of the Survey Instrument

Following the focus group, the researcher analysed the data and developed themes and issues for further research. Common themes were identified, coded and clustered. Subsequent analysis of these themes was undertaken and was linked with the first eight research questions. Using these themes and the research questions, four groups of statements linked to the research questions were developed for inclusion in the pilot survey (Phase 2b).

The construction of the pilot survey was considered essential for the research process. The researcher was not using a previously-developed and tested survey and, therefore, wanted the research to be developed and situated within the Archdiocesan context. Consequently, the survey instrument had to be developed and trialled to make certain that newly written items were clear, unambiguous and comprehensive. It was also important to test the survey for length and for the time and difficulty of respondents to complete (Punch, 2003).

The pilot survey included three parts (see Appendix C). In keeping with the mixed-methods approach, both quantitative and qualitative questions were employed to obtain data that could be analysed and cross-referenced. Part A concentrated on demographic data regarding school characteristics (including type and size) and participant characteristics (role within the school, teaching experience, and experience with the year cohorts being tested). Participants were asked to fill in the appropriate response that was relevant to their particular situation. Each response was assigned a number to aid in coding, thereby producing ‘categorical’ data that was used in subsequent quantitative analysis to identify the characteristics of subgroups within the survey population. These data from the pilot survey responses were for classification purposes only and were not used to produce subsequent scales for analysis in the ETP instrument (Phase 2c).

Part B of the pilot survey consisted of 40 statements in groups of roughly 10 based on the themes developed from the focus group and linked to the first eight research questions. A Likert scale was used in this part to obtain ‘continuous’ data. Each statement was linked to a 4-point Likert scale ranging from “Strongly Disagree” to “Strongly Agree” and assigned a number for subsequent quantitative coding and analysis using scales in the ETP instrument. A fifth option “Cannot make a valid judgement” was also included. The inclusion of this category was important in capturing those responses for which respondents did not have enough information about, or experience with, external testing to make an informed judgement. The researcher regarded this approach as far more powerful than using a 5-point Likert scale with a middle category of “Neither Agree or Disagree”.

Part C of the pilot survey consisted of short-answer responses designed to allow respondents to explain their views and attitudes towards external testing, the role of data leadership within the school, and its impact on teaching practices from their point of view. The inclusion of this section in the survey form allowed for qualitative data to emerge and, consequently, for richer data to assist in interpretation and subsequent analysis. Further, this approach reinforced the pragmatist single paradigm approach in mixed methods research design (Teddle & Tashakkori, 2003, p. 20).

3.5.5.3.4 Selection of Participants

Following the analysis of the focus group data, tentative questionnaire items for inclusion in the pilot survey were field tested with a small group (n=6) of purposively selected teachers of Years 3, 5 and 7 and school principals from four schools: ACT Primary school, NSW Primary school, NSW Central school and NSW Secondary school. The ‘*Typical-case*’ sampling technique (McMillan & Schumacher, 2001) was used where participants were selected because they were representative of the larger group of 55 schools to be included in the ETP instrument (Phase 2c).

Since the purpose of the pilot survey was to develop an instrument that was contextual, relevant and valid for the research, this selection of participants was made to obtain feedback that would strengthen the design validity of the ETP instrument. The focus of this pilot survey phase, then, was on testing both the design of the questionnaire and the items themselves for face validity, clarity, comprehensiveness and relevance to the research questions.

Respondents were asked to respond to questions about the structure and length of the survey instrument itself, the actual contents of Parts A, B and C (with particular emphasis on the 40 Likert-scale responses), as well as any general comments. The researcher sent copies of the pilot survey to the selected participants. These respondents suggested additions, deletions, edits and other feedback from the pilot to inform the design and content of the questionnaire for the next phase – External Testing Profile instrument administration. The findings from Phase 2b of the research are reported in Section 4.4.

3.5.5.4 Phase 2c: Administration of the ETP instrument

3.5.5.4.1 Development of the Survey Instrument

As a result of feedback from the pilot survey (Phase 2b), the ETP instrument was constructed and distributed to relevant personnel across Archdiocesan schools, with a covering letter to each principal (see Appendix D).

As with the pilot survey, the ETP instrument (see Appendix E) consisted of three parts, incorporating demographic questions ('categorical' data), 40 closed-response statements using a 4-point Likert scale ('continuous' data), and several open-ended questions asking for the respondents' comments. Again, in mixed-methods research, the use of both quantitative and qualitative data types reinforced both the quality of the data obtained as well as promoting rich information for further analysis.

The quantitative data from Part A and Part B of the ETP instrument were coded and analysed using the 'Statistical Package for the Social Sciences' (SPSS) application. The qualitative responses from Part C were analysed to ascertain the main issues and themes emerging for the further exploratory stage of the research (Phase 3). To enhance generalisability of research findings and to promote inferential trustworthiness, 'Comprehensive' sampling (McMillan & Schumacher, 2001) was employed to allow for a sufficiently large sample of principals and teachers to be included in the ETP instrument. Table 3.3 shows that school principals and teachers of Years 3, 5 and 7 (n=251) were surveyed from 55 schools across the Archdiocese, encompassing Primary, Central and Secondary schools from the ACT and NSW. The representation across all school types in the ACT and NSW sections of the Archdiocese was designed to reduce any 'response bias' where the "responses do not accurately reflect the views of the sample of the population" (Creswell, 2005, p. 368).

TABLE 3.3
RESEARCH PHASE 2C: ETP INSTRUMENT PARTICIPANTS

Research Questions	Participants (n=251)	
1. What attitudes do teachers and principals hold about external literacy and numeracy testing? 2. What factors influence these attitudes? 3. How is external testing data analysed and feedback given in the school? 4. Who is leading the process of analysis and feedback? 5. How effective is leadership in data analysis? 6. What factors influence leadership in data analysis? 7. In what ways, and to what extent, are teaching practices shaped by testing data? 8. What factors influence the shaping of teaching practices by testing data?	Critical mass of teachers of Years 3, 5, 7 and school principals from a variety of school types across the ACT and NSW	
	ACT Primary (K-6): 23 schools	Year 3: 41 teachers Year 5: 41 teachers 23 Principals
	ACT Secondary (7-12): 4 schools	Year 7: 17 teachers 4 Principals
	NSW Primary (K-6): 18 schools	Year 3: 23 teachers Year 5: 23 teachers 18 Principals
	NSW Central (K-10): 6 schools	Year 3: 11 teachers Year 5: 12 teachers Year 7: 12 teachers 6 Principals
	NSW Secondary (7-12): 4 schools	Year 7: 16 teachers 4 Principals

3.5.5.4.2 Practical Organisation, Selection of Participants and Administration

A letter was sent to each principal, inviting their participation, and with details for distributing the questionnaires within the school. The surveys then were sent in bulk to each school during June, 2008 using the usual CEO courier system. All participants were invited to complete the same survey instrument. Each questionnaire contained a covering letter on the front page explaining the nature and purpose of the research and an invitation for each participant's involvement. An envelope was provided with each survey form for return to the CEO by school courier, with a two week time period allowed for completion. The surveys were returned to an Administrative Assistant at the CEO whose role was to remove all identifying marks (if any) before the surveys were received by the researcher. This was an important part of the research process using the survey method and was designed to further ensure the anonymity of each participant (Gall, Gall & Borg, 2003). Some timely follow-up was needed to ensure an adequate response rate.

Thus, the ETP instrument for this study contained both quantitative and qualitative question types which were designed to allow themes and issues relevant for subsequent phases of the research to emerge. The preliminary work in identifying the themes for the pilot survey and subsequent checking for format and clarity matters (Phases 2a and 2b) were important elements in helping to eliminate or reduce any questionnaire inappropriateness factors.

There also needed to be an opportunity to acquire supplementary and corroborative data. Since questionnaires paint in broad brush strokes, the main thrust of the research was to generalise findings across schools as well as to understand the local dynamics in various places, including beliefs, contextual supporting and impeding factors, and more. Phase 3 of this research, then, adopted a specifically qualitative approach to explore the themes identified from the analysis in Phase 2. The findings from Phase 2c of the research are reported in Section 4.5.

3.5.6 Research Phase 3: EXPLORATION OF ISSUES

3.5.6.1 *Introduction*

The use of semi-structured interviews as a research tool enabled a number of key issues arising out of the survey to be explored in greater detail; to delve into the meaning behind the survey responses, especially those relating to the influences of leadership on data utilisation at the school and the impact that testing data has had on teaching practices. The interviews investigated the themes and issues emerging from Phase 2 of the research and allowed for coding of the interview data and exploration of the issues in depth from the interviewees' perspectives. These themes were used to explore the issues identified as significant in how schools use the results from external testing of literacy and numeracy across the Archdiocese.

3.5.6.2 *Purpose and Benefits of Semi-structured Interviews*

The use of interviews with teachers and principals who were purposively selected from Archdiocesan Primary, Central and Secondary schools was designed to provide data on the key questions that focused on classroom practice and leadership at the school level. Further, it was anticipated that participants also may have had comments about extra-school influences, for example, funding, system support, school and CEO

expectations, and so on, which have the capacity to influence motives for using external testing data and the consequent impact on teaching practices.

The *semi-structured* interview technique was selected for Phase 3 of the research since its purpose was to build on the information from the preceding phase which employed a survey questionnaire administered to all Archdiocesan schools. This technique was used as a tool for exploration and confirmation of themes raised previously and provided for a more in-depth examination of the issues.

This approach also supports the Interpretivist paradigm and Constructivist world-view of knowledge generation. Moser and Kalton (1971) confirm this advantage of such interviews:

“...most of the questions are open ones designed to encourage the respondent to talk freely around each topic. Such interviewing gets away from the inflexibility of formal methods, yet gives the interview a set form and ensures that all the relevant topics are covered. ” (Moser & Kalton, 1971, p. 298)

The use of interviews allows the interviewer to establish a rapport and asks the interviewee a series of questions. Fontana and Frey (2005) remind us that “...interviewing is not merely the neutral exchange of asking questions and getting answers...it leads to the creation of a collaborative effort” (p. 696). This notion of “building trust and rapport with respondents” (Gall, Gall & Borg, 2003) is an important component of the data collection technique since it constructs a relationship between the two participants that is not possible in either focus groups or questionnaires. Indeed, Holstein and Gubrium (2004) see the interview as an “interpersonal drama with a developing plot” (p. 154).

Another powerful benefit of using the interview technique lies in the ability of the interviewer to probe the interviewee for clarification or for more detailed information when needed. This is not possible in survey questionnaires where answers are given to questions or statements that have been previously defined, thus making two-way interaction impossible.

3.5.6.3 Limitations of Semi-structured Interviews

The researcher also recognises limitations in the use of semi-structured interviews for research. Burns (1990) comments that they are time-consuming; the number of people to be interviewed needs to be limited; interviewer bias and personality can seriously affect the validity and reliability of the research; respondents may feel that they are being ‘put on the spot’ and finally, the flexibility which is an asset of interviews may generate difficulties when attempts are made to categorise and evaluate responses (Burns, 1990, p. 303). Moser and Kalton (1971) also warn of the problems whereby “... different items of information may be obtained from different respondents, so that it is hard to compare ... the results, ... and ... difference in wording ... may make the answers not truly comparable” (p. 300).

Apart from the fact that interviews can be time-consuming, with the possibility of interviewer bias and lack of consistency for subsequent data interpretation and analysis, one major limitation of the interview as a data-gathering tool is the difficulty of standardising the interview situation across all interviewees for subsequent data analysis (Burns, 1990). However, in mixed-methods research, the use of qualitative data-gathering techniques to complement and support other methods is a strength (Berg, 2004). Indeed, it is this flexibility and the ability to explore responses that allows for the acquisition of rich, contextual information that has the potential to add meaning to the research design (Creswell, 2003).

The potential for researcher bias in the interviews was also recognised when designing the research process. However, as a CEO Senior Officer in contact with many principals and school staffs across the Archdiocese, the researcher was well known to teachers and school principals. The relationship between interviewer and interviewee was already established. Further, the researcher asked the type of questions that allowed the interviewee to talk from their experiences. Since this was the purpose of Phase 3, the researcher was careful not to ‘lead’ participants with questions that could have potentially biased the data obtained.

Thus, the use of semi-structured interviews in the research enabled the acquisition of research-relevant information and, as the study was to be conducted within school settings, the interview method was also appropriate since the population sample indicative of multi-site case study research was manageable. In addition, and importantly,

the semi-structured interviews enabled the participants to raise any relevant issues not necessarily covered in the survey or anticipated by the researcher. This strength of mixed methods research allowed for complementarity of data collection instruments (Fontana & Frey, 2005).

3.5.6.4 *Selection of Participants*

For Phase 3, participants were selected and interviewed by the researcher using a semi-structured interview technique designed to elicit specific information for subsequent analysis, as well as providing the basis for corroboration to enhance the reliability, inferential trustworthiness (Bassey, 1999b, Lincoln & Guba, 2000) and generalisability of findings from the research.

Eight participants for this research phase were selected by the researcher using the ‘Reputational-case’ sampling technique (McMillan & Schumacher, 2001). The criteria for participant selection were to include those with knowledge of, and experience with, external testing of literacy and numeracy, appropriate representation across all three school types (Primary, Central and Secondary schools), a mix of participants in the ACT and NSW sectors of the Archdiocese, and finally, an appropriate blend of classroom teachers and those in leadership positions.

It was important that participants were able to provide contextual detail related to both their particular situations in schools as well as to the themes identified in the previous phases. Potential participants were approached by the researcher after consultation with appropriate personnel at the Catholic Education Office to reinforce the input of “knowledgeable experts” (McMillan & Schumacher, 2001, p. 402) in this phase of the research. Again, this sampling technique supported the case study focus on generalisability as a prelude to the reflection on the research findings in Phase 4 to ascertain any system-wide implications. All participants readily agreed to be interviewed.

In order to ensure that the data collected were representative across the Archdiocese, Table 3.4 shows that interviewees were selected from each school type across the ACT and NSW sectors of the Archdiocese, with a mix of different roles from principal to classroom teacher. Thus, no one type of school in the Archdiocese or role type within the school was over-represented with interview data which could have biased the data

collected or skewed the subsequent analysis. The details of the eight participants who took part in Phase 3 of the research are shown in Table 3.4

TABLE 3.4
RESEARCH PHASE 3: PARTICIPANTS FOR SEMI-STRUCTURED INTERVIEWS

Sector	School Type	Role Position
ACT	Primary	• Principal (non-teaching)
		• Year 3 Teacher
		• Year 5 Teacher
	Secondary	• Year 7 Teacher
NSW	Primary	• Assistant Principal / Year 3 Teacher
		• Year 5 Teacher
	Central	• Principal (non-teaching)
	Secondary	• Coordinator & Year 7 Teacher

3.5.6.5 *Practical Organisation*

As with the focus group (Phase 2a), after initial conversations, participants were contacted by letter to confirm their participation in the semi-structured interviews (see Appendix F). A mutually-agreed meeting time for each interview was scheduled during the period September to November, 2008. Each participant had previously signed a Consent Form prior to the interview session indicating their willingness to be part of this research phase (see Appendix G).

The interviews were conducted at each participant's school at a time mutually convenient to both the researcher and participant. In each instance, an appropriate room was made available. At each meeting, participants were given an overview of the research process and the role of the semi-structured interviews in exploring issues and themes from the External Testing Profile (ETP) instrument (Phase 2c). The interviews were recorded using a digital voice recorder from which subsequent transcription notes were made. Each interview contained general questions based upon the themes generated from the ETP instrument. These were designed to allow each participant to speak about their experiences of the issues surrounding external testing of literacy and numeracy in their particular context. Throughout the interviews, the researcher used minimal prompts and some

clarifying questions when needed to draw out interesting and relevant points made by the participant. A copy of the transcription notes was sent to each interviewee for verification.

The interviews lasted between 30 and 45 minutes. Following each, the researcher transcribed the digital recording as a prelude to analysing the content which added detail to the themes from Phase 2, as well as providing additional, related information that was considered important in the subsequent analysis in preparation for Phase 4 (focus group).

3.5.6.6 *Role and Observations of the Researcher*

The interviews were conducted very successfully. Interviewees were willing to participate in the process, especially when they could see the relationship of Phase 3 with the entire research process. They were frank and candid, and spoke from their own experiences within the school setting, with some comparing the practices in their current school with that of others in which they recently taught.

In keeping with appropriate techniques for conducting interviews, the researcher played a relatively minor role during the interviews, bearing in mind Scheurich's (1997) "consequence of presence" and "engaged subjectivity" where the researcher's presence in the research setting and their own subjectivities can impact on the respondent's answers (Scheurich, 1997, p. 133). Thus, questions were asked that enabled the interviewee to speak from their own experiences, with the researcher asking clarifying questions at times where appropriate. The findings from Phase 3 of the research are reported in Chapter 5.

3.5.7 Research Phase 4: RESEARCH LEARNINGS

3.5.7.1 *Introduction and Purpose*

The final phase of the research involved the re-formation of the initial focus group (Phase 2a). The inclusion of the focus group in this research phase was an especially powerful qualitative research tool where participant discussion was focused on specific issues and themes that emerged from Phases 2 and 3 of the research. One of the main advantages of this research method is that, as in Phase 2a, the focus group promotes discussion among participants who share common experiences, but allows for multiple

perspectives to be tabled. The focus group situation also allows participants to react with, and build upon, responses of the other group members (Gall, Gall, & Borg, 2003). Hence, the participants interact not with the researcher (as with an interview), but with one another by responding to ideas and comments in the discussion (Liamputtong & Ezzy, 2005).

This phase concentrated on the data gathered from the previous research phases involving the first eight research questions. Its purpose was to ascertain the potential of external testing feedback by teachers for classroom use together with the leadership role of the school principal in this process. Consequently, Phase 4 of the study considered research question 9: *‘What do system leaders find significant about the findings of this school-based research?’*

The focus group method was particularly relevant for this phase of the research. Feedback data from Phases 2 and 3 were used with the same reference group that helped to develop the themes for the initial survey. By returning to the group of key school and CEO personnel who played a significant role in the initial focus group (Phase 2a), together with data from the pilot survey and ETP instrument development and administration (Phase 2b and 2c) and subsequent semi-structured interviews (Phase 3), the research results were reflected upon and analysed from both a ‘school’ and ‘system’ perspective as a forerunner for possible policy and procedural implications for the Archdiocese. This approach reinforces the significance of ‘results generalisability’ for the research, a significant advantage of the case study methodology (Stake, 2005). Moreover, this approach enhanced data verification, clarification and further in-depth exploration of issues and themes arising from the previous research phases.

As with Phase 2a of the research, the problems inherent with focus group methods were minimised by the researcher’s professional relationship with the participants and their shared knowledge and understanding of the issues surrounding external testing across the Archdiocese. In this context, the discussion of the research findings was informed by each person’s in-depth knowledge of schools and a common desire to improve leadership and teaching practices across the Archdiocese.

3.5.7.2 *Selection of Participants*

As with the initial focus group, six participants joined the discussion for this phase and the initial intention of the researcher was to have all original six members present. However, due to the original ACT Primary principal taking on a new role, a replacement principal was invited to join the group. While this was not considered ideal, the researcher considered it essential that the same representation of roles, if not the same personnel, was maintained for the discussion. In fact, the new ACT Primary principal had equivalent experience in the principal's role in the ACT as her predecessor. The membership of the focus group for Phase 4 of the research, therefore, included three Senior Officers at the Catholic Education Office who had responsibility for Primary and Secondary school curriculum and student achievement, two school principals (ACT Primary and NSW Primary), and one Assistant Principal (Curriculum) who also taught Year 7 (ACT Secondary College).

3.5.7.3 *Practical Organisation*

In preparation for the meeting, a summary of the research results was sent to each participant. The summary's function was to (re)familiarise the participants with the purpose of the research and the research questions, as well as to give a summary of the findings from each research phase: Phase 2a (focus group themes for research); Phase 2c (results from the ETP instrument); Phase 3 (themes and issues from the semi-structured interviews). The summary also contained the two main questions that formed the core of the discussion.

As with the initial focus group, a meeting was held at the Catholic Education Office. Again, this was considered the most readily-accessible location for all participants. As before, each participant was assigned a number which was used for identification during the session and which also reinforced the importance of only one person speaking at a time. The focus group session was recorded using a digital voice recorder from which subsequent transcription notes were made.

To begin the meeting, the research process was discussed and points of clarification about the results were sought. This was considered an essential component in promoting productive and informed discussion. The two questions that guided the

discussion were: *‘What are your reactions to the research findings?’*, and *‘What are the implications of the findings for the Archdiocese?’*.

Each participant in turn was asked to respond to the first question from their perspective as either school leader or system representative. Following this, discussion centred on generalisations, observations and opinions on the meaning of the results as a prelude to a consideration of question 2 – implications for the Archdiocese. Again, this supported the Pragmatist approach (Creswell, 2003; Teddlie & Tashakkori, 2003) where the emphasis is on the research problem to find a way forward, not just to ‘understand’ it; to ascertain the practical implications of the research findings.

The focus group lasted over one hour. Following the session, the researcher transcribed the digital recording and analysed the focus group discussion as a prelude to a consideration of the next step - ‘Discussion of Research Findings’ (see Chapter 7). As with Phases 2a and 3 of the research, a copy of the transcription notes was sent to each participant for verification.

3.5.7.4 *Role and Observations of the Researcher*

Again, the researcher’s role was that of facilitator for the focus group discussion. The researcher’s role became critical when providing clear explanations of the research process and the results from each phase, as well as in facilitating interaction among group members (Gibbs, 1997), and enabling the session to stay on task. As with Phase 2a, the researcher answered questions, clarified processes and promoted debate by asking questions as needed, and challenged participants to draw out their perceptions. However, the main focus of this phase of the research was to encourage informed discussion among the participants of the issues surrounding the use of external testing data in schools.

3.6 LEGITIMATION

3.6.1 Introduction

In using a mixed-methods approach, this research employed a combination of quantitative and qualitative methods of data collection. Here, multiple data collection procedures, multiple theoretical perspectives and multiple analysis techniques (Berg, 2004) were used to strengthen the design methodology of the present study and the information

generated from the research data. Consequently, a combination of inferential trustworthiness, instrument validity and reliability are important in any attempt to legitimate the research design process. These are discussed in the following sections.

3.6.2 Inferential Trustworthiness and Generalisability

While the notion of data ‘validity’ is essentially a term applicable to a positivist worldview using quantitative data analysis (Gall, Gall & Borg, 2003), it is worth remembering that the researcher using the Interpretivist approach and case study methodology must ensure that the information and inferences from the study are reliable and ‘trustworthy’ (Bassey, 1999b; Lincoln & Guba, 2000). In the present research, this was accounted for by the use of mixed methods research (Liamputtong & Ezzy, 2005; Stake, 2005; Teddlie & Tashakkori, 2003) and a multi-site case study with an ‘instrumental’ type focus (Stake, 2005). This approach was selected to promote inferential “trustworthiness” (Bassey, 1999b, p. 75) or “inference transferability” (Teddlie & Tashakkori, 2003, p. 37). The research was operationalised through a “multiple or collective” (Stake, 2005) or “explanatory” (Poulson & Avramidis, 2003; Yin, 1994) case study approach. Here, Stake’s (2005) terminology is used to signify the use of a multi-site case that is examined to “provide insight into an issue or to redraw a generalisation” (p. 445). Hence, the phenomenon or research problem itself is the focus of study. With a view to generalisability of findings and a pragmatist epistemology, the emphasis of the research process was to understand the problem and find solutions, not just to identify with the “intrinsic value” of a particular case for its own sake (Stake, 2005, p. 445).

Finally, the issues involved in the research problem and resulting questions are complex, contextual and are based upon individual and group meanings and interpretations. Consequently, more than one site was chosen for the research to promote research generalisability across the Archdiocese, as well as to overcome perceived biases that may arise with the selection of a single case for study. Thus, both the individual cases and any broader themes were considered to be important in utilising the research findings to answer the final research question.

3.6.3 Instrument Validity

The second element in the research legitimisation involved instrument validity. With the positivist approach to research more concerned with statistical validity of the

instrument/s used, the use of quantitative inferential statistics necessitates a discussion of instrument validity. In this sense, ‘validity’ refers to the usefulness of specific inferences, or judgements about credibility, that can be made from using a particular research instrument. Since the External Testing Profile (ETP) instrument was developed for the specific context of the research (Phase 2), it was essential that the instrument items themselves were a valid measure of responses to the research questions. To achieve this, the construction and administration of the ETP instrument was, firstly, tied to the results of the focus group (Phase 2a). The 40 items for Part B of the instrument were then constructed and linked with the research questions. Secondly, the survey instrument was trialled as a pilot survey (Phase 2b) to ensure its structure and construction were sound and that the questions were understood by the respondents and were unambiguous in their meaning. This is called ‘face validity’.

When the ETP instruments was returned, coded and analysed, the 40 items in Part B (Fixed Response Questions) were tested for ‘construct validity’ and were found to be highly correlated with the theoretical constructs which were devised based on the research questions (see Table 4.11). The items, with their constructs, measured what they were supposed to measure and provided the researcher with confidence that this phase of the research – the identification of themes – provided rich data for the subsequent exploration and results stages of the research (Phases 3 and 4).

3.6.4 Reliability

The third area of legitimisation involved data reliability. ‘Reliability’ involves the extent to which other researchers would find similar results if they repeated the research design (Gall, Gall, & Borg, 2003). With mixed methods research especially, this can be an issue since the research is not undertaken in laboratory conditions. By definition, the interpretivist paradigm implies multiple realities, people in different contexts and with dissimilar experiences. Under these conditions, reliability cannot be guaranteed, however, the notions of ‘dependability’ or ‘consistency’ are more appropriate concepts (Lincoln & Guba, 2000) given the nature of the research design. For the present research, two techniques were used to promote the reliability of the research design – multiple data sources and member checking. These are explained in the next sections

3.6.4.1 *Multiple Data Sources*

The four research phases employed several types of data gathering procedures, namely, focus group discussion (Phases 2a and 4), survey (Phases 2b, 2c) and semi-structured interviews (Phase 3) using a mix of qualitative and quantitative techniques and participants (teachers, principals and CEO personnel). These were linked with the research questions and each provided information from a different perspective. This represents a method of data triangulation designed for convergence among multiple and different sources of information to form themes (Creswell, 2005) and is a typical mixed method design where different data sources and types are collected for verification.

3.6.4.2 *Member Checking*

This technique involves returning data to participants for verification and confirmation (Lincoln & Guba, 2000). It consists of taking data and interpretations back to the participants in the study to verify the credibility of the information. In this research, member checking was used during Phases 2a and 4 (focus group) and Phase 3 (semi-structured interviews) where findings were reviewed, modified and confirmed. This process further legitimated the research design employed in this study.

3.7 ETHICAL ISSUES

3.7.1 General

Prior to the commencement of the investigation, steps were taken to ensure that the ethical considerations of the Australian Catholic University, and in particular, the specific requirements of the Human Research Ethics Committee, were met. The ‘Application for Ethics Approval – Research Projects with Human Participants’ (N200708 19) was submitted in November 2007 and subsequent approval to conduct the research was granted on 21 January, 2008 (see Appendix H).

In line with the Catholic Education Office’s procedures for conducting research in the Archdiocese, formal application was made to the Director in September, 2007. Approval was granted from the Director of Catholic Education for research to be carried out in Archdiocesan schools in October, 2007 (see Appendix I). Since the research did not

involve students at Archdiocesan schools, a ‘Working with Children Check’ application was not required.

3.7.2 Informed Consent

Informed consent requires that research subjects have the right to be informed about the nature and consequences of experiments in which they are involved. This involves a proper respect for human freedom where, “first, subjects must agree voluntarily to participate ... Second, their agreement must be based on full and open information” (Christians, 2005, p. 144).

For the present study, the researcher ensured that each participant (CEO officer, principal and teacher) was issued with an invitation to participate in the research project and the particular aspect in which they were participating. For the ETP instrument, this was contained on the front page of the questionnaire. For the semi-structured interviews (Phase 3) and focus groups (Phases 2a, 4), an introductory letter and consent form was used. Each participant in the survey was informed of the purpose of the study and the possible need for some interviews at a later stage. In Phase 2c of the research (ETP instrument), participants were given the opportunity not to participate, or to withdraw from the research process at any stage. The statement “Completion of the survey will be taken as consent to participate” was included by the researcher as a form of consent approved by the Australian Catholic University’s Ethics Review Committee.

3.7.3 Confidentiality and Anonymity

Privacy and confidentiality are essential elements in research with humans. ‘Confidentiality’ involves an active attempt to ensure each participant’s identity is removed from the research records while anonymity means that subjects remain nameless (Berg, 2004). This right to privacy (Fontana & Frey, 2005) is a cornerstone in safeguarding people’s identities and those of the research locations.

For the focus groups (Phases 2a and 4) and Semi-structured interviews (Phase 3), participants were asked if they would be willing to participate prior to these activities being conducted. All participants of the focus group and interviews agreed to sign Consent Forms (see Appendices B and G). Completion and return of the ETP instrument implied consent by the participant.

The ETP instrument was distributed to schools through each principal. The front page of the survey form contained an explanation of the research, its purpose and phases, as well as a statement explaining that “This survey is anonymous. Your identity cannot be determined and, therefore, cannot be disclosed to the researcher”. Also, the surveys were returned to a ‘Returning Officer’ at the CEO (clearly marked on the supplied envelope) whose role was to ensure any marks that could identify a person or school were removed before being passed on to the researcher.

Thus, given the researcher’s role on the Catholic Education Office and his work throughout the Archdiocese, a number of steps were taken to ensure confidentiality and anonymity. These included the following: no participant was asked to sign or write their name on the survey form, no single school or school location (suburb/town) could be identified, only participants in the focus group (Phases 2a, 4) and semi-structured interviews (Phase 3) were required to sign consent forms, and finally, all ETP instrument forms (Phase 2c) were returned to an Administrative Assistant at the Catholic Education Office before being given to the researcher.

These steps were considered important so that participants, while all employees of the Catholic Education Office, could express opinions and beliefs in an open and honest way without fear of coercion or consequences (Gall, Gall, & Borg, 2003).

3.7.4 Data Recording, Security and Disposal

The security of data, both during and after the conclusion of the research, is crucial for the validation of the research itself and for the protection of participants. Such safeguards are important and are designed to ensure that researchers take intentional precautions to guarantee that research data do not accidentally, or intentionally, fall into the wrong hands or become public (Berg, 2004).

With regard to the present study, all printed surveys (Phase 2c) were analysed off-site from the school by the researcher and were treated with the utmost confidentiality. In Phases 2a, 3 and 4, the participants’ discussions were recorded on a digital voice recorder and transcribed by the researcher personally to guarantee confidentiality. Transcripts of the semi-structured interviews (Phase 3) were made available to all participants for comment and verifiability. The utmost care was taken with this exercise to ensure the accuracy of the meaning of the original wording and intent. If some participants

requested, in hindsight, that specific comments were not be included, this request was honoured. In Phase 2a and Phase 4 (focus groups), a summary of issues raised was circulated to the participants to confirm the substance of the discussions. Participants were given the opportunity to withdraw from the research process at any stage.

All electronic research data from all research phases were stored in password-protected storage media away from the Catholic Education Office. Similarly, all printed data, including copies of consent forms, survey returns, and focus group and Interview transcriptions were held in a secure, locked storage facility in the office of the principal supervisor at the Mount St Mary Campus of the Australian Catholic University. At the end of five years after the research has been undertaken, all stored electronic data will be erased and all printed materials containing research data will be shredded in compliance with the regulations of the Australian Catholic University's Human Research Ethics Committee.

3.8 LIMITATIONS AND DELIMITATIONS OF THE RESEARCH

The limitations of the research relate to the choice of research methodology and data collection instruments which can pose threats to both the interval and external validity in the design of the study (McMillan & Schumacher, 2001). The study was limited to the 55 Catholic systemic schools operated by the Catholic Education Office in the Archdiocese of Canberra and Goulburn. The three ACT Catholic congregational schools (with students from primary to upper secondary years) were excluded from the research. While concentrating only on external testing of literacy and numeracy, the research also excluded other forms of external testing. These include the NSW Year 12 Higher School Certificate and Year 10 School Certificate, the ACT Australian Scaling Test (undertaken by all Year 12 ACT students with a 'Tertiary' package in preparation for university entrance), as well as sample testing of Information and Communications Technology literacy (Years 6 and 10), Civics and Citizenship (Years 6 and 10) and Science literacy (Year 6) undertaken by jurisdictions.

The challenges faced by case study methodology in this research are recognised. Because of its relatively narrow focus on sites, the multi-site case study approach has the propensity to be limited in its representativeness and, consequently, in the generalisability of its findings (Bassey, 1999a; Yin, 1994). For the present study this

researcher recognised the potential for the case study methodology to be vulnerable to subjective biases by the researcher and participants either in the choice of the study sites or by the selective inclusion (or exclusion) of data – the “emic” and “etic” perspectives of data collection (Gall, Gall, & Borg, 2003, p. 438).

The researcher also recognised the possible shortcomings of focus group research, particularly the tendency of one or some participants to either dominate the group dynamics or to direct the discussion in agreement with their points of view. However, this potential problem was minimised since the CEO personnel constantly work with principals and teachers in schools; all participants have a shared, collective understanding of the issues involved and a common focus in improving pedagogy in their schools and across the Archdiocese. Moreover, the researcher did not play an active role in any discussions during the focus group sessions.

While ‘closed-response’ survey items can provide quantitative, and therefore, statistically analysable data, they can be ‘cold’ and objective and often do not allow respondents to qualify their answers. There may be bias in the sample population and, in terms of social research involving complex human behaviour, it can be misleading and inappropriate to attempt to categorise such behaviour to a prescribed set of responses. Even in more extensive questionnaires, one cannot always predict the variety of responses that are likely to be made by the participants in the research. Consequently, the closed-response items contained in Part B of the ETP instrument were complemented by the inclusion of short-answer, free-response questions designed to elicit qualitative, in-depth responses to move beyond a simple calculation of quantitative data.

The researcher also recognised limitations in the use of semi-structured interviews for research. They can be time-consuming, with a limited number of people to be interviewed. Further, interviewer bias and personality can seriously affect the validity and reliability of the research. Other problems could arise from the fact that interviewee responses may not be comparable. In the present study, these problems were recognised and accounted for by the representative selection of participants across the ACT and NSW sectors of the Archdiocese, taking into account different school types (Primary, Central and Secondary) and roles in the school (principal and teacher).

Another important limitation of the study could involve the perception by participants of an unequal power relationship between the researcher (from the employing authority - the CEO) and interviewee, which may represent a potential to influence the participants' responses during interview. However, in the present study the researcher was well known by participants, having worked in schools and with principals, coordinators and teachers for a number of years. All interviewees spoke frankly and freely, with only limited prompting from questions.

The researcher also has delimited the scope of the research. In using *purposive sampling* techniques (Stake, 2005), schools and participants were chosen not by random sampling but were selected to ensure representativeness across all school types, since the purpose of the study was to use the research data to facilitate school and system planning in the use of literacy and numeracy feedback data.

A further delimitation to the research was that teachers of Year 9 were not included in the research, since 2008 was the first year that testing of literacy and numeracy was applied to this student cohort in the NSSW part of the Archdiocese. With the research, in part, drawing on the experiences and attitudes of teachers in using such testing data, little benefit would have accrued in including these teachers as participants in the research.

3.9 CHAPTER SUMMARY

This chapter detailed the methodology used for the research, situating the study within an appropriate theoretical framework that formed the basis of the research design. The Constructivist epistemology was employed to illuminate the assumptions about the nature of knowledge and the manner in which one can best understand the interactions of individuals and groups. The philosophical orientation of the research was geared towards an understanding that subjective interpretations of 'reality' are based upon experiences that provide multiple meanings as the bases for action. This stance was used in the research context which studied how individual perceptions of the usefulness of external testing data formed the basis for teacher classroom practices and for the leadership of the school.

However, the research methodology went beyond an understanding of people's experiences in leading and using external testing feedback data to a more practical consideration of real-world issues that are based on consequences. A Pragmatist

perspective, linked with Symbolic Interactionism, was selected to not only understand the issues around external testing of literacy and numeracy, but to situate the study in real-world practice. Here, the emphasis was on providing insights into ‘solving’ the research problem rather than merely ‘understanding’ the situation and building on people’s experiences. The research considered how teachers’ and principals’ views about the testing and the value of the data informed teaching practices and leadership in its use within the school. To achieve this, the research design employed the case study methodology and an inductive approach that sees the range of similar and contrasting sites contributing to a picture of how external testing data are viewed and used in schools across the Archdiocese. The research design also utilised a sequential-recursive approach to collect, organise, analyse and interpret the data collected during the four phases of the study. This iterative process informed reflective thinking and the (re)interpretation of information through successive research phases centred on the research questions.

Issues such as legitimisation of the research process, a consideration of the ethical issues involved, and the main limitations and delimitations of the research, were examined. These involved specific provision for inferential trustworthiness, instrument validity and reliability, as well as the treatment of participants as research subjects. Data were collected in all four phases of the research, utilising a mixed-methods approach that reinforced the Constructivist worldview and Pragmatist orientation of the study. By employing an appropriate mix of qualitative and quantitative data collection instruments, a large number of participants contributed to the research. Methods such as focus group data collection techniques and the development, trialling and administration of a pilot survey and ETP instrument were used to identify the main issues surrounding the use of feedback data from literacy and numeracy testing. These were followed by semi-structured interviews with participants from primary, central and secondary schools to explore, in some depth, the main themes identified from the previous phases. Finally, the initial focus group was reconvened to discuss the research learnings and to consider the implications of these for the leadership and use of testing data throughout the Archdiocese.

The presentation of results and subsequent analysis of data collected from all four research phases is contained in Chapters 4, 5 and 6.

CHAPTER 4: PRESENTATION OF RESULTS: Identification of Themes (Research Phases 1 & 2)

4.1 INTRODUCTION

In the previous chapter the research methodology was explained, showing the particular similarity with and relationship between the methodological approach taken for the study, the theoretical perspective adopted, and the explicit instruments used for the design and conduct of data collection. This chapter reports on the findings from the identification of issues phases of the research (Phases 1 & 2) as a necessary precursor to further exploration in Phase 3 and research learnings in Phase 4. The activities undertaken included pre-research meetings with principals (Phase 1), the formation of a focus group (Phase 2a), followed by the construction and administration of the pilot survey (Phase 2b) and External Testing Profile (ETP) instrument (Phase 2c). The types of analyses undertaken in Phase 2 were congruent with the mixed-methods approach in collecting both quantitative and qualitative data relevant to the data collection strategy used in each sub-phase.

The identification of issues for research adopted an intuitive-rational approach for the development, pilot testing and administration of the ETP instrument. A sequential approach to data collection and analysis followed the three sub-phases, culminating in the administration of a survey instrument administered to all 55 schools of the Archdiocese. The mixed-methods approach to the research supported the interpretivist paradigm (Chase, 2005) and used a multi-site case study of schools within the Archdiocese of Canberra and Goulburn. Consequently, the selection of both qualitative and quantitative data collection instruments provided a rich source of information that was contextual and situated within the Archdiocese. The development of the specific research phases reinforced the sequential nature of the study. Data from Phases 1 and 2 were analysed and provided essential inputs for the subsequent data collection instruments. The following sections report on the data collected in each Phases 1 and 2 of the study, the analyses that were undertaken and the results that emerged from the research.

4.2 RESEARCH PHASE 1: PRE-RESEARCH MEETINGS

Phase 1 of the research involved the researcher's attendance at regional meetings with groups of principals from across the Archdiocese during March and April,

2008. The purpose of this phase was to explain the purpose of the study, to elicit the principals' support, and to inform them of the subsequent phases and approximate research timeline. At each meeting there was overwhelming support shown by principals for the research and the benefits this would have for their own schools and the whole Archdiocese. The researcher invited comments from principals. Typical comments indicated "the need for all schools to better use data from testing in school planning" (*NSW Central School principal*), "we all should do more to use the testing results and link these with our school-based assessment" (*ACT Primary School principal*), and "even though we shouldn't let the 'testing agenda' overtake us, we are at a stage now, with NAPLAN upon us, where we can't ignore using the testing results any more" (*NSW Secondary School principal*).

Principals indicated that they would cooperate with the research by distributing the External Testing Profile (ETP) instrument to teachers of Years 3, 5 and 7 (as applicable) and completing the forms themselves. As a result of this phase, Phase 2 of the research could then proceed with the identification of themes for the research.

4.3 RESEARCH PHASE 2a: FOCUS GROUP MEETING

4.3.1 Introduction

A focus group was established as the first step in the construction of the pilot survey and ETP instrument. A meeting was held at the Catholic Education Office where qualitative data were collected from six participants (three CEO curriculum officers, two primary school principals and one secondary school assistant principal who also taught Year 7). The duration of the meeting was one hour.

An analysis of the transcription notes was undertaken from which eight themes and issues emerged. A general question was asked at the beginning of the focus group session about the participants' experiences with external testing. The researcher asked the question: "*What have been your experiences of how the results from literacy/numeracy testing are being analysed and used in schools?*". Its purpose was to stimulate discussion and to allow participants to speak from their own contexts. Following this, the researcher used minimal prompts for further discussion and sharing of information.

4.3.2 Development of Themes

Each participant responded in turn to the initial question, discussing the issues from their own perspective, context and experiences. This question was followed by several supplementary questions designed to stimulate discussion and to elicit information on the attitudes of teachers and principals to external testing of literacy and numeracy, the use of such feedback in programming and teaching practices, and the role of leadership in the analysis and use of testing feedback.

The following eight themes emerged from this discussion and are explained below: attitudes of principals and teachers towards external testing, differences between ‘analysis’ and ‘use’ of data, diagnosis of student achievement, differential targeting of students, leadership, involvement of staff, school planning, and accountability.

4.3.2.1 *Attitudes towards external testing*

The first theme to emerge from the discussion reflected general agreement by members of the group on the value of external testing of literacy and numeracy. From an initial resistance to the concept of external testing and then concerns about the quality of the tests themselves in the first few years, there has been a noticeable shift in attitudes in favour of external testing. The focus group participants observed that, while some teachers were still sceptical of the tests, in general there has been a greater acceptance of the value of the tests over time, primarily due to improved test quality and better test design, better quality of results analysis (especially in NSW) and greater staff involvement in some schools.

Nonetheless, it was observed that there is still a significant way to go for schools themselves and the system as a whole in accepting external testing. Some key issues from the data are explained below. Firstly, the comment was made that not all teachers and principals value the tests themselves and the feedback data: “There has been a shift, but there is a significant way to go in terms of teachers being able to really value the data and then see how it is going to inform their teaching practices, and then to put into place other measures that are going to monitor to see how successful these strategies are” (*ACT Primary School principal*).

The second observation was that some teachers think the external tests are “isolated from, and unrelated to, the curriculum in the classroom” (*ACT Secondary School assistant principal*). This indicates that the testing feedback was still regarded by some teachers as an external and limited measure of student achievement and is seen as only a ‘snapshot’ of a student’s performance. The third issue indicated that there are some pockets of teacher resistance to the tests, who “find this sort of testing problematic and at odds with the Catholic philosophy of educating the whole child” (*NSW Primary School principal*). Finally, in association with the current requirements for reporting of student achievement from the Schools Assistance Act (2004, 2008), gathering data is “relatively new to teachers” (*ACT Primary School principal*). This process impacts on the teacher’s understanding of the value of data as evidence of student achievement and its relationship with the classroom pedagogy. That is, data was seen to be important as a diagnostic tool, not just a summative result of achievement.

These issues surrounding attitudes towards external testing were regarded as significant by the participants and represented a key element of the research in subsequent phases. The value placed on the tests themselves by principals and teachers, as well as the student results, were regarded as important determinants in whether the feedback data would be utilised in the school.

4.3.2.2 Differences between ‘analysis’ and ‘use’ of data

The second theme from the focus group discussion related to the analysis and use of testing data in the school. There was general agreement among the participants that many schools are quite skilled in analysing the external testing data they receive. However, there is a wide variation in the *use* of that data to effect changes in teaching/learning and assessment practices. External testing feedback data for analysis has been available to schools for several years and many system-level professional learning courses and school-level inservice programs in equipping teachers to adequately analyse the testing data have been provided by the CEO. However, the focus group participants observed that this does not seem to have been translated into changes in pedagogy or classroom teaching practices. The use of external testing feedback for teaching and learning has been inconsistent: “There is an underlying assumption that teachers are going to understand the results and then translate that into teaching and learning. This is an enormous bridge or gap that is not being filled” (*CEO Secondary curriculum officer*).

Even though there are links to some schools' literacy and numeracy plans and strategic and management plans, there are poor or non-existent links to classroom teaching and learning. This is reflected in the following comment, with agreement from all focus group participants:

“At a System level, the results are analysed fairly significantly and are often reflected in literacy and numeracy plans. The next step is where we need to provide the focus. Analysis is done carefully and is understood ... but linking to teaching and learning is where our focus needs to go.”

(CEO Student Achievement coordinator)

Related to this issue is the observed non-inclusion of external testing feedback in the formulation of the school's Strategic and Management Plans. Schools are required by the CEO to construct a Strategic Plan every three years and Management Plan annually. However, in many instances, the inclusion of plans to improve literacy and numeracy are seen as token statements and are not pursued to any significant degree. This is reflected in the following comment:

“Literacy and numeracy plans are linked to what the school has planned, however, this is not significant. We need to have some scaffold or step from System level to see the links and align literacy and numeracy plans to what actually happens in the school.”

(CEO Primary curriculum officer)

These comments indicate a potential discrepancy between the degree of school-level analysis and the ability of the individual teacher to analyse and use the results in the classroom. The responses also suggest there is an underlying assumption that teachers can value and understand the results, and can then translate them into teaching and learning strategies. Thus, the data emerging from the discussion indicate that there is little connection between the results themselves, how teachers perceive the data and in what ways they can use the results in the classroom. This was seen to have implications for both the analysis and use of external testing feedback data and the links with schools' strategic and management plans, and was viewed by the group as an area worthy of further exploration in subsequent phases of the research.

4.3.2.3 *Diagnosis of student achievement*

The third theme emanating from the focus group discussion concerned the quality of feedback from external testing and its usefulness for teachers. The issue that emerged from this discussion centred on the quality of feedback information provided to schools and the access to test items and stimulus materials, particularly in the ACT.

Regarding the quality of feedback, information provided to ACT schools from external testing of literacy and numeracy from the ACT Assessment Program (ACTAP) prior to 2008 was seen as actually hindering the school's ability to analyse the data: "Hopefully, with NAPLAN, the stimulus material will be available on-line and we will be able to get better quality information from the downloadable application" (*ACT Primary School principal*). This comment indicated dissatisfaction with the ACT Assessment Program where schools received feedback in the form of .pdf files and paper copies, thus restricting their ability to interrogate the data to obtain additional information.

This view contrasted with the NSW situation where feedback from the Basic Skills Test (BST) for Years 3 and 5, the Secondary Numeracy Assessment Program (SNAP) and English Language and Literacy Assessment (ELLA) tests for Year 7 had been provided to each school in a web-based downloadable application that was highly flexible, interactive and could produce school-determined reports to suit individual contexts. Moreover, access to relevant test items and stimulus materials had not been a feature of the ACT testing program, in contrast to the BST, SNAP and ELLA tests in NSW. Here, test item analysis and relevant curriculum links were a feature of the downloadable application. Comments such as "Up until now, we have not been able to see actual items from the test [ACTAP] – the stimulus material is not available and it is hard to get resources" (*ACT Secondary School assistant principal*) reinforced the lack of availability to the actual test items and stimulus material (prior to NAPLAN testing) to aid in the diagnosis of student achievement.

4.3.2.4 *Differential targeting of students*

Much focus group discussion centred on the targeting of assistance to students as a result of feedback from the external tests of literacy and numeracy. Several participants commented that schools target the ‘weaker’ students who perform poorly in the tests. In many cases this was seen to be at the expense of others who may need assistance or extension:

“We target areas of weakness well, but there is an area of concern. We are not extending children in Band 5 or 6 [the top two profile levels of the Basic Skills Test for NSW students in Years 3 and 5]. We are good at bringing the lower ones up, especially in Year 3 ... but we are not trying to extend students in Band 5 or Band 6”.

(NSW Primary School principal)

Another comment reinforced this point: “Moving the middle group into the higher Bands is difficult. We have all focused on the lower end and have made the assumption that others will automatically move up. This hasn’t been the case.” (*ACT Primary principal*). The CEO Primary curriculum officer agreed with this view by suggesting that schools think “ ‘we’re doing OK’, but they only pay attention to students on the bottom levels”.

Analysis of these responses, and similar linked discussion, points to an assumption that the best performing students may not need help, thus producing little emphasis on extending their achievement. Moreover, connected with this is the possibility that there is a large ‘middle’ group of students who are largely forgotten in the subsequent analysis and use of the external testing results.

Thus, anecdotal information from the focus group suggested that schools use the results of external testing to concentrate on developing the poorly-performing students, and that there is an assumption other students either do not need help (the best performing students) or are not included in the subsequent diagnostic analysis of results. This perception was considered important for the following phases of the research.

4.3.2.5 *Leadership in Data Utilisation*

The fifth issue emerging from the focus group discussion centred on leadership in using data from external testing. Participants indicated that, generally, the person responsible is a member of the school Executive or Leadership Team, usually the Assistant Principal or a team of teachers in primary schools. Here, the results are analysed by “curriculum teams consisting of Stage teachers, but is led by the Assistant Principal” (*NSW Primary School principal*). In secondary schools, the data analysis is seen to be led by either the Assistant Principal, mathematics coordinator or Learning Support teacher/s who “then distribute it to staff” (*ACT Secondary School assistant principal*). The point was made, and readily agreed by all participants, that “if the principal does not value the data and does not drive what happens in the school in the analysis of data, then there is a big gap. The principal needs to drive the process (if not actually lead it), then develop plans to follow through” (*CEO Primary curriculum officer*).

Further, it was seen that the school leadership can have an impact on, and can be affected by, the structures operating within the school. These can either promote or impede the effective analysis and use of testing feedback data for teaching and learning. Issues of *communication* and *time* were seen to be key determinants in providing access to the data itself and in using the results to help inform the classroom teacher’s pedagogy: “There is often a communication deficit where the information does not get back to the classroom teacher” (*CEO Primary curriculum officer*). Moreover, “It is important to give teachers time, have proformas and the structure to analyse the data” (*ACT Primary School principal*).

These issues involving the leadership in data utilisation within the school were seen to be key elements in the effective analysis and use of external testing data within the school and were ones that relate to research questions three to six.

4.3.2.6 *Involvement of staff*

Ownership of the data was viewed by the focus group participants as the key issue in determining how the testing results are analysed and used. There was agreement that the analysis of the data should be undertaken by more personnel than the school Executive and that “ownership of the process by a broad base within the school is important” (*NSW Primary School principal*). This was supported by the CEO Primary

curriculum officer who also doubted “if teachers actually get the results and begin to analyse them, especially in preparation for Years 4 and 6”. Another factor related to a lack of teacher involvement from the discussion centred on the perception that “there are many who still feel that it is an isolated test not in context, even though the testing itself has improved” (*NSW Primary School principal*).

These comments suggest that a whole-school approach to the involvement of staff in the analysis of external testing data was seen as crucial if any meaningful use of the data is to be made.

4.3.2.7 *School planning*

The seventh issue from the discussion involved the use of testing data for school planning. The integration of external testing feedback data into school plans was regarded as essential. However, there was agreement among group members that this has not been achieved in any meaningful way across the Archdiocese. Statements such as “Schools don’t see literacy/numeracy plans linked to strategic and management plans of the school” (*CEO Primary curriculum officer*) indicate that, even if the data analysis is performed well, in many cases there may not be explicit strategies to integrate these into the school plans, even though these are required to be submitted to the CEO.

Related to this, a further point was made that perhaps the many requirements placed on schools by the CEO may, in fact, exacerbate the problem. The point was made that: “We need to look at strategic planning from a system perspective (*ACT Primary School principal*) and “Schools are asked to do many plans, but we need to review what [the system] is asking schools to put in their management plans” (*NSW Primary School principal*). The issue of the CEO’s planning requirements of schools was seen as worthy of further exploration in the research.

4.3.2.8 *Accountability*

The theme producing the most diverse views pertained to the impact and role of accountability on schools in the analysis and use of external testing data. While most participants regarded the testing in a positive light, in that “We have to use the data; it develops rigour in our teaching and learning” and “accountability helps to focus more clearly on the quality of teaching and learning” (*CEO Primary curriculum officer*), another

group member saw such requirements in the light of negative expectations and experiences by teachers: “There is still some resistance; teachers who would feel very uncomfortable going anywhere near that sort of analysis to plan teaching and learning” (*CEO Secondary curriculum officer*). The ACT Secondary assistant principal supported this view by questioning the value of the Year 9 numeracy test: “Is it supposed to be testing at Year 9 level what students should have done in Year 8?”.

The NSW Primary principal also raised the issue of community expectations on teachers of students in the testing years. With some teachers “teaching solely to the test, this puts pressure on other Year 5 teachers to keep up” and

“there is also pressure from outside sources, such as parents and areas of the community when they say ‘this particular school has done really well’. Even though the results are not published in the newspapers, they know around the community”.

(NSW Primary School principal)

This subtle judgement of a school’s effectiveness as measured by external tests of literacy and numeracy from within the school itself and in the community, together with other issues of accountability for results, was seen by the group as emerging issues worthy of further exploration in subsequent phases of the research.

4.3.3 Linking Focus Group Themes to the Research Questions

The eight themes of attitudes towards external testing, differences between ‘analysis’ and ‘use’ of data, diagnosis of student achievement, differential targeting of students, leadership, involvement of staff, school planning, and accountability that emerged from the focus group discussion showed congruence with the research questions. Table 4.1 shows these themes, the main issues from each, and the links to the research questions of this study.

TABLE 4.1
RELATIONSHIP BETWEEN RESEARCH QUESTIONS AND
FOCUS GROUP THEMES AND ISSUES

Research Question	Focus Group Themes and Issues
1. What attitudes do teachers and principals hold about external literacy and numeracy testing?	<i>Attitudes towards External Testing</i> Not all teachers value the external tests or the potential of feedback from external testing There is a perception that the tests are isolated from, and are unrelated to, the classroom curriculum The nature of feedback quality affects teacher attitudes towards the test
2. What factors influence these attitudes?	<i>Accountability</i> Accountability is seen as a motivator to achieve or a negative compliance instrument School 'effectiveness' is often judged on testing results <i>Differential Targeting of Students</i> Schools target the 'weaker' performing students but do not extend the 'best' performing students on the tests The 'middle' group of students is largely forgotten
3. How is external testing data analysed and feedback given in the school?	<i>Leadership in Data Utilisation</i> The principal must value the data and be the main driver of its use The actual analysis and use of the data can be done by another person in the school, but this needs the authority and backing of the principal School structures can enhance or inhibit the process of analysis and use of testing data
4. Who is leading the process of analysis and feedback?	There needs to be a strategic approach to the analysis and use of testing feedback data
5. How effective is leadership in data analysis?	<i>Involvement of Staff, School Planning</i> All staff should have access to, and be involved in, the analysis of testing data Ownership of the process by a broad base within the school is important
6. What factors influence leadership in data analysis?	School strategic planning for the analysis and use of testing data generally is not well done The CEO could review what it is asking the schools to do
7. In what ways, and to what extent, are teaching practices shaped by testing data?	<i>Differences between 'analysis' and 'use' of testing data feedback, Diagnosis of Student Achievement</i> 'Analysis' of testing data is widespread, effective 'use' of the results is inconsistent There is a difference between school-level and individual teacher analysis of data
8. What factors influence the shaping of teaching practices by testing data?	An assumption that teachers understand the data and can translate results into teaching/learning strategies It is important to use feedback data for effective diagnosis External testing results should be aligned with other evidence of student achievement There have been no real or evidence-based changes to teaching practices as a result of the external tests Effective use of testing data is often hindered by poor quality feedback

As shown in Table 4.1, the first three themes emerging from the focus group discussion involved the attitudes of teachers and principals to external testing, the role of school and system accountability for the results, and the ability of schools to differentially target groups of students in diagnostic feedback from the tests. These issues centred on the value placed on the external tests to provide quality feedback to teachers and students as well as the potential uses to which the data could be put. These themes were congruent with research questions 1 and 2.

Research questions 3 to 6 were concerned with how the analysis and use of external testing is being led in the school, who is leading the process, and the effectiveness of such leadership. The three themes developed from the discussion included the nature and role of leadership in data utilisation, the involvement of staff in the process, and the importance of school planning. The main issues involved the identification of person/s who actually lead the process and how this is affected by school structures, the involvement of a broad base of personnel who actively engage with the data, and the role of strategic planning at the school level to use the feedback data. Here, the emphasis was placed on the importance of effective leadership and appropriate school structures to promote a strategic approach to data access and use by principals and teachers.

Research questions 7 and 8 centred on the impact of the external testing feedback on classroom teaching practices and the role that external test results play to shape these. These questions refer to the differences between ‘analysis’ and ‘use’ of the testing data and how such feedback can be used to diagnose student achievement. The main issues from the discussion involved the observed differences between ‘analysis’ and ‘use’ of data, differences in teachers’ understanding of how to use the feedback, and the perceived marginal impact that testing has on teaching practices in the classroom. The promotion of evidence-based decisions for the analysis and use of testing results for subsequent diagnosis of student achievement was seen as a real issue in how schools view the value of external tests.

Following the analysis of the focus group discussion (Phase 2a), the themes then informed the development and construction of the pilot survey (Phase 2b) and ETP instrument (Phase 2c). The next section details this process.

4.4 RESEARCH PHASE 2b: CONSTRUCTION AND REVIEW OF THE PILOT SURVEY

4.4.1 Developing Items from the Focus Group Themes

Data from the focus group discussion (Phase 2a) and subsequent analysis and development of themes for further research informed the construction of the pilot survey. At this stage of the study, it was considered important to link the eight focus group themes with the research questions to strengthen the face validity of the survey instrument and to ensure the statements themselves in the pilot study were clear, comprehensive and relevant. The researcher constructed the pilot survey in three parts: Part A contained demographic information on the participants; Part B consisted of 40 statements based on the themes and main issues from an analysis of the focus group discussion; Part C was designed for written short responses designed to elicit further qualitative data on the respondents' views and attitudes to external testing, particularly in the context of their particular school (see Appendix C).

In Part B, the 40 statements were constructed by the researcher for inclusion in the pilot survey. Questions were grouped according to a focus group theme and linked with the research questions. A representative sample of the items is shown in Table 4.2. Items relating to the themes of attitudes to testing, accountability and the targeting of students using testing feedback were associated with research questions 1 and 2. These were designed to elicit from respondents their views on the value of external testing in the school setting as well as their understanding of the motives for such testing. The themes of leadership, involvement of school staff and school planning were the main areas associated with research questions 3 to 6. Here, the items involved leadership in the analysis and use of testing feedback data and the effectiveness of such leadership in the overall coordination, planning and involvement of staff in making effective use of the feedback from the external testing programs. Research questions 7 and 8 were linked with two themes from the focus group: differences between 'analysis' and 'use' of testing data and the diagnosis of student achievement. Here, the items were related to the impact that testing feedback has on teaching practices within the school and the application of the data to diagnosing student achievement on the tests.

TABLE 4.2
SAMPLE OF PILOT SURVEY STATEMENTS FOR PART B

Focus Group Theme	Sample Items for Part B
Attitudes towards external testing Accountability	The external tests of literacy and numeracy contain useful information for teachers' classroom pedagogy Feedback from external testing has limited potential to improve student achievement Accountability to government is the main driver of the external literacy/numeracy testing agenda
Differential targeting of students	Feedback from external testing is an essential tool to aid student learning
Leadership in Data Utilisation	There is no obvious coordinated plan at my school for using feedback from external testing The use of external testing feedback at my school is driven by strong leadership
Involvement of staff	There is a whole-school focus on using feedback from external testing The use of feedback from external testing is left to teachers in the Faculty/Stage or Year level
School planning	There is a whole-school plan for the use of external testing data Adequate support for using external testing results has been provided at my school
Differences between 'analysis' and 'use' of testing data feedback	Teachers are expected to show evidence of the use of external testing data in my teaching programs The quality of the feedback from external testing is poor
Diagnosis of student achievement	I can see a clear link between student results from external testing and the curriculum I teach in the classroom The analysis of results from external literacy/numeracy tests has little impact on classroom teaching Teachers have changed their teaching practices as a result of using the results from external testing of literacy/numeracy

The final selection of 40 items for Part B of the pilot survey is shown in Appendix C. These items were designed to obtain information from respondents on each research question.

4.4.2 Feedback from the Pilot Survey

The pilot survey was reviewed by six participants from four schools: ACT Primary School (principal and Year 3 teacher); NSW Central School (principal, who also taught Year 7 and teacher of Year 5); NSW Primary School (teacher of Year 3); and NSW Secondary School (teacher of Year 7). The selection of participants ensured a cross-section of respondents across the ACT and NSW, as well as principals and teachers of

Years 3, 5 and 7. Participants indicated their willingness to be involved in this component of the study.

Qualitative feedback on the pilot survey was organised into two groups: general and specific. The *general feedback* from participants showed that all respondents were satisfied with the three-part structure of the survey. Both the time taken to complete the survey and the number of fixed response questions were regarded as appropriate. The presentation of the survey instrument also received favourable comments: “Having the survey in an A3 folded format looks good” (*ACT Primary School Year 3 teacher*), and “The booklet style is much better than four stapled sheets” (*ACT Primary School principal*). The colour of the paper also rated mention: “I like the buff-colour; people are less likely to lose it” (*NSW Secondary School Year 7 teacher*).

Other general feedback commented favourably on the front page, particularly: “It is important to show the purpose of the survey and how it links in with the whole research project” (*NSW Central School principal*). The instructions for each Part were regarded as “clear and concise” (*NSW Central School Year 5 teacher*), as was the “amount of writing space for each question in Part C” (*NSW Primary School principal*).

Specific comments related to each of the three parts of the pilot survey. For the demographic information (Part A), two participants commented on the need to indicate if the respondent is a member of the school’s Executive/Leadership Team. This was seen as having consequences for a respondent’s potential involvement in whole-school planning. The Year 7 teacher commented on the need for a question to allow Year 7 teachers to indicate their subject area. This could have implications for a teacher’s use of the testing data in their Learning Area and could assist in further disaggregation of the data obtained. These comments were acknowledged and changes were made for the External Testing Profile (ETP) instrument (Phase 2c).

For the fixed-response statements in Part B, the NSW Central School principal stressed the need for a “balance of positive and negative questions – good to stop answers being predominantly on the ‘agree’ side or ‘disagree’ side in people’s responses”. Further, the Year 3 teacher (ACT Primary School) thought “it would be a good idea if some questions related to the respondent personally, not just in general”.

From these responses, statements in Part B of the pilot survey were altered to contain a mix of both positive and negative statements requiring the respondents to think about their answers. Further, statements about whole-school matters and areas relating to personal experiences within the school and/or classroom were also included. Their purpose was to allow the survey to be situated and contextualised whilst allowing participants to make informed responses. The final set of items forming Part B of the ETP instrument is contained in Appendix E. These items contained 24 positive and 16 negative statements designed to obtain information from respondents on each research question. The items in Part B of the pilot survey (Phase 2b) were reviewed to form Part B of the ETP instrument (Phase 2c). They were related to the particular themes identified in the focus group (Phase 2a). With the ETP instrument using a 4-point Likert scale for responses, the fifth option 'Cannot make a valid judgement' was physically separated from the other four options on the survey form. The intuitive-rational approach adopted for this part of the research informed the grouping of items and the subsequent development of scales based on the research questions for further quantitative analysis. A sample of items for Part B of the ETP instrument is shown in Table 4.3.

TABLE 4.3
SAMPLE ITEMS FOR EACH RESEARCH QUESTION

Research Question	Positive Item	Negative Item
1. What attitudes do teachers and principals hold about external literacy and numeracy testing?	Feedback from external testing is an essential tool to aid student learning	Feedback from external testing has limited potential to improve my classroom pedagogy
2. What factors influence these attitudes?		
3. How is external testing data analysed and feedback given in the school?	In my school there is strong leadership in the use of feedback from external testing	There is no obvious coordinated plan at my school for using feedback from external testing
4. Who is leading the process of analysis and feedback?		
5. How effective is leadership in data analysis?	The use of feedback data from external testing is the result of effective leadership in the school	The analysis and use of external testing data is left to individual teachers or groups of teachers at my school
6. What factors influence leadership in data analysis?		
7. In what ways, and to what extent, are teaching practices shaped by testing data?	I have changed my teaching practices as a result of using the results from external testing of literacy/numeracy	The analysis of results from external literacy/numeracy tests has little impact on my classroom teaching
8. What factors influence the shaping of teaching practices by testing data?		

In Part C of the instrument, the most surprising comment from the pilot survey was also the most obvious! The ACT Primary School principal commented that there was “a need for the survey to ask the question ‘Who actually leads the analysis and use of the testing data in the school’ ”. This was a key question for the research and highlighted a gap in the pilot survey. It related to the ability of the respondent to identify a person in a key role responsible for leading the use of external testing feedback. If this was not possible, it could have implications for the type and quality of leadership within the school in analysing and using external feedback data.

Another issue related to the “importance of respondents being able to discuss *their* situation – more likely to get a personal rather than a general response” (*NSW Primary School principal*). This would promote the collection of more trustworthy data would be obtained if the respondent was answering from their particular role within the school. These comments were seen by the researcher as significant and, consequently, were reflected in changes to Part C for the ETP instrument.

4.5 RESEARCH PHASE 2c: ADMINISTRATION OF THE ETP INSTRUMENT

Using the feedback from the pilot survey (Phase 2b), the ETP instrument was constructed and administered in June, 2008. Surveys were distributed to 251 potential participants (principals and teachers of Years 3, 5 and 7) from all 55 Archdiocesan Primary, Central and Secondary schools across the ACT and NSW. Table 3.3 provides details of the sample for this component of the study.

The analysis of data from the ETP instrument fell into two broad groups: quantitative analysis, involving descriptive statistics and inferential statistics based on data from Parts A and B, and qualitative analysis of the open-ended responses (Part C). Sections 4.5.1 to 4.5.4 contain detailed analyses of the results from the data collected from the ETP instrument.

4.5.1 Part A of Survey: Demographic Data

Data from Part A and Part B of the ETP instrument were coded to facilitate both descriptive and inferential statistical analysis. The instrument is contained in

Appendix E. This section reports the results from Part A which included demographic information from the participants.

4.5.1.1 Response Rate: School Type

During the initial two-week return period, 120 responses were received, representing an overall response rate of 47.8%. Subsequent follow-up improved this to 134 responses (53.4%). This was regarded by the researcher to be a large enough sample to allow for statistical and qualitative analyses to occur, especially since the ETP instrument was but one source of data for the research project.

More importantly, further analysis of the 134 responses showed that each *school type* was represented (Part A, Question 1). The distribution of surveys to each school type reflected the number of schools (and hence principals), teachers and classes affected by external testing (Years 3, 5 and 7). This result is shown in Table 4.4 where the response rates based on school type ranged from 47.6% to 66.7%. This indicated a high level of representation from each school type, and was an important requirement for subsequent data analysis. This meant that data from no one school type dominated the analysis of results and, just as importantly, each school type was represented.

TABLE 4.4
SURVEY QUESTION 1: RESPONSE RATE FOR EACH SCHOOL TYPE

	ACT Primary	NSW Primary	NSW Central	ACT Secondary	NSW Secondary	TOTAL
Surveys Issued	105	64	41	21	20	251
Surveys Returned	50	35	22	14	13	134
Response Rate	47.6%	54.7%	53.7%	66.7%	65.0%	53.4%

4.5.1.2 Response Rate: School Size

Analysis of responses by *school size* (Part A, Question 2) was then undertaken to ascertain the response rate according to the number of students enrolled at each school. The distribution of responses according to student enrolment showed that 92 responses (68.6%) were from schools with enrolments of 301 or more students and, within this band, schools with enrolments greater than 500 students accounted for 31.3% of responses. The

two categories with less than 301 school enrolments were collapsed into one group for subsequent analysis since little meaningful information could be extracted from the lowest category of school enrolment, with only seven responses (5.2% of the total). Further analysis of the demographic data from Part A of the ETP instrument is explained in the following sections.

4.5.1.3 *Response Rate: Teaching Experience*

The distribution of responses by *teaching experience*, as measured by total years of teaching (Part A, Question 3), showed that, overwhelmingly, participants were experienced in the teaching profession, with 107 respondents (79.9%) having teaching experience of six years or more. Further, 77 of these respondents (57.5% of the total) had been very experienced in their profession, teaching for 11 years or more. Again, to facilitate subsequent analysis, the bottom two categories ('1 year' and '2 to 5 years') were collapsed due to low numbers of responses in the most inexperienced category (n=6 or 4.5%) from teachers in their first year of teaching. This combined group accounted for 20.1% of responses.

4.5.1.4 *Response Rate: Year Level Taught*

The distribution of respondents across the relevant *year levels* and those who were non-teaching in 2008 (Part A, Question 4a) revealed a relatively even distribution of responses for respondents teaching Years 3 and 5 (29.0% and 31.3% respectively), and a slightly smaller proportion for Year 7 (20.6%). The 'Non-teaching' category (19.1% of responses) included many principals, especially those in the larger ACT and NSW Primary Schools as well as those in NSW Central schools and the ACT and NSW Secondary schools. This result means that no one group was able to dominate the subsequent data analysis, and, importantly, all categories were included.

4.5.1.5 *Response Rate: Subjects Taught by Year 7 Teachers*

Survey Question 4b was designed to elicit information from *Year 7 teachers* on which subject area they taught in the survey year. To facilitate subsequent data analysis, some categories were collapsed due to the small number of responses. These responses were formed into two broad subject groups -- humanities and mathematics/science.

Of the 29 respondents teaching Year 7 in the survey year, data indicated that 17 of them (58.6%) taught the humanities subjects (Religious Education, English, Human Society & its Environment or Studies of Society and the Environment, Languages other than English, and Integrated Humanities). A further 12 respondents (41.4%) taught Mathematics and Science in Year 7. No respondents taught Physical Education/Health, the Arts/Creative Arts or Technology subjects. As a result, the two main subject groupings – humanities and mathematics/science -- were included in the analysis.

4.5.1.6 *Response Rate: Length of Time Teaching Years 3, 5, 7 over the Last Five Years*

Survey Question 5 was designed to obtain information on how long, over the last five years, respondents taught either Years 3, 5 or 7 – the ‘testing years’. The purpose of this question was to gauge the experience the respondents had with the external testing regimes. A small number (31 respondents or 23.1%) had taught either Years 3, 5 or 7 *only once* over the last five years; however, 34 respondents (25.4%) had taught these year groups four or five times over this period. A small number (n=16 or 11.9% of respondents) had not taught Years 3, 5, 7, or 9 at all over the five year period prior to the survey. In these cases, the respondents were principals (n=14) or assistant principals (n=2). Importantly, this means that, for most respondents, the external testing regimes were familiar and that they had some exposure to, and experience with, analysing and using the results prior to the survey period.

4.5.1.7 *Response Rate: Role in the School*

The distribution of responses according to the *role* of each respondent within the school (Part A, Question 6) is displayed in Table 4.5. After collapsing the Teacher/Librarian and Resource Teacher categories into the Classroom Teacher category, teachers accounted for 48.5% (n=65) of the total responses. Similarly, due to the small number of responses in the Religious Education Coordinator category (n=9), this group was collapsed and combined with the ‘coordinator’ category, with a combined 24.6% of the total responses (n=33). This provided a reasonable proportion of responses representing the middle management of the school. Even though the principal and assistant principal categories remained separate, their combined distribution accounted for 26.9% of total responses (n=36) on Survey Question 6.

By reorganising these seven roles, the remaining categories formed three main groups for subsequent analysis of responses in Part B of the ETP instrument: the school leadership (principals and assistant principals), middle management (coordinators) and classroom teachers. Table 4.5 shows the distribution of responses on the ETP instrument by role in the school. Approximately half (48.5%) of the respondents identified themselves primarily as classroom teachers, with the remainder almost equally divided between those in school leadership positions (principals and assistant principals) at 26.9%, and middle management (coordinators) at 24.6%.

TABLE 4.5
SURVEY QUESTION 6: DISTRIBUTION OF RESPONSES BY ROLE OF
RESPONDENT

	Principal	Assistant Principal	Religious Education Coordinator	Coordinator	Classroom Teacher	Teacher/ Librarian	Resource Teacher
Number of Initial Responses	24	12	9	24	63	1	1
Responses after Collapsing Categories	24	12	33		65		
Proportion of Total Responses	26.9%		24.6%		48.5%		

4.5.1.8 *Response Rate: Membership on School Executive*

The distribution of responses to Part A, Question 7, showing *membership on the school executive*, revealed that 58 respondents (43.3%) were members of the school executive team structure. Throughout the Archdiocese, membership of the school executive varies according to school type, size and location: Primary schools in the ACT and NSW, and Central and Secondary schools in NSW all include the school principal, assistant principal, religious education coordinator and other coordinators on the school executive, depending on the size of the school. Due to the large size of ACT Secondary schools, religious education coordinators and other coordinators are not included on the executive.

Significantly, membership on the school executive implies a degree of involvement in whole-school planning and decision-making which is not available to classroom teachers. This distribution indicates that nearly half of respondents (43.3%)

would have had some input into developing plans and making decisions about the use of external testing data at the time of the ETP instrument. This was regarded as one important area for follow-up in Phase 3 of the research.

4.5.1.9 Response Rate: Employment Type

Finally, responses to Part A, Question 8 indicate the employment status of respondents. Almost all respondents (n=128 or 95.5%) were employed in a full-time capacity. This is not an unexpected result, but was considered important for the subsequent follow-up of feedback data by the school leadership and classroom teachers from the external testing at the school level.

4.5.2 Scale Development and Validation: Internal Consistency Reliability

Before any analysis of the data from the ETP instrument could be undertaken with regard to the first eight research questions, it was important to establish whether the 40 items from Part B actually provided information that could facilitate such analysis. Thus, checks on scale *reliability* had to be employed to give the researcher confidence that the scales used in subsequent analysis were internally consistent; that is, the items belonged in the same groupings as shown in Table 4.6. The Cronbach Coefficient α was used to indicate the degree of internal consistency reliability.

Response data from the ETP instrument were recorded against each item statement in Part B, then coded and analysed using the SPSS application. Each negatively-worded item was 'reversed scored' to ensure the respondent's intent was recorded correctly. The responses 'Strongly Disagree', 'Disagree', 'Agree' and 'Strongly Agree' were assigned codes 1, 2, 3 and 4 respectively. The response 'I cannot make a valid judgement' was assigned code 5. This response was not included in the subsequent statistical analysis since it did not represent the extent to which respondents agreed with the statements.

Each of the first eight research questions was related to groups of statements in Part B of the ETP instrument designed to elicit information from the respondents. Each group formed a *construct* which became the basis for the subsequent development of *scales* for further data analysis. The four constructs, with their descriptions and related survey items for Part B are linked to the research questions as shown in Table 4.6.

TABLE 4.6
SURVEY CONSTRUCTS AND RELATED ITEMS

Research Questions	Construct	Construct Description	Survey Items in Part B	Number of Items per Construct
1. What attitudes do teachers and principals hold about external literacy and numeracy testing?	Worth of External Testing (WET)	The extent to which external testing is valued by teachers and principals	1, 9, 22, 27, 32 6*, 11*, 14*, 19*, 34*	10
2. What factors influence these attitudes?				
3. How is external testing data analysed and feedback given in the school?	Data Leadership (DL)	The extent to which the role of leadership in data analysis and use is perceived	7, 20, 24, 31, 36, 3*, 12*, 13*, 28*	9
4. Who is leading the process of analysis and feedback?				
5. How effective is leadership in data analysis?	Effective Data Analysis (EDA)	The extent to which the analysis and use of testing data is perceived to be effective	8, 15, 17, 18, 30, 39, 40 4*, 25*, 33*, 38*	11
6. What factors influence leadership in data analysis?				
7. In what ways, and to what extent, are teaching practices shaped by testing data?	Impact on Teaching Practices (ITP)	The extent to which teaching practices are changed as a result of external testing	2, 10, 23, 26, 29, 35, 37 5*, 16*, 21*	10
8. What factors influence the shaping of teaching practices by testing data?				

* for negatively worded (reverse scored) items, item statistics were computed after reverse scoring

The first construct, '*Worth of External Testing*' (WET), included survey items designed to provide information on the attitudes of teachers and principals to the external testing of literacy and numeracy, the value of such tests for teaching and learning, their relationship with curriculum and the perceived role of accountability in the reporting of results. The items in this construct were related to research questions 1 and 2.

Construct 2, '*Data Leadership*' (DL), focused on participants' perceptions of who actually leads the process of data analysis and use in the school. This construct was designed to identify the elements of the leadership role in the provision of testing data feedback within the school. The items in this construct were designed to provide information on research questions 3 and 4.

The items in construct 3, '*Effective Data Analysis*' (EDA), were designed to elicit from respondents their perceptions about how effective the testing data analysis was led in the school. The items referred to the degree to which leadership provides for a coordinated, whole-school approach to data analysis and use, and the extent to which there was a shared understanding and involvement throughout the school leadership, middle management and teaching staff. The items in construct 3 were designed to provide information for research questions 5 and 6.

The final construct, '*Impact on Teaching Practices*' (ITP), included survey items concerning the extent to which teaching practices have changed as a result of feedback data provided on external testing. These included such concepts as the individual teacher's confidence in analysing and using the data to effect change in teaching practices, the relationship between external testing and classroom curriculum, as well as the relationship with teacher planning, assessment and pedagogy. These items related to research questions 7 and 8.

To validate the survey instrument and to ensure the items within each construct actually measured what they were designed to measure, it was important to determine measures of convergent validity so that responses in each construct could be placed on a continuous scale for subsequent analysis. As the first step in this process, descriptive statistics, involving mean and standard deviation were calculated for each item in the construct. Responses were included only where there was a full set of data included for the construct. For each individual survey item and for the construct as a whole, the valid range of Means was between 1.00 ('Strongly Disagree') and 4.00 ('Strongly Agree'). The results of this analysis are shown in Tables 4.7, 4.8, 4.9 and 4.10.

TABLE 4.7
CONSTRUCT 'WORTH OF EXTERNAL TESTING' (WET) (n=92)

	Item	Mean	Standard Deviation
Q 1	The external tests of literacy and numeracy contain useful information for teachers' classroom pedagogy	3.09	0.61
Q 9	Feedback from external testing has great potential to affect student achievement	2.82	0.69
Q 22	I have ready access to the results from the external testing	2.68	0.71
Q 27	I consider feedback from external testing important for my teaching	2.74	0.61
Q 32	Feedback from external testing is an essential tool to aid student learning	2.66	0.68
Q 6*	Accountability to government is the main driver of the external literacy/numeracy testing agenda	2.01	0.83
Q 11*	External testing is unrelated to the curriculum taught in the classroom	2.79	0.70
Q 14*	Feedback from external testing has limited potential to improve student achievement in my classes	2.64	0.56
Q 19*	External testing has little to do with improving student achievement	2.57	0.79
Q 34*	Feedback from external testing has limited potential to improve my classroom pedagogy	2.70	0.68

* for this negatively worded (reverse scored) item, item statistics were computed after reverse scoring

TABLE 4.8
CONSTRUCT 'DATA LEADERSHIP' (DL) (n=71)

	Item	Mean	Standard Deviation
Q 7	Explicit programs are in place at my school to make use of external testing feedback	2.41	0.71
Q 20	There is a coordinated approach in the school for the use of external testing feedback data	2.52	0.61
Q 24	I have been shown how to use the results from external testing in my teaching	2.37	0.68
Q 31	The school's annual Management Plan contains explicit strategies for using the results from external testing	2.39	0.67
Q 36	In my school there is strong leadership in the use of feedback from external testing	2.55	0.65
Q 3*	There is little evidence of leadership in the analysis and use of external testing data in the school	2.77	0.64
Q 12*	There is no obvious coordinated plan at my school for using feedback from external testing	2.68	0.73
Q 13*	My school relies on the CEO to lead the analysis of external testing results in the school	2.65	0.64
Q 28*	I am not sure who is leading the analysis and use of external testing at my school	2.83	0.83

* for this negatively worded (reverse scored) item, item statistics were computed after reverse scoring

TABLE 4.9
CONSTRUCT 'EFFECTIVE DATA ANALYSIS' (EDA) (n=76)

	Item	Mean	Standard Deviation
Q 8	Teaching practices have changed at my school as a result of strong leadership in using external testing results	2.33	0.66
Q 15	I am aware of a whole-school plan for the use of external testing data	2.39	0.68
Q 17	I have received adequate support for using external testing results in my teaching	2.41	0.62
Q 18	The use of external testing feedback at my school is driven by strong leadership	2.38	0.63
Q 30	The use of feedback data from external testing is the result of effective leadership in the school	2.64	0.76
Q 39	There is a whole-school focus on using feedback from external testing	2.39	0.75
Q 40	The school's emphasis on using external testing feedback is the result of strong leadership	2.59	0.73
Q 4*	The use of feedback from external testing is left to teachers in the Faculty/Stage or Year level	2.50	0.72
Q 25*	The use of external testing feedback is left up to individual teachers	2.42	0.66
Q 33*	The analysis and use of external testing data is left to individual teachers or groups of teachers at my school	2.45	0.66
Q 38*	There is little or no coordinated priority for using external testing results at my school	2.61	0.68

* for this negatively worded (reverse scored) item, item statistics were computed after reverse scoring

TABLE 4.10
CONSTRUCT 'IMPACT ON TEACHING PRACTICES' (ITP) (n=83)

	Item	Mean	Standard Deviation
Q 2	Teachers at my school are clear about how to use feedback from external testing in their teaching	2.54	0.61
Q 10	Results from the external tests influence the way I plan for and conduct my teaching and assessment programs	2.58	0.67
Q 23	My teaching practices are influenced by external testing results	2.46	0.61
Q 26	I am expected to show evidence of the use of external testing data in my teaching programs	2.04	0.59
Q 29	I am confident in analyzing the results from external testing	2.70	0.62
Q 35	I have changed my teaching practices as a result of using the results from external testing of literacy/numeracy	2.39	0.66
Q 37	I can see a clear link between student results from external testing and the curriculum I teach in the classroom	2.46	0.63
Q 5*	The analysis of results from external literacy/numeracy tests has little impact on my classroom teaching	2.69	0.62
Q 16*	I am not confident is using feedback from external testing for my teaching	2.83	0.54
Q 21*	The quality of the feedback from external testing is poor	2.76	0.64

* for negatively worded (reverse scored) items, item statistics were computed after reverse scoring

The next stage in determining construct validity involved the researcher testing each of the four groups of statements to determine Cronbach's coefficient 'alpha' measure of reliability for the items in each of the four constructs. This statistic is a measure of reliability and is useful in determining a numerical indicator for the degree of correlation among the items *within* the same construct. This is known as '*convergent validity*'. Effectively, the measure determines how well a set of items (or variables) measures a single construct. If the inter-item correlations are high within the same construct, then there is evidence that the items are actually measuring the same underlying construct and would form 'Scales' for further analysis. A high correlation among the items, that is, the closer the coefficient alpha is to 1, indicates strong internal consistency and, consequently, high convergent validity. The results of these analyses of internal consistency reliability are shown in Table 4.11.

Here, the internal consistency reliability for each of the constructs is high to very high, with Cronbach coefficient alpha ranging from $\alpha = 0.77$ for the construct ITP to a high of $\alpha = 0.92$ for construct EDA. Inter-item correlations confirmed that the items in the four constructs had been assigned correctly and that each item made an appreciable contribution to that scale's internal consistency reliability. From this point, the four constructs are referred to as scales: Worth of External Testing (WET), Data Leadership (DL), Effective Data Analysis (EDA) and Impact on Teaching Practices (ITP). Coefficient alpha for each construct was well above the minimum ($\alpha = 0.60$) decided by the researcher to be confident the survey items *within* each construct were reliable enough for subsequent comparisons.

Table 4.11 also shows there was significant skewness on only the Data Leadership scale ($p < 0.05$). On the other hand, there was no statistical significance for kurtosis on any scale. These results indicate the data do not deviate to any great extent from a normal distribution.

TABLE 4.11
SCALE STATISTICS FOR FOUR SCALES

	Cronbach's Coefficient α	Number of Items	Scale Mean	Standard Deviation	Possible Minimum	Possible Maximum	Number of Responses	Skewness Statistic	Kurtosis Statistic
Worth of External Testing (WET)	0.84	10	26.70	4.47	16	38	92	0.00	-0.17
Data Leadership (DL)	0.86	9	25.25	4.27	16	35	71	0.59*	0.01
Effective Data Analysis (EDA)	0.92	11	27.12	5.62	16	42	76	0.44	-0.19
Impact on Teaching Practices (ITP)	0.77	10	25.43	3.53	17	33	83	-0.18	-0.52

* statistically significant result ($p < 0.05$)

4.5.3 Quantitative Analysis: Part B – Fixed Response Items

This section reports the analysis of data from the ETP instrument and involved an examination of each of the groups from the demographic responses (Part A) with respect to the four scales derived from the items in Part B. Participants' responses on scale items were aggregated to form scale scores. Mean scale scores were computed for each group of respondents on each construct.

Differences between the means of groups were analysed using two statistical measures: Analysis of Variance (ANOVA) and Cohen's Effect Size. The purpose of ANOVA was to test for significant differences between group means. It is an *inferential* statistic that compares differences in means between population groups and hypothesises that, given a certain level of confidence, the difference between the groups could not have been caused by chance alone. A 95% confidence interval ($p < 0.05$) was chosen for all tests as the basis for determining significance of mean differences. The analysis of variance is reported as an *F*-ratio comparing the mean squares between the groups with those within the groups. However, a significant *F*-value indicates only that there are statistically significant differences among group means. It is also necessary to establish which pairs of means are significantly different. Consequently, Tukey's Honestly Significantly Different (HSD) *post hoc* tests were conducted on those scales where the group comparisons revealed means that were found to have statistically significant differences.

Cohen's (1988) Effect Size (*d*) was also selected because it places "the emphasis on the most important aspect of an intervention – the size of the effect" (Coe, 2002, p. 1). For this research, the *descriptive* statistic (*d*) was the difference between the mean scale scores of each demographic group divided by their pooled standard deviation. It is an index of the magnitude of difference between demographic groups from Part A of the ETP instrument on each of the four scales (Worth of External Testing, Data Leadership, Effective Data Analysis and Impact on Teaching Practices). Cohen's *d* is helpful in judging the *practical significance* of a research result and, for the current study, provided the researcher with a qualitative indicator of the differences between groups. In social science research, *d* less than 0.2 is 'trivial'; between 0.2 and 0.5 are regarded as having a 'small' effect; those between 0.5 and 0.8 as 'moderate', values of *d* between 0.8 and 1.0 exhibited a 'large' effect size, and those above 1.0 were 'very large'.

4.5.3.1 *Differences between scale scores according to school type*

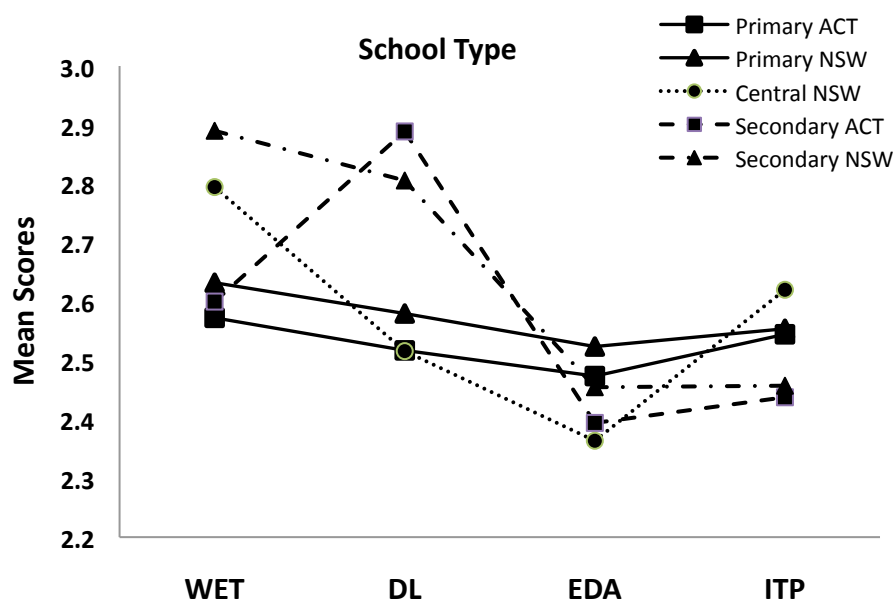
School type was the first demographic area used by the researcher to compare differences in group means against the four scales: Worth of External Testing, Data Leadership, Effective Data Analysis and Impact on Teaching Practices.

Mean scores for ACT and NSW Primary schools were very similar to each other across all four constructs. One-way ANOVA tests showed that there were no significant differences between the five school types on all four scales: Worth of External Testing [$F(4,87) = 1.44$ ($p = 0.23$)], Data Leadership [$F(4,66) = 0.82$ ($p = 0.52$)], Effective Data Analysis [$F(4,71) = 0.28$ ($p = 0.89$)] and Impact on Teaching Practices [$F(4,78) = 0.46$ ($p = 0.77$)]. Effect sizes were trivial, ranging from $d = 0.01$ on Impact on Teaching Practices to $d = 0.09$ on Data Leadership, indicating marginal differences across all four constructs.

A similar pattern was found between ACT and NSW Secondary schools on Data Leadership, Effective Data Analysis and Impact on Teaching Practices, with a small effect size ($d = 0.43$) existing on the Worth of External Testing and trivial effect sizes on the other three scales. Of particular note was the difference between Primary schools and Secondary schools when they were compared on the Data Leadership scale. When these were analysed, Cohen's d between the ACT Primary and ACT Secondary schools was moderate ($d = 0.57$).

Sample scale means for each school type are shown in Figure 4.1 and indicate that, even though there was no statistically significant differences between the groups on each scale, the mean scores for all five school types was the lowest for the scale Effective Data Analysis (particularly for Central schools and Secondary schools). This indicates that respondents viewed the effectiveness of school leadership in the analysis and use of external testing feedback data as the least valuable. Moreover, even though respondents from ACT and NSW Secondary schools could readily *identify* the leadership role within the school (Data Leadership) with mean scores of 2.89 and 2.81 respectively, the *effectiveness* of this leadership for data analysis was not rated as highly.

FIGURE 4.1
MEAN SCORES ACCORDING TO SCHOOL TYPE



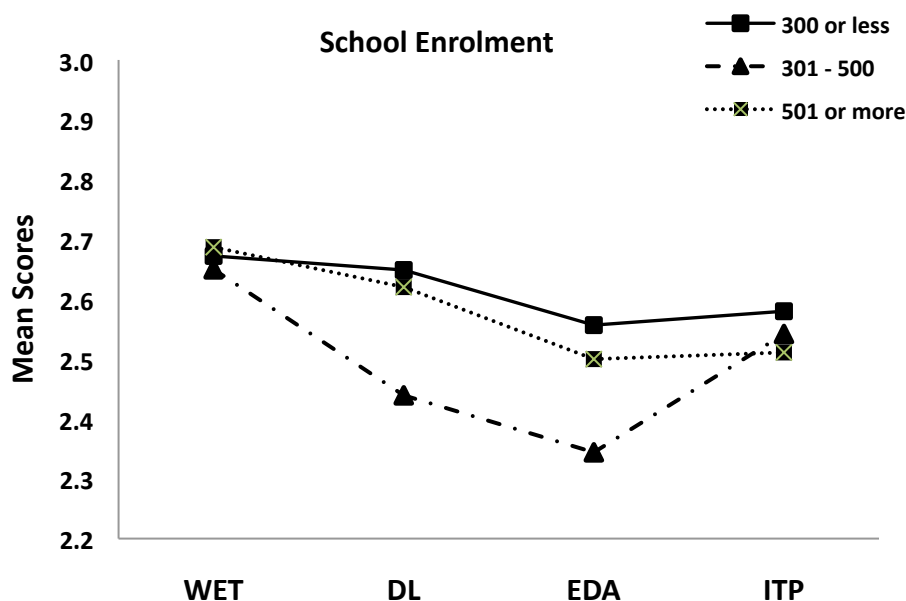
4.5.3.2 Differences between scale scores according to school size

Mean scores were computed for each scale for three categories of school enrolment. For this process, schools with less than 300 students were combined into one group (see Table 4.5).

Again, univariate F tests investigating the effect of school size revealed no statistical significance between the three school size categories on all scales: Worth of External Testing [$F(2,89) = 0.05$ ($p = 0.95$)], Data Leadership [$F(2,68) = 1.32$ ($p = 0.25$)], Effective Data Analysis [$F(2,73) = 1.38$ ($p = 0.26$)] and Impact on Teaching Practices [$F(2,80) = 0.24$ ($p = 0.79$)].

Figure 4.2 shows that the mean scores based on student enrolment were the lowest for Effective Data Analysis for all three groups of schools. However, of more importance is the pattern shown by schools with 301 to 500 students. Here, respondents in this group scored Data Leadership and Effective Data Analysis lowest on the survey items compared with both the larger and smaller schools. Even though the differences between mean scores, as measured by Cohen's effect size, were trivial to small (ranging from $d = 0.01$ to $d = 0.35$) for all group combinations, this pattern was considered by the researcher to be important for further exploration in the qualitative phase of the study.

FIGURE 4.2
MEAN SCORES ACCORDING TO SCHOOL SIZE



4.5.3.3 Differences between scale scores according to teaching experience

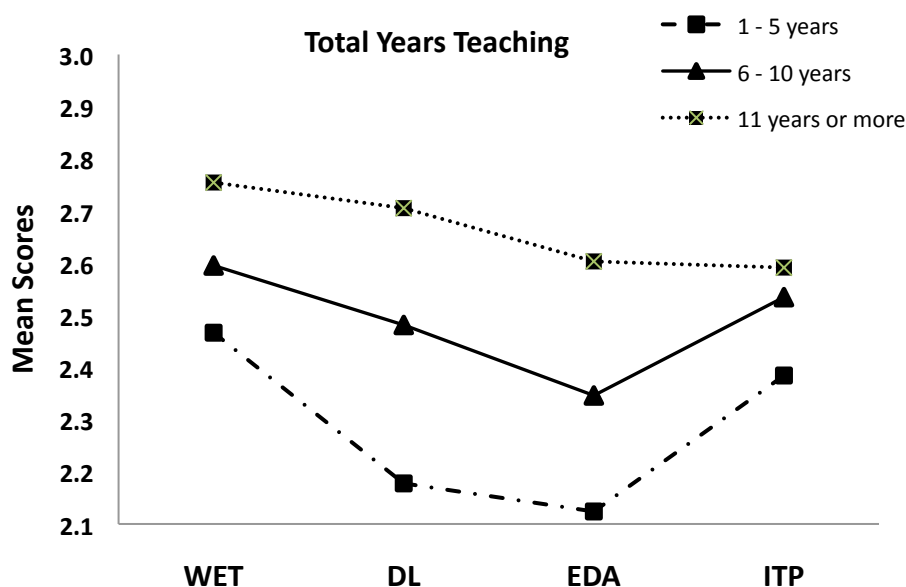
Teachers and principals were assigned to three groups according to the total number of years teaching. Teachers with five years or less experience were collapsed into one group.

The effect of teaching experience revealed significant differences on the scales Data Leadership [$F(2,67) = 6.38$ ($p < 0.05$)] and Effective Data Analysis [$F(2,73) = 4.85$ ($p < 0.05$)]. Tukey's *post-hoc* procedure showed that significant differences occurred between two groups: teachers with 1 to 5 years experience and those with 11 or more years experience for both the Data Leadership and Effective Data Analysis scales, with significantly higher mean scores for the more experienced teachers on each scale.

Results for mean scores on teaching experience are shown in Figure 4.3, with moderate effect sizes $d = 0.76$ (Data Leadership) and $d = 0.70$ (Effective Data Analysis) when comparing beginning teachers with those with the greatest experience. The relatively low mean scores on these two scales for teachers with 1 to 5 years experience (2.18 and 2.12 respectively) also indicate a relatively low perception by beginning teachers of identifiable leadership roles and effective leadership in the analysis and use of external testing within the school.

Further disaggregation of the groups revealed even larger effect size differences between teachers with up to one year teaching experience compared with the most experienced teachers. Here the mean differences between the two groups on Data Leadership and Effective Data Analysis were more pronounced, producing large effect sizes of $d = 1.00$ and $d = 0.86$ respectively. This result based on teaching experience was considered an important area for follow-up in Phase 3 of the research.

FIGURE 4.3
MEAN SCORES ACCORDING TO TEACHING EXPERIENCE



4.5.3.4 Differences between scale scores according to year level taught

When considering the year level (Year 3, 5 or 7) being taught and those respondents in non-teaching positions in the survey year, significant differences ($p < 0.05$) in mean scores were found for all four scales between those respondents who were non-teachers and teachers of Years 3, 5 and 7.

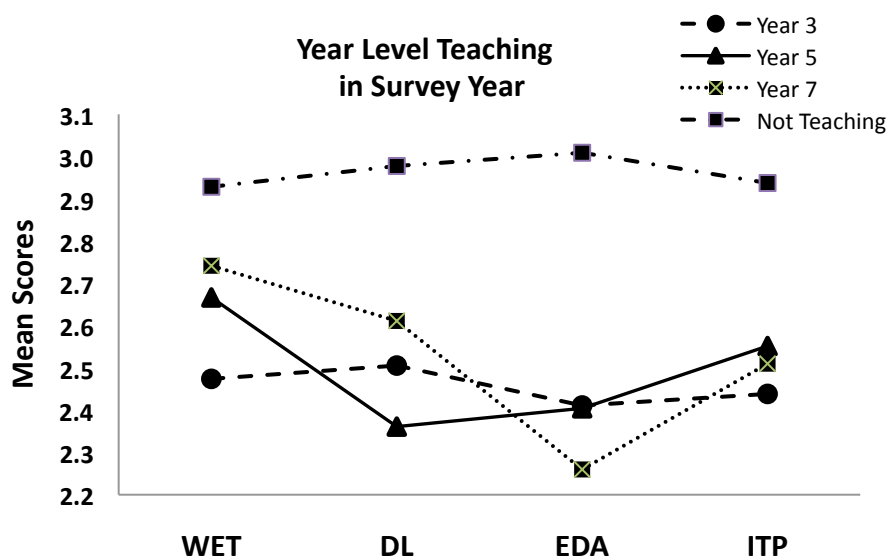
The effect of year level taught revealed statistically significant differences on all four scales: Worth of External Testing [$F(3,85) = 3.51$ ($p < 0.05$)], Data Leadership [$F(3,65) = 5.89$ ($p < 0.05$)], Effective Data Analysis [$F(3,70) = 4.88$ ($p < 0.05$)] and Impact on Teaching Practices [$F(3,77) = 3.99$ ($p < 0.05$)]. Further analysis using Tukey's *post hoc* HSD test revealed that, for all four scales, the differences occurred between non-teachers and, successively, teachers of Year 3 (Worth of External Testing), Years 3 and 5 (Data Leadership), Years 3, 5 and 7 (Effective Data Analysis and Impact on Teaching Practices).

The most pronounced differences were found on the Data Leadership and Effective Data Analysis scales.

Figure 4.4 shows the pattern of mean scores on this measure. Here, the mean scores of all those respondents ($n = 13$) not teaching Years 3, 5 or 7 in the survey year were consistently higher on all four constructs. All members of this group were principals. However, the figure also indicates that the greatest mean score differences (all with large to very large effect sizes) occurred on the Effective Data Analysis scale between those non-teaching respondents and Year 3 teachers ($d = 0.99$), Year 5 teachers ($d = 1.00$) and Year 7 teachers ($d = 1.06$), and on the Data Leadership scale between non-teachers and Year 5 teachers ($d = 0.94$). Moderate effect sizes were also found between non-teaching respondents and teachers of Years 3, 5 and 7 on Impact on Teaching Practices.

These results suggest a mismatch between the perceptions of non-teachers (principals) and classroom teachers regarding the *identification* of staff leading the process (DL scale) and the *effectiveness* of such leadership in analysing and using the feedback from external testing within the school (EDA scale). Moreover, such differences also seemed to exist between teachers and non-teachers (principals) on the impact the tests have on classroom teaching practices, albeit to a lesser degree. This was regarded as an area for considerable exploration during the subsequent semi-structured interview phase of the research.

FIGURE 4.4
MEAN SCORES ACCORDING TO YEAR LEVEL
TEACHING IN THE SURVEY YEAR

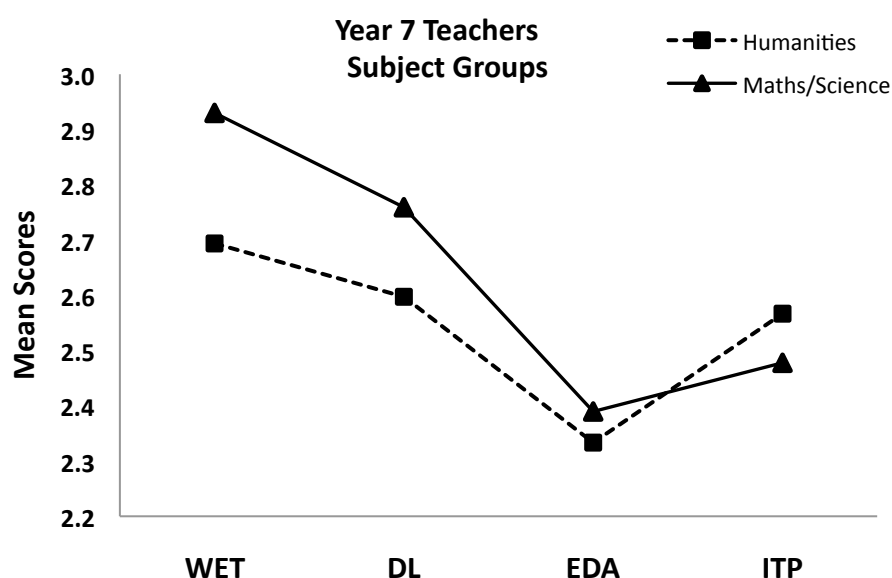


4.5.3.5 Differences between scale scores according to Year 7 subject groups

In Part A of the ETP instrument, teachers of Year 7 were asked to identify their subject area in which they specialised in the survey year. Since the number of responses ($n=27$) was considered too low to conduct any meaningful analysis, the 10 subjects were amalgamated into two broad subject areas – humanities and mathematics/science. Figure 4.5 shows the mean scores of Year 7 teachers from these two groups.

No significant differences were found between the two groups on any scale. An analysis of the differences between these two groups provided little evidence of mean differences on any of the four constructs, with a small effect size occurring on Worth of External Testing ($d = 0.33$) and Data Leadership ($d = 0.26$). Effect sizes for the other two constructs (Effective Data Analysis and Impact on Teaching Practices) were trivial. This result suggests there were no measurable differences between the Year 7 teachers of humanities and mathematics/science on any of the four scales. However, the occurrence of low mean scores on Effective Data Analysis for both subject categories follows the pattern of the other groups.

FIGURE 4.5
MEAN SCORES ACCORDING TO YEAR 7 SUBJECT GROUPS



4.5.3.6 *Differences between scale scores according to frequency of years taught*

Part A, Question 5 of the ETP instrument asked respondents to indicate for how long, over the last five years, they taught either Years 3, 5 or 7 (the ‘testing years’). The purpose of this question was to gauge how familiar the respondents were to the testing regimes and subsequent analysis and use of the feedback data.

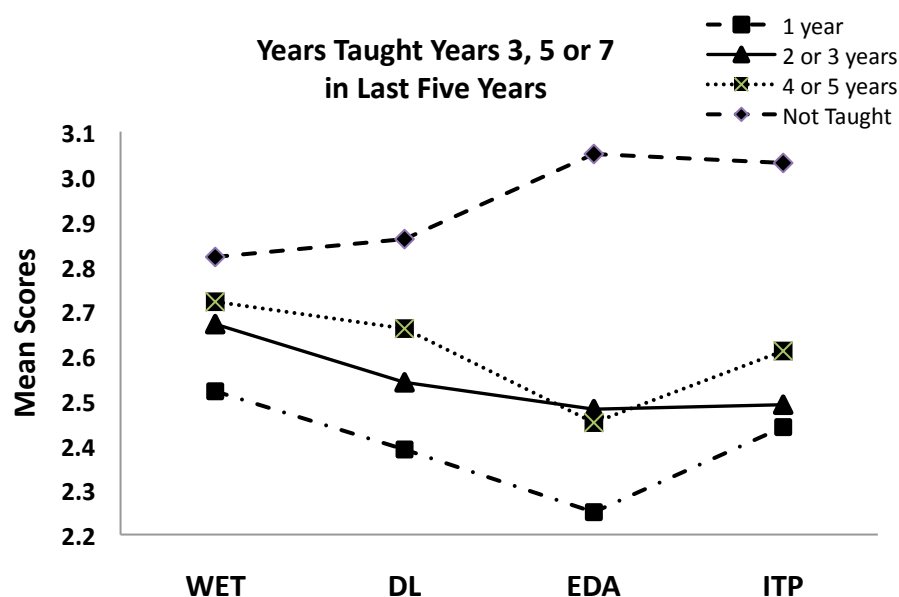
Significant differences were found on the Effective Data Analysis scale [$F(3,72) = 3.25$ ($p < 0.05$)] and Impact on Teaching Practices [$F(3,79) = 3.81$ ($p < 0.05$)]. Further analysis revealed that these differences occurred between non-teachers and those teaching the year groups for one year (Effective Data Analysis), and non-teachers and those teaching the year groups for one year and two to three years on the Impact on Teaching Practices scale.

Figure 4.6 shows the mean scores for each group in the analysis, including those respondents who had not taught those year levels. Those respondents who had not taught in the classroom during the past five years scored Effective Data Analysis and Impact on Teaching Practices comparatively highly (mean scores of 3.05 and 3.03 respectively).

Of greater note are the effect size differences among the groups on these two scales. For the Effective Data Analysis (EDA) scale, the largest effect size differences occurred between those respondents who had not taught the relevant year levels over the past five years and those who had taught them for only one year ($d = 1.54$), 2 or 3 years ($d = 0.91$) and 4 or 5 years ($d = 0.85$) – producing large to very large effect sizes. A similar result occurred for comparisons between the same pairs of groups on the Impact on Teaching Practices scale: $d = 0.97$, $d = 0.84$ (both large effect sizes) and $d = 0.65$ (moderate effect size). It is also interesting to note that, for all four scales, the greatest mean differences occurred between the non-teaching group and those who had taught the relevant year levels for one year only over the past five years.

These results (shown in Figure 4.6) suggest a disparity of understanding or mismatch of expectations about the effective leadership of data analysis and impact on teaching practices between non-teachers (mainly principals and many assistant principals) and classroom teachers. Again, this was worth investigating during the semi-structured interviews (Phase 3).

FIGURE 4.6
MEAN SCORES ACCORDING TO THE FREQUENCY OF TEACHING
YEARS 3, 5 OR 7 IN THE LAST FIVE YEARS



4.5.3.7 Differences between scale scores according to role in the school

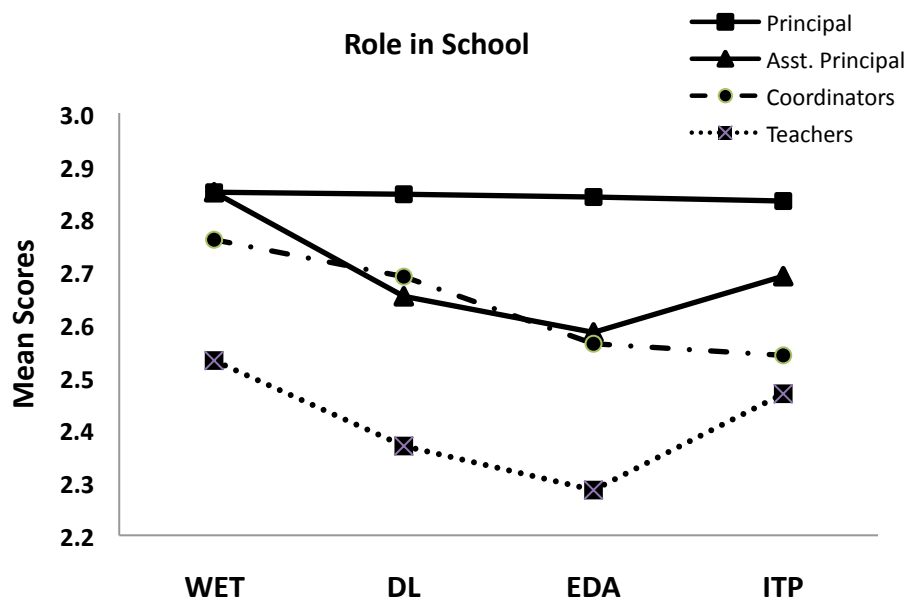
In Part A Question 6 of the ETP instrument, respondents were asked to indicate their main role in the school (principal, assistant principal, coordinator and teacher), taking into account that all coordinators and assistant principals, and many principals, also taught classes.

Significant mean differences ($p < 0.05$) were found on the Data Leadership scale [$F(3,67) = 4.34$] and Effective Data Analysis [$F(3,72) = 3.57$]. Tukey's *post hoc* (HSD) analysis revealed that these differences occurred between principals and teachers on both scales.

An analysis of the responses on school role is displayed in Figure 4.7. As with Figure 4.5 and Figure 4.6, teachers' mean scores on all constructs were the lowest and those for principals the highest. And again, Data Leadership and Effective Data Analysis had the lowest mean scores for teachers (2.37 and 2.29 respectively).

The largest mean differences, and hence largest effect sizes, occurred between principals and classroom teachers on all scales: Worth of External testing: $d = 0.43$, Data Leadership: $d = 0.69$ and Impact on Teaching Practices: $d = 0.55$ (all moderate), with Effective Data Analysis: $d = 0.84$ (large effect size).

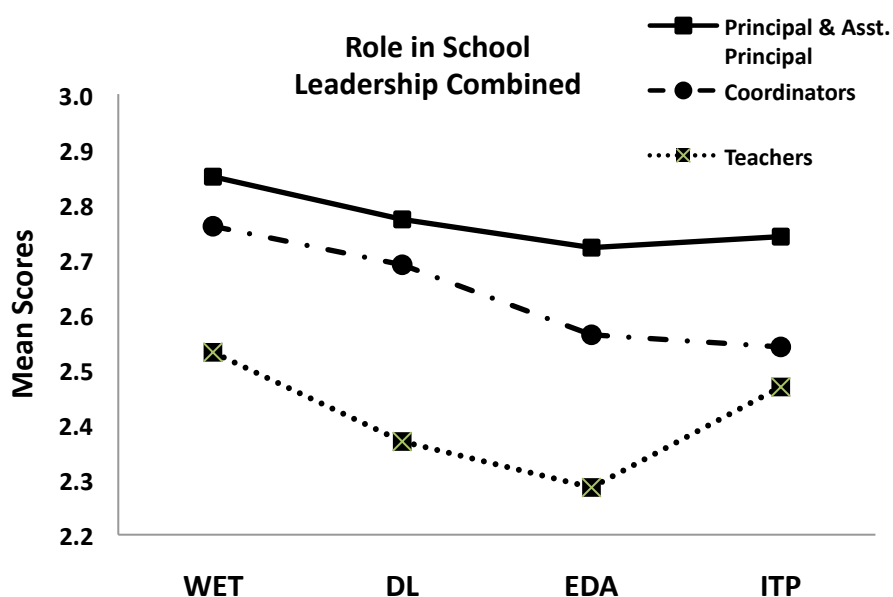
FIGURE 4.7
MEAN SCORES ACCORDING TO ROLE IN THE SCHOOL



When principals and assistant principals were combined into a ‘leadership’ group, further analysis revealed significant mean differences ($p < 0.05$) occurring on all four scales: Worth of External Testing [$F(2,89) = 4.85$], Data Leadership [$F(2,68) = 6.05$], Effective Data Analysis [$F(2,73) = 4.89$] and Impact on Teaching Practices [$F(2,80) = 3.94$]. For each scale, the differences occurred between the ‘leadership’ group (principals and assistant principals) and teachers.

Figure 4.8 shows the mean scale scores for each group on all four scales. Of particular note are, again, the low mean scores for the teacher group for each scale, especially on Data Leadership (2.37) and Effective Data Analysis (2.29). Here, moderate effect sizes occurred between teachers and the school leadership on Data Leadership ($d = 0.59$) and Effective Data Analysis ($d = 0.65$), and small effect sizes on Worth of External testing ($d = 0.32$) and Impact on Teaching Practices ($d = 0.41$).

FIGURE 4.8
MEAN SCORES ACCORDING TO ROLE IN THE SCHOOL –
LEADERSHIP COMBINED



4.5.3.8 Differences between scale scores according to membership on school executive

Survey Question 7 on the ETP instrument asked respondents to indicate whether they were members of the school executive/leadership team. The purpose of this question was to obtain some indication of the differences between the two categories across all four scales. With 43.3% indicating their membership of this group, this provided an indicator of those who should be involved in whole-school planning, including that for literacy and numeracy.

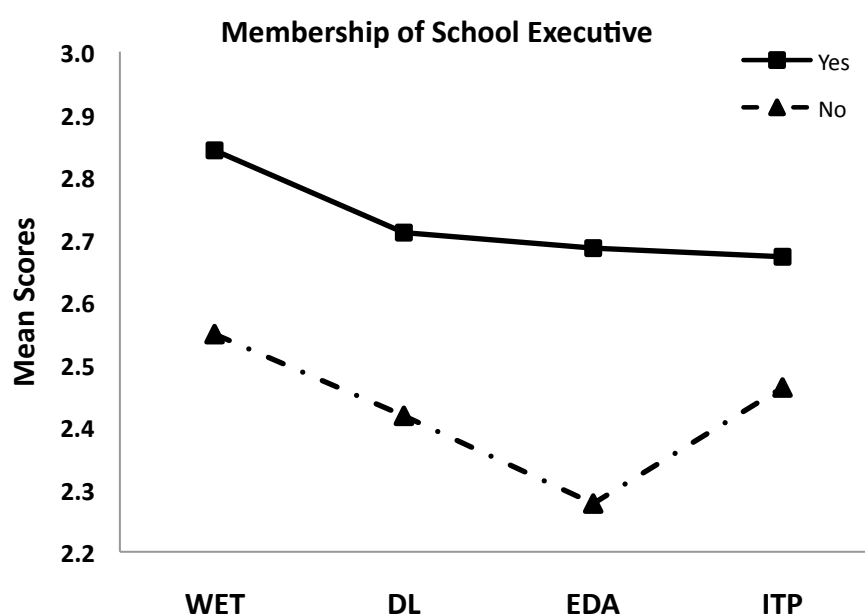
Significant differences ($p < 0.05$) between executive members (principals, assistant principals and some coordinators) and non-executive members (exclusively teachers) were found on all four scales. This question showed the highest F statistics: Worth of External Testing [$F(1,90) = 10.69$], Data Leadership [$F(1,69) = 7.34$], Effective Data Analysis [$F(1,70) = 14.19$] and Impact on Teaching Practices [$F(1,81) = 7.46$].

Figure 4.9 shows the mean scores of the two groups on all four scales. The predominant feature here is the disparity between the two groups, again with Effective Data Analysis being the lowest mean score for those who were not members of the school executive (2.28). A moderate effect size occurred on Effective Data Analysis ($d = 0.62$),

with small effect sizes (ranging from $d = 0.32$ for Impact on Teaching Practices to $d = 0.43$ for Data Leadership) on the other scales.

As with previous analyses, Effective Data Analysis was the least regarded scale and also contained the greatest difference in mean scores (and largest effect size) between classroom teachers and those in promotions positions (coordinators, assistant principals and principals). Again, the researcher viewed this as potential for further exploration in Phase 3.

FIGURE 4.9
MEAN SCORES ACCORDING TO MEMBERSHIP OF THE SCHOOL EXECUTIVE



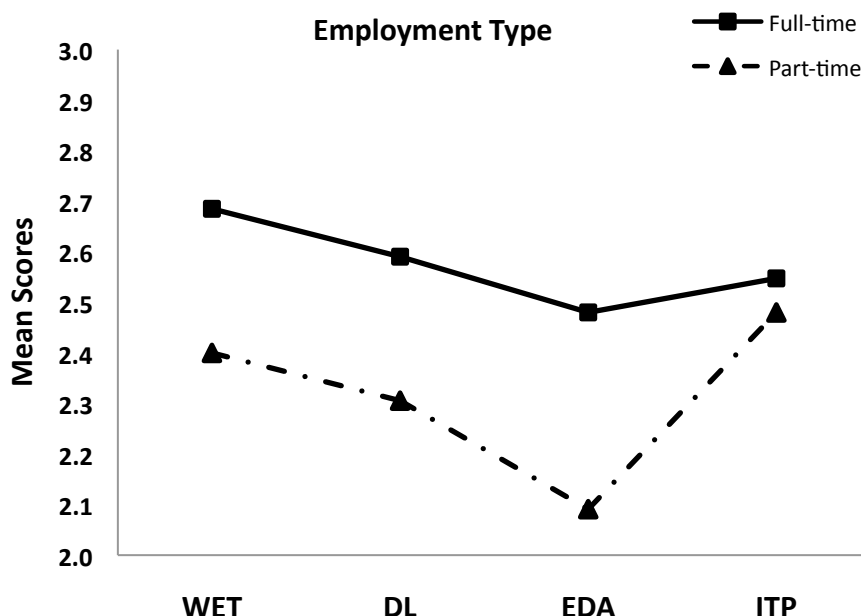
4.5.3.9 Differences between scale scores according to employment type

The final demographic category in Part A of the ETP instrument asked respondents to indicate their employment status. Those in full-time employment in schools (95.5% of respondents) included all principals, assistant principals, coordinators and most classroom teachers. The part-time employees were classroom teachers on short-term contracts with schools. Due the under-representation of respondents in part-time employment ($n = 6$), no analysis of statistical inference was conducted.

Figure 4.10 shows the mean scores for each group on all four scales. Again, the lowest mean scores occurred in Effective Data Analysis for both groups, with part-time teachers scoring 2.09. Similarly, Effective Data Analysis also produced the largest effect

size between the two groups of $d = 0.57$ (moderate), with a small effect size for Worth of External Testing and Data Leadership ($d = 0.39$ and $d = 0.41$ respectively).

FIGURE 4.10
MEAN SCORES ACCORDING TO EMPLOYMENT TYPE



4.5.3.10 Summary of Quantitative Analysis

The analysis of the responses to Part B of the ETP instrument by using the demographic groups from Part A shows the following results:

Statistically significant differences were found between:

- beginning teachers (1 to 5 years experience) and experienced teachers (11+ years) on both the *Data Leadership* and *Effective Data Analysis* scales;
- respondents who were non-teaching (mainly principals) and those teaching Years 3, 5 and 7 on *all four scales*;
- respondents who were non-teaching (mainly principals) and those who had previous experience in teaching Years 3, 5 or 7 on the *Effective Data Analysis* and *Impact on Teaching Practices* scales;
- principals and teachers on the *Data Leadership* and *Effective Data Analysis* scales;
- the school's leadership (principal and assistant principal) team and classroom teachers on *all four scales*;

- members of the school executive (principal, assistant principal and some coordinators) and classroom teachers on *all four scales*.

No significant differences were found between school type or school size on any scale, or between teachers of Year 7 humanities and mathematics/science on any scale.

This means that, not only were significant differences found mainly on the Data Leadership and Effective Data Analysis scales among most demographic groups, these differences were found predominately between two groups: the school's leadership/executive team and classroom teachers, especially those with the least teaching experience. Further, for almost all demographic groups, the largest Effect Size between these groups was found on the Effective Data Analysis scale which also tended to show the lowest mean scores.

4.5.4 Qualitative Analysis: Part C -- Short Answer Questions

Written comments in Part C ("Short Answer Questions") were received from 109 respondents (85.2% of the total participants in the ETP instrument). The instructions asked respondents to write their comments in four main areas that were related to the research questions: the usefulness of the external testing (research questions 1 and 2), who leads the process of data feedback and use in the school, how effectively is the data analysed and what are the barriers (research questions 3, 4, 5 and 6), in what ways have respondents' teaching practices changed as a result of external testing feedback (research questions 7 and 8), and other, general comments about external testing.

An analysis of the comments in the next section revealed eight themes and related issues pertaining to the research questions. These are shown in Table 4.12 and each is discussed in the following section.

TABLE 4.12
THEMES/ISSUES FROM COMMENTS IN PART C

Theme/Issue	Research Questions
Usefulness of the testing Accountability	1. What attitudes do teachers and principals hold about external literacy and numeracy testing? 2. What factors influence these attitudes?
Identifying leadership Providing effective leadership Using the tests for planning	3. How is external testing data analysed and feedback given in the school? 4. Who is leading the process of analysis and feedback? 5. How effective is leadership in data analysis? 6. What factors influence leadership in data analysis?
Using the tests for diagnosis Shaping pedagogy Relevance to curriculum and assessment	7. In what ways, and to what extent, are teaching practices shaped by testing data? 8. What factors influence the shaping of teaching practices by testing data?

4.5.4.1 *Themes Related to Research Questions 1 and 2:*

What attitudes do teachers and principals hold about external literacy and numeracy testing?

What factors influence these attitudes?

The following two themes - usefulness of the testing and accountability - emerged from the comments made in Part C of the ETP instrument regarding the attitudes of teachers and principals towards external testing and its usefulness for teaching and learning in the school.

1. *Usefulness of the testing*

Overall, 108 (out of 109) comments were made about the usefulness of external testing of literacy and numeracy. Of these, 83 respondents (76.8%) found such testing useful. Typical comments involved the power of the diagnostic function of the tests: “These tests make it easy to see the strengths and weaknesses of children’s skills” (*ACT Primary School coordinator*), and the impact of such tests on pedagogy: “Usefulness lies in informing best practice in the classroom” (*NSW Central School principal*).

However, an analysis of the comments according to each respondent's role in the school provides an insight into the differences between school leadership and classroom teachers. Of the 33 responses received from principals and assistant principals, 28 of these (84.9%) commented favourably on the usefulness of the external tests. However, those respondents involved mainly with classroom teaching (coordinators, teachers and some Primary School principals) found the usefulness of the tests less convincing, with only 73% (55 out of 75 respondents) commenting favourably. Such comments as: "Until we have a national curriculum, [the tests have] little value" (*ACT Primary School principal*) and "As it stands at the moment, I think we teach to the test beforehand but not much is done afterwards" (*ACT Secondary teacher*) indicated the need for further exploration of this result.

Moreover, the 25 respondents (23.2%) who commented the tests were not useful were mainly from the ACT across Primary and Secondary schools (18 respondents or 72.0%), with the remaining 7 respondents (18%) from the NSW sector of the Archdiocese. At this stage, the researcher surmised that the structure of the test itself and the quality of feedback in the ACT may have contributed to this view. This apparent discrepancy highlighted a second area for further exploration in the next phase of the research.

2. Accountability:

The second theme associated with the participants' attitudes towards external testing referred to accountability for testing results. This was commented upon by 26 respondents (20.3% of the total) and was seen in both positive and negative ways. Of these comments, the responses in favour of accountability (10 respondents or 38.5%) were made by principals, others in leadership positions and classroom teachers. The comments supported the notion of consistency and of competition between schools: "...it keeps schools honest. It helps us lift the benchmark in our schools – 'healthy competition'. It ensures consistency from school to school and state to state" (*ACT Primary School assistant principal*). Other positive comments stressed the use of testing results for school comparison in three areas: to encourage "professional reflection and dialogue" (*ACT Primary School assistant principal*), to drive system professional learning to effect change: "Accountability is more apparent and whole-school inservicing of staff produces a more collaborative approach to driving change" (*NSW Primary School principal*), and to monitor

school performance in order to: “...gauge results against other schools” (*NSW Primary School teacher*). These comments were typical of those that considered the positive impact accountability has had on monitoring standards of teaching to produce higher quality outcomes through improved professional learning.

On the other hand, accountability for testing results was also seen as having a negative impact. These comments (16 out of 26 responses or 61.5%) regarded the tests as important in providing governments with data so that they are “...useful in gaining statistics for bureaucrats to measure, but little else” (*NSW Secondary School coordinator*), with the emphasis on results “...being driven by the Federal Government” (*ACT Primary School coordinator*). Here, the tests were seen as useful “for justifying bureaucratic decisions ... and public relations programs” (*ACT Secondary School teacher*). For others, this has meant that the “focus of teaching has moved to worrying about external testing and preparing the children for it so that when the results are publically released, the school/CEO do not look bad” (*ACT Primary School coordinator*). These comments viewed any comparisons between schools as unhelpful and unnecessary in promoting improvements in student outcomes.

Since accountability for school results and possible comparisons between states and school systems had been gathering momentum towards the introduction of national testing during the period of the research, this theme was considered important for further exploration in Phase 3 of the research.

4.5.4.2 Themes Related to Research Questions 3, 4, 5 and 6:

How is external testing data analysed and feedback given in the school?

Who is leading the process of analysis and feedback?

How effective is leadership in data analysis?

What factors influence leadership in data analysis?

Comments were made in Part C of the ETP instrument about how the feedback from external testing of literacy and numeracy is being led in the school, who actually leads such analysis and use of the data, and the perceived effectiveness of such leadership. The three themes emerging from an analysis of the participants’ comments related to the ability of the participants to identify leadership in data analysis and use, the provision of effective leadership in this process, and the ways in which the test results can be used for planning.

1. *Identifying leadership:*

Of the 109 respondents who wrote comments in Part C of the ETP instrument, 81 (74.3%) were able to identify a person or combination of people in particular roles who were seen to actually lead the analysis and use of external testing feedback (see Part C, Question 2a of Appendix E), with the remaining 28 respondents (25.7%) stating they were unsure. Closer analysis of the responses was undertaken to ascertain if leadership in the analysis and use of testing data could be related to particular roles in the school. The resultant pattern is displayed in Table 4.13.

TABLE 4.13
IDENTIFYING THE LEADER/S OF TESTING ANALYSIS AND USE

Role/s in the School	Number of Responses	Proportion of Respondents
Principal only	5	4.6%
Principal and others	8	7.3%
Assistant Principal only	18	16.5%
Assistant Principal and others	10	9.2%
Executive/Leadership Team	6	5.5%
Coordinator/s	25	22.9%
Teacher/s	8	7.3%
CEO Personnel	1	0.9%
Not Sure	28	25.8%
	109	100%

Table 4.13 demonstrates that, in the view of respondents, the school principal is seen to play a relatively minor role in leading the explicit analysis and use of external testing data, with only 13 respondents (11.9%) indicating actual leadership by the principal, either alone or with other staff members. A more visible role was seen to be played by the assistant principal, either alone or in conjunction with other school staff (28 responses or 25.8%) and coordinators (25 responses or 22.9%). However, the school's 'Executive' or 'Leadership Team' as a leadership entity within the school accounted for only 5.5% of responses (6 comments).

These findings suggest that both the school principal and leadership team are not seen to have a major *operational* role in the analysis and use of feedback data from external testing, with the 'hands on' work being performed by the assistant principal and

coordinators. This view is also consistent with Figure 4.8 which demonstrates low mean scores by teachers on both the ‘Data Leadership’ (DL) and ‘Effective Data Analysis’ (EDA) scales from Part B of the ETP instrument.

Another instructive note is provided by those 28 respondents (25.7%) who were unsure about who actually was responsible for leading the use of external testing feedback (Part C, Question 2a). The majority of these respondents were teachers (n=19), eight were coordinators and one was an assistant principal who was new to the school at the time the ETP instrument was administered.

However, these findings do not deny the role of the principal in actively supporting the process or being the main motivating factor in promoting the analysis and use of testing feedback data in the school. The analysis concentrates on the perceptions of school staffs about who is *seen* to lead the process. Further exploration of these issues was considered necessary to be undertaken in Phase 3 of the research.

2. *Providing effective leadership in data analysis:*

The second theme associated with leadership and emerging from participants’ comments is the notion of *effective* school leadership in the analysis and use of feedback data from external tests. This was commented upon by many respondents, mostly concerning the practical ways the data was used in the school and the barriers encountered (Part C, Questions 2b and 2c).

In a general sense, a *whole-school* view of analysis and use was provided mainly by principals and assistant principals. Comments such as the tests “...provide students with Teacher Assistant time” (*NSW Secondary School principal*), the importance of “...staff-meeting feedback” (*ACT Primary School assistant principal*), the tests “...assist in placing students in appropriate classes (*NSW Secondary School principal*) and “Feedback to whole staff; Areas of need addressed” (*ACT Primary School principal*) indicate the emphasis was being placed on organisational aspects of the feedback process. Of the 34 principals and assistant principals who wrote comments in Part C, 24 of these (70.6%) were ‘non-teaching’ and had not been involved with teaching either Years 3, 5 or 7 for at least two years before the administration of the ETP instrument.

On the other hand, comments by other groups in the school - coordinators and teachers - demonstrated an operational, *student-based* approach to the effectiveness of leadership in analysing and using testing feedback data. This is captured in the following comments where the focus was clearly based on the classroom: The test is a “Guide to teachers for new Year 7 students. If given early enough, it helps to focus on students with challenges.” (*ACT Secondary School teacher*), “...to guide the teachers to seek ways to improve the teaching” (*NSW Central School coordinator*), and the test “Allows teachers to adapt classroom activities to the needs of individuals” (*NSW Primary School coordinator*). These comments are based squarely in the classroom and have a focus on teaching and learning.

Further, while the comments on leadership in data analysis and use by principals and assistant principals were largely positive, this is contrasted with the view held by coordinators and classroom teachers who were more equivocal about the *effectiveness* of such leadership. Of the 58 coordinators and teachers who wrote comments on this theme, only 33 (56.9%) of these were positive. These respondents commented on the practical ways the external testing results were being used at the school, including: “Upgrading curriculum policies; Implementing support programs in necessary areas; Allows teachers to adapt classroom activities to the needs of individuals” (*NSW Primary School coordinator*), and “Extra tuition is provided for children in need; Changing what and how we teach numeracy and literacy” (*ACT Primary School teacher*).

However, the remaining 25 coordinators and teachers (43.1%) were either unsure or negative about the effectiveness of leadership in the analysis and use of external testing feedback data at the school level. The following comments from NSW Primary School teachers illustrate this: “The results are not always used in a practical way at all. Across the board, class results are not readily shared”, and “One half-day release to go through her summary of results. Great suggestions, but from her then it's up to us”. Similarly, the following comment demonstrates a lack of follow-through with data analysis, usage and implementation with a “Whole-school analysis but then left to individual teachers to decide what to do with data” (*NSW Central School teacher*).

Consequently, the theme of effective leadership was regarded by the researcher as one in need of further exploration in the semi-structured interviews phase.

3. *Using the tests for planning:*

The third theme that emerged regarding leadership in using external testing feedback from Part C of the ETP instrument encompassed the value of the test results for school planning. Thirty-eight respondents (34.8% of those providing comments) explained the importance of using the testing feedback data to adopt a whole-school approach to enhance planning for literacy and numeracy. Comments such as “...used to inform our Management Plan” (*ACT Primary School coordinator*) and “...informs Management and Strategic Plans” (*NSW Primary School assistant principal*) were typical of the significance attached to using the external testing results for whole-school planning and the provision of adequate resources to support this. Fifteen of the respondents (39.5%) were principals and assistant principals, 10 were coordinators (26.3%) and the remaining 13 respondents (34.2%) were classroom teachers, indicating a shared awareness throughout the school of the significance of the testing results and the need to plan for effective strategies in using the feedback data for whole-school planning.

4.5.4.3 *Themes Related to Research Questions 7 and 8:*

In what ways, and to what extent, are teaching practices shaped by testing data?

What factors influence the shaping of teaching practices by testing data?

The following themes emerging from the comments in Part C of the ETP instrument were based on the impact that the analysis and use of external testing results have had on teaching practices in the school. These themes involved the uses of the tests for diagnostic purposes, the effects on classroom pedagogy, and their relevance to curriculum and assessment.

1. *Using the tests for diagnosis:*

The diagnostic power of the tests was commented upon by 44 respondents (40.4% of the 109 respondents who provided comments in Part C). Of these, 25 responses (56.8%) discussed the importance of using the feedback from external tests to diagnose *both* the strengths and weaknesses in student achievement: “Very useful tool for analysing the strengths and weaknesses of both individual students and of cohort of students and of how they change over time” (*ACT Secondary School principal*), and “External testing is

useful for determining the strengths and weaknesses of students in particular and very specific areas” (*NSW Central School teacher*).

However, 18 respondents (40.9%) made comments about improving the results of only those students who had performed *poorly* on the tests. Comments such as: “To assist individual students requiring help” (*ACT Primary School coordinator*), “If the overall results of my class indicate most of my students performed low in a particular area I may focus on strengthening their understanding of that particular area” (*NSW Primary School teacher*), and the importance of “...identifying students with the greatest need; Identifying weak areas across the year level” (*ACT Primary School principal*) indicate a deficit model in using the testing results. Concentrating resources on these students who perform poorly in the external tests may suggest that the students at the top end, or indeed the middle of the cohort, may not need extra assistance to extend their performance to even higher levels. This theme was the subject of further exploration in Phase 3 of the research.

2. *Shaping pedagogy:*

The second theme related to the impact of external testing on teaching practices concerned the ability of these tests to shape classroom pedagogy. This was mentioned by 23 respondents (21.1% of 109 respondents) who commented on the ability of the external tests to shape teaching and learning in the classroom. Of these, 18 respondents (78.3%) indicated that the tests have the ability to positively affect classroom pedagogy. Typical comments such as: “The data indicates areas where we may need to tighten up pedagogy or make better use of current research to inform our teaching practice” (*ACT Primary School coordinator*) and “Teaching practices have become sharper in terms of focusing on the gaps that have emerged from the analysis” (*NSW Primary School principal*) suggest the potential of the external tests to affect classroom pedagogy.

However, the majority of these positive responses were made by principals, assistant principals and coordinators (n=13), whilst teachers were less enthusiastic in their support for the link between external tests and classroom pedagogy: “Even seeing the results doesn't help because in three hours a week I'm racing to simply cover the basics. There's not much chance to focus on individual needs of particular students” (*ACT Secondary School teacher*), and “I have tried to link this, but am not sure how it worked. The lessons were in 'isolation' and students sometimes did not see the connection with

other classwork” (*NSW Central School teacher*). This finding provided another potential focus for further exploration in the next phase of the research.

One interesting negative response was made by an ACT Primary school principal who, at the time of the survey, was not teaching, but who had taught Years 3 or 5 two of three times over the last five years. The comment was made that the tests were “Not useful, a snapshot only; teachers know their students. A one-off test does not give more information” (*ACT Primary School principal*). Again, the relationship between the external tests and the classroom curriculum implied by this comment was seen to be worth exploring during Phase 3 of the research.

3. *Relevance to curriculum and assessment strategies:*

Thirty-two participants (29.4% of respondents who wrote responses to Part C) commented on the relevance of external testing to the curriculum and assessment strategies within the classroom. Of these, 14 respondents (43.7%) indicated that feedback from the external testing had either high or some relevance to curriculum and assessment strategies, while the remainder (56.3%) saw little or no relevance of the external testing to the classroom.

However, analysis of the responses according to participants’ roles in the school revealed an interesting pattern that was worth investigating in the subsequent interview phase of the research. Nine out of 13 principals and assistant principals (69.2%) commented on the strong relationship between the external testing of literacy and numeracy and classroom curriculum and assessment practices, while only four (30.8%) saw little or no relevance. Typical comments supporting this link centred on the ability of the tests to shape classroom planning: “...the external testing covers outcomes in my teaching program” (*NSW Primary School assistant principal*) and “I use individual results when differentiating the curriculum/my teaching practices” (*NSW Central School assistant principal*). On the other hand, those principals and assistant principals arguing against the link between external testing results and classroom curriculum and assessment mention that “Teaching practice should not be shaped by external data - perhaps a change in emphasis or content only” (*ACT Primary School principal*) and the tests “... rarely provide new information about individual students” (*NSW Primary School principal*). In this

group, most principals (72%) were either non-teaching or had not taught Years 3, 5, or 7 in the previous two years prior to the administration of the ETP instrument.

When analysing the responses of the second group – coordinators and teachers – a different relationship between the external tests and classroom curriculum and assessment was found. Of the six coordinators and 13 teachers whose comments referred to the relationship between external testing and classroom curriculum and assessment strategies, only one coordinator and four teachers (26.3%) regarded this link as high or positive. The majority (73.7% or five coordinators and nine teachers) commented on a very tenuous link between the testing and classroom. This pattern is typified by the following comments such as: “The data is only a part of assessing what a child can/cannot do. Therefore I see the testing assessing a child in one small area -- not the big picture” (*NSW Primary School teacher*), “The information gained is already known by teachers in general” (*ACT Secondary School teacher*) and “Many weeks are spent preparing children for test conditions and exposing them to the types of questions they might experience - time that could be spent on teaching the curriculum” (*ACT Primary School teacher*).

Further, four principals, three coordinators and five teachers regarded the external tests as a “snapshot of learning” (*ACT Primary School teacher*) and “They are still only one sample of a particular student's abilities on a particular day so their usefulness is limited” (*ACT Primary School assistant principal*). This indicated a perception that the external tests have little relevance to classroom curriculum and assessment strategies. This perception of relevance was regarded as worthy of further investigation in the next phase of the research – semi-structured interviews.

4.6 CHAPTER SUMMARY

This chapter reported analyses of the quantitative and qualitative data collected from Phase 2 of the research. This final section summarises the key findings of these analyses as a prelude to the exploration of themes by semi-structured interviews in Phase 3 (Chapter 5).

Following the pre-research meetings (Phase 1) with Archdiocesan principals during March and April, 2008, the researcher began the process of ‘Identification of Issues’ (Phase 2), incorporating a three-stage process of focus group formation (Phase 2a),

the development and trial of a pilot survey (Phase 2b) and the construction and administration of the ETP instrument (Phase 2c) between April and June, 2008.

Analysis of the data from the focus group produced eight themes to be included in the pilot survey. These themes centred on: attitudes towards external testing, accountability for testing results, differential targeting of students, leadership, involvement of staff, school planning, identifying differences between the ‘analysis’ and ‘use’ of testing data feedback, and diagnosis of student achievement.

These themes were then linked with the first eight research questions pertinent to Phases 1, 2 and 3 of the research, from which a pilot survey was developed and trialled with a number of schools. Feedback from the pilot survey informed the construction of the ETP instrument which was administered during June, 2008. This instrument provided a wealth of quantitative and qualitative data that were analysed to produce themes for further exploration during the next research phase. Four scales were developed to aid the quantitative analysis of the data from the ETP instrument: Worth of External Testing (WET), Data Leadership (DL), Effective Data Analysis (EDA), and Impact on Teaching Practices (ITP).

The information generated from Phase 2 of the research suggested the following themes for exploration in further detail in the semi-structured interviews conducted during Phase 3.

1. Attitudes of staff towards external testing and its relationship with the classroom;
2. Leadership in using testing data;
3. Planning and coordination of feedback data; and
4. Use of testing data in the classroom.

These themes were generated from the focus group, the quantitative analysis of the responses to Part B of the ETP instrument and the qualitative analysis of the comments made by respondents in Part C of the ETP instrument. Of significance is the apparent disparity on the Data Leadership (DL) and Effective Data Analysis (EDA) scales between groups of respondents related to teaching experience, year level taught compared with non-teaching positions, frequency of teaching the ‘testing’ years over the five years previous to the research and, importantly, the respondent’s role within the school, with particular reference to those in leadership roles and classroom teachers.

For Phase 3 of the study, the researcher conducted semi-structured interviews to ascertain the views of the interviewees on these themes and to explore if there were any reasons for differences in relation to school type and size, teaching experience and the interviewee's role or position in the school. The analysis of these interviews is presented in Chapter 5.

CHAPTER 5: PRESENTATION OF RESULTS: Exploration of Themes (Research Phase 3)

5.1 INTRODUCTION

In the previous chapter the findings from the first two phases of the research were presented. In the first instance, these involved the conduct of pre-research meetings with Archdiocesan principals to ascertain their willingness to participate in the study (Phase 1). The second research phase identified issues to be investigated in depth. It involved a three stage process with the formation of a focus group (Phase 2a), followed by the construction and administration of the pilot survey (Phase 2b) and, finally, the External Testing Profile (ETP) instrument (Phase 2c) which was sent to all 55 Archdiocesan schools. Analysis of the results from these formed the basis for development of specific themes for further exploration.

This chapter reports on the findings from the exploration of issues phase of the research (Phase 3) where selected participants from a range of school types and roles across the Archdiocese agreed to take part in semi-structured interviews. The purpose of this phase was to explore in some depth the main themes identified in Phase 2 of the research. The type of analysis undertaken in Phase 3 involved a qualitative approach to data collection as a way to add richness and texture to the themes previously developed. Thus, Phase 3 is consistent with the mixed methods approach adopted by this research, employing a sequential approach to data collection and analysis that is both complementary to the previous phases and gives further insight to the findings from the focus group and ETP instrument.

Interviews were held between September and November, 2008 with a group of ‘purposively-selected’ participants (Stake, 2005). The themes from the ETP instrument formed the basis of the discussion, and these were explored in some depth during each interview.

This chapter presents the findings related to the four themes developed from the ETP instrument (Phase 2c) and investigates with interviewees the issues identified as to how schools use the results from external testing of literacy and numeracy across the

Archdiocese and the perception of leadership in this process. Each theme is examined and analysed using relevant statements from interviewees.

5.2 THEMES FOR EXPLORATION

An analysis of the responses to the ETP instrument identified four main themes for further exploration in Phase 3 of the research. These themes are associated with the first eight research questions and provide a contextual basis for understanding the perceptions of participants and their reactions to external testing of literacy and numeracy. The following sections explore each theme and associated issues in turn.

5.2.1 Theme 1: Attitudes of Staff towards External Testing and its Relationship with the Classroom

The first theme is related to research questions 1 and 2 and was designed to ascertain the attitudes of staff on the value of external testing of literacy and numeracy and its relevance and usefulness for classroom-based curriculum and assessment practices. It is strongly identified with the ‘Worth of External Testing’ scale (WET) which included items from Part B of the ETP instrument on the perceived worth of such tests for teaching and learning, their relationship with curriculum and the role of accountability in reporting the results. Similarly, it is associated with, and builds on, written responses to Question 1 of Part C of the ETP instrument (see Appendix E).

The three areas from the findings of the ETP instrument investigated with interviewees were attitudes to the testing, accountability and the quality of the tests and data feedback.

5.2.1.1 *Attitudes to the testing*

There was general support by the interview participants for the external testing of literacy and numeracy as a program for providing information on student achievement. However, some differences were found in the degree to which the feedback data can be used in the school and the extent to which teachers use the results.

Both principals who were interviewed in Phase 3 discussed the value of the tests in terms of a *whole-school* approach, rather than using the results with only the

teachers of the ‘testing’ years: “What I would love to do is to show that all of it [the testing analysis] is from Kindergarten to Year 6 and it doesn’t rest only with the Year 3 and Year 5 teachers” (*ACT Primary School principal*). This view was also shared by the Central School principal who made the point that “In the whole school plan, all teachers have to show that they use the testing results in their assessment and that they use a range of tasks” (*NSW Central School principal*).

Despite this apparent agreement, however, the (non-teaching) ACT principal restricted the value of the tests to the school and cohort levels only: “The tests are very useful, particularly if you look at the whole rather than the individual results. From the whole you really get a good idea of where the school is, particularly the cohort...” (*ACT Primary School principal*). Here, the emphasis was placed firmly on the value of external testing in analysing results at the whole-school level, with the individual cohort being the extent of data disaggregation.

In line with the results from the ETP instrument (Phase 2c), this view is contrasted with that expressed by practising teachers who saw the value of the testing results resting with the individual class, teacher and student: “Using the results from last year we could see the value of explicit teaching of the skills needed to ensure the students are covering the skills” (*ACT Primary School Year 3 teacher*), and “At a grade level, we sat down and analysed the data together” (*ACT Primary School Year 5 teacher*). Further, one Secondary School teacher discussed the link between external testing and classroom assessment: “I find it useful. It is research-based and statistical. It can back up hunches from your own classroom testing and assessment. It is supported by something that is objective” (*NSW Secondary School coordinator/Year 7 teacher*).

This view is supported by comments by one of the Year 5 teachers: “With usefulness, I use the results as a test the students do and I use the results as a guide, compared with school-based assessment tasks in the classroom” (*NSW Primary School Year 5 teacher*). However, when asked if teachers find the data useful for the classroom, this teacher made an important observation related to a particular schooling context: “With relevance, this is an issue. The full coverage of a concept may not have happened before the students sit the test, especially with a two-year cycle. This may be a problem with the way we teach maths and we may have to look at this” (*NSW Primary School Year 5 teacher*).

This issue particularly affects schools that have ‘staged’ classes in the Primary School context. Here, due to the small enrolments, students are often combined into groupings containing two (or more) year levels in the one class. In this case, students cover the curriculum over a two-year cycle instead of by the usual sequential year-based method. Thus, some concepts and skills required for the external tests may not have been covered by students in the particular year level being tested. Of course, this can also occur in the year-level based class groupings since the external tests of literacy and numeracy are undertaken in May (generally towards the end of the first half of the academic year). This issue of skills coverage is not insignificant and is one that has implications for the system in developing scope and sequence plans for teaching programs.

The only negative opinion on the value of the tests was given by the ACT Year 7 teacher who was quite circumspect about the impact of the tests on teaching time and the uses to which the results could be put:

“There is a mixed response by staff at this school. People can see generally the importance of testing students to see what their skills and abilities are. This is an important part of knowing students well and designing programs to suit them. I think, though, that often staff see the tests as an interruption to their teaching program. The times taken away for testing reduce teaching time and they tend to ask ‘why do we have to do it?’ So the responses are quite mixed. Staff do it because they are required to do it. I think the parents like to know where their child is at; how she is faring against the cohort of students in that year group. I think what teachers know is that a lot of this is arbitrary and there are other ways you can assess students other than by a test”.

(ACT Secondary School Year 7 teacher)

5.2.1.2 Accountability

The second issue affecting attitudes of staff towards external testing was related to accountability for results. As with the External Testing Profile (ETP) instrument (Phase 2c), interview participants regarded the issue of accountability as both positive and negative, and this was not related to school type or their position in the school. On the one hand, “Looking at the results and seeing what has been done well or poorly is a good thing

because it can determine the focus for the whole school” (*NSW Primary School assistant principal/Year 3 teacher*). Similarly, “The test enables the school to see in what particular areas it has performed poorly in and to ask ‘why is that so?’...There may be issues identified that need to be resolved” (*ACT Primary School Year 5 teacher*). This teacher also made a pertinent observation that “We need to be accountable anyway; this already exists. What the test does is, rather than make the individual accountable, it tends to make the whole school accountable in the community” (*ACT Primary School Year 5 teacher*).

However, some cautionary notes were made regarding the potential negative impacts of accountability for testing results. Firstly, it was stated that accountability should be *within* the school itself, and particularly at the individual classroom level, and not between schools. Further, it should not reflect on individual teachers or class results: “Within the school this is a good thing – to know what is going on. But to compare one school with another each year is not productive. Each cohort is very different one year to the next” (*NSW Primary School Year 5 teacher*). Similarly, “Teachers should not compare themselves. Each class is different. The dynamics in each class are very different” (*ACT Primary School Year 3 teacher*). This view is also supported by the two principals who stressed that “I don’t think you can hold teachers accountable for the testing results. You have to take the whole year’s program and it must have a variety of assessment tasks, not just one test” (*NSW Central School principal*), and “I know they [Year 3 and Year 5 teachers] feel very responsible for their own kids and that puts pressure on them” (*ACT Primary School principal*).

The effect of a school’s demography was also seen as worthy of mention with regard to accountability for results. A Year 7 teacher emphasised that:

“I think the school’s Executive are concerned about how the tests could be used in the public forum and the potential negative effect in the community. Schools work within a demographic. We have schools that are in a very affluent area where parents may put a lot more effort in their schooling, reading at home and so on. Whereas, with a school in a demographic where the parents are not so well off may not have the time, or may not be inclined to give enough time: how can you compare a school from a very poor to a

school from a very wealthy area” (*ACT Secondary School Year 7 teacher*).

Similarly, the comment: “You have to be careful – your demographic may tend to make the school perform poorly against others” (*ACT Primary School Year 5 teacher*) warns against any simplistic comparison between schools, especially if differences in the cohorts are not firstly taken into account.

5.2.1.3 *Quality of the Tests and Data Feedback*

The third area related to attitudes towards external testing concerned the quality of the tests and the data feedback from them. The quality of the tests was commented upon by interviewees, both with the design of the tests themselves and with the quality of the feedback data to schools where differences between the ACT and NSW sectors of the Archdiocese were noted.

Regarding test design, a comment was made on how the tests have evolved over time: “The attitudes of staff have improved over time and this is in line with the improvements in the tests themselves, in the way the items are written. The test design has improved, but there are still some issues with numeracy; some of the questions are very words and actually test literacy skills” (*NSW Primary School Year 5 teacher*). Comparisons were also made between the previous state/territory-based tests and the new national testing regime, National Assessment Program – Literacy & Numeracy (NAPLAN): “The language is a little different; ‘Bands’ are less misleading than the old ‘Levels’. Also, the language of ‘National Minimum Standard’ is more understandable by parents” (*NSW Secondary School coordinator/Year 7 teacher*).

However, most comments centred on the quality of the feedback data received by schools. Before 2008, with the previous state/territory-based testing programs, the quality of the feedback depended on the particular jurisdiction. In the ACT, schools received student and cohort results on paper and .pdf files. NSW schools received their results initially with an application on compact disk, then by web-based downloads using an application called ‘SMART’ (School Measurement, Assessment and Reporting Toolkit). Here, the data could be interrogated, exported and manipulated to produce information that was far more flexible, contextual and interactive. With the introduction of NAPLAN in 2008, all schools in the ACT received their data via this web-based

application for the first time. Not surprisingly, the comments by interviewees in the ACT reflected their enthusiasm for the quality of the testing feedback: “The SMART data breaks down the data much better than ACTAP feedback. We haven’t been able to utilise the SMART package fully yet. It’s new, but there is great potential to use it more”, and “We were impressed with the amount of manipulation that was possible with the SMART data package” (*ACT Primary School Year 5 teacher*).

5.2.1.4 Theme Summary

The comments about the attitudes of staff towards external testing suggest that, even though most interviewees were supportive of the external testing of literacy and numeracy, some differences existed in the degree to which the results themselves are seen to be useful. Further, the weight that can be placed on school/cohort versus individual student results, the extent to which accountability is viewed in a positive or negative light both within the school and in comparing schools, and the quality of feedback data provided to the school also influence attitudes towards external testing. These findings formed the first set of learnings to be discussed in the focus group (Phase 4).

5.2.2 Theme 2: Leadership in Using Testing Data

The second theme for exploration is related to research questions 3, 4, 5 and 6 and investigates interviewees’ perceptions of who actually leads the process of analysis and use of the testing feedback data, how it is led, and, importantly, the effectiveness of leadership in data analysis. The theme is associated with the ‘Data Leadership’ (DL) and ‘Effective Data Analysis’ (EDA) scales from Part B of the ETP instrument (Phase 2c) and draws upon written responses to Question 2 of Part C (Section 4.5.4.2).

The areas associated with this theme of evidence-based leadership and identified from the ETP instrument were explored with interviewees. These involved the importance of the leadership role in the school using evidence from external testing, access to the data and involvement by staff in data analysis, and the provision of time to analyse results.

5.2.2.1 Role in the School

The determination of who in the school leads the process of analysis and use of testing feedback data was noted by the interviewees as being associated with both the *role*

identification as well as the *position in the school* of the members of staff who were performing the roles.

Firstly, interviewees indicated that, in those schools with small or large enrolments, the person actually leading the process is easily identifiable. When asked if the staff knew who actually leads the process, comments such as “Our roles are clear. In a small school it is more obvious for the roles of the school Executive” (*NSW Primary School assistant principal & Year 3 teacher*), and in the Secondary context, it is “The AP [Assistant Principal] Curriculum. He organises it and liaises with the Special Needs coordinator” (*ACT Secondary School Year 7 teacher*). This suggests that these roles are clear and are known to the staff. It is consistent with the findings from the ETP instrument which showed that, with both smaller schools (less than 301 students) and schools with enrolment greater than 500 students, higher mean scores were found on the Data Leadership and Effective Data Analysis scales, suggesting more obvious role/position clarity (see Figure 4.2).

The second finding related to the *positions* of those leading the analysis of testing data strongly suggests that there is a variety of models used across the Archdiocese. While all interview participants confirmed that the principal does not have to actually lead the data analysis with staff, in some cases those analysing the testing results comprised only members of the Executive. Comments such as “The AP[Assistant Principal] and I will get together with the Executive to look at the results and feed them into our Management Plan for next year” (*ACT Primary School principal*), and “The information that comes back to the school goes to him [Assistant Principal (Curriculum)] and he analyses it and disseminates it amongst the staff” (*ACT Secondary School Year 7 teacher*) underscore the role of the school Executive team, but to the exclusion of teachers in the process.

An alternative approach was given by the NSW Secondary School coordinator who, quite bluntly, stated that there were only two people involved in the analysis of testing results: “Me for literacy. The Maths coordinator does the numeracy. Then I make a recommendation of what can happen in the classroom, then we come up with some strategies and a program for them” (*NSW Secondary School coordinator and Year 7 teacher*).

A third distinct model existed in one ACT Primary School. Here, the analysis of the testing results was placed firmly with the teachers of Years 3 and 5 working together with the Assistant Principal:

“This works really well. It isn’t the principal doing the data analysis by herself, then presenting the information or giving a lecture to the staff. The staff are involved; the information is fed up from teachers to the Principal. It will be presented as here is what we did in Years 3 and 5, but it is everybody’s responsibility for the results. I think this is the most effective model to use.”

(ACT Primary School Year 5 teacher)

In this school, the model’s effectiveness underscored the decision by the principal to progressively involve *all staff* with the analysis of testing results over the following years to build up a culture that emphasises a whole-school approach: “It is not just those teachers. It is the whole school working together to produce the results” (*ACT Primary School Year 5 teacher*).

5.2.2.2 Data Access and Involvement of Staff in Data Analysis

The second area involved with Theme 2 related to access to the testing feedback data and staff involvement in actual data analysis. Access by teachers to the data and their involvement in analysis was noted by some participants as an important component affecting the analysis of testing feedback data. At one Primary school, limited access had been given to the data for teachers of Year 3 and Year 5, but there were plans to provide all staff with the results: “Year 3 and Year 5 teachers have access to SMART Data. We haven’t been able to give all teachers access yet. This will happen at the beginning of next year. You have to trust your staff and a teacher needs to know how they can help an individual student to improve” (*ACT Primary School Year 3 teacher*).

This view was also echoed by the Central School principal who reinforced the role of teachers and coordinators in this process: “... you need to have very clear guidelines as to who is responsible. The Principal doesn’t have time. You need to make sure that the analysis is done at the ground level, but it needs to filter through to those people who have to formulate the whole-school plan. So the middle management in those schools is critical” (*NSW Central School principal*).

Another set of comments related to the access of teachers themselves to the testing results. Rather than the analysis of results resting with one or two people, it was suggested that the feedback data should be available widely within the school to form a critical mass of staff who are familiar with the tests themselves as well as the results for particular cohorts and individual students: “People are interested in the results for their students. This is very motivating” (*NSW Primary School Assistant Principal/Year 3 teacher*). This view was also supported by a Year 5 teacher who saw the potential for a whole-school approach to data analysis. When asked if there was an intention for all teachers at the school to interact with the testing feedback data, this teacher commented: “At the moment, no, but that is the intention for the future. ACTAP didn’t have the capacity” (*ACT Primary School Year 5 teacher*).

In these examples, the emphasis is placed squarely on the involvement of as many staff as possible in the analysis of the testing results to produce a shared understanding of the implications of the results for their staff and students. However, a note of frustration concerning staff access and involvement was given by a Year 7 teacher of a large Secondary school. When asked if teachers of Year 7 were involved, she stated:

“No I don’t think so. I think the analysis is given to them. I assume the person doing the analysis is trained in this and can do it appropriately. I’m not entirely sure how well the analysis is done. I don’t get to see the data per se. I just get to see the results of the analysis”.

(*ACT Secondary School Year 7 teacher*)

This statement highlights a desire for staff to be involved in the analysis of the results. The interviewee had experienced no real engagement with the data and, consequently, indicated little commitment to the process of analysis or significance placed on the results. When asked about the follow-through at the school in using the testing results, a further statement by this teacher highlights some frustration with the lack of effective leadership in ensuring the results are fully utilised to effect change:

“No. At this point it just peters out. It doesn’t really go anywhere. We have the information; we know how the students have gone. The students find that out. But then, I haven’t really changed anything I have done in my classroom. That might be done at a subject coordinators’ level, but I’m not privy to anything that goes

on between the AP [Assistant Principal] and coordinators regarding literacy, for example. Once the testing is done, the parents get the results, the school gets the information, it's looked at and talked about. I don't think anything else really happens to it"

(ACT Secondary School Year 7 teacher).

The importance of access to the testing data and involvement in the process of analysis is, perhaps, summed up by this comment: "Including the staff as much as possible is vital in this because it creates value" (*NSW Primary School Year 5 teacher*). It is here that teachers' perceptions of the worth of the external testing seem to be matched by the importance of effective school leadership in promoting the most strategic use of the results for staff and students.

5.2.2.3 *Provision of Time to Analyse Data*

A third area identified by participants and related to the theme of school leadership and its effectiveness in promoting the analysis and use of testing feedback data involved the provision of adequate time to undertake this process. This seemed to be an issue more for Primary Schools and could be related to a greater capacity for Secondary Schools to provide teacher release. This view was provided succinctly by the comment: "Teachers are time-poor, and they need the time to analyse the data" (*ACT Primary School principal*).

However, the role played by the Catholic Education Office was acknowledged as a catalyst in promoting the effective analysis of testing data during 2008. Under a scheme of CEO funded Relief, each school was given two teacher Relief days to analyse the data in Term 4. The actual allocation of these was left to the schools to determine. Typical combinations ranged from allowing two teachers for one full day to four teachers over one-half day each. Many schools supplemented this from their own school-based Professional Learning funds. The following comments attest to this:

"That is a better way to go because the people who are intimately involved in the testing process are seeing the results of it. So that was better planned this year. Staff reacted very positively to this.

(ACT Primary School principal)

and:

“We were each given a half-day out of class. This is really good because it gives you time to analyse the data together. We followed the template as a group and worked through it together. This was then summarised for the principal. This leadership is effective. The time given by the CEO to analyse the data was great. You cannot analyse data in little grabs here and there. A substantial block is important.

(ACT Primary School Year 3 teacher)

The significance of these comments relates to the development of processes *within the school* to engage with the data; to allow for the development of analyses that were in-depth, rigorous and focused on the student, rather than the cohort only.

5.2.2.4 Theme Summary

The comments by interviewees about the identification of explicit leadership roles within the school, the manner in which the analysis and use of testing results are being led, and the interviewee’s perception of the effectiveness of such leadership for data analysis suggest that the ability to identify people leading the process of analysing testing data was problematic in some cases. Further, a variety of models operate in Archdiocesan schools to analyse external testing data, and these are related to specific roles and positions of staff members. Concerns were raised by the interviewees about the limited access of staff to the testing results, and there was a perceived need to involve a wide cross-section of school staff in the data analysis, not just the Executive or teachers in the ‘testing years’. Finally, the provision of adequate time to analyse the results is important in developing strategic and effective engagement with the data. These findings formed the second set of learnings to be discussed in the focus group (Phase 4).

5.2.3 Theme 3: Planning and Coordination of the Feedback Data

The third theme from the ETP instrument findings to be explored with interviewees was strongly linked with the development of whole-school plans. This was regarded by the participants as a crucial element in the effective utilisation of the external testing feedback data within the school. The influence and direction of the Catholic Education Office in this process was seen as a vital component in schools being able to

make sense of the data in the first place, and then to transform the results into planned, strategic outcomes.

5.2.3.1 *Development of Whole-school Plans*

The importance of whole-school planning for making use of the testing results was given prominence by the interviewees, and this was tied explicitly to the expectations of the Catholic Education Office. In 2008, the CEO implemented a process to enable schools to formulate contextual, school-based literacy and numeracy plans developed from the results of the NAPLAN tests. Each of the 55 schools throughout the Archdiocese was required to use a CEO-provided template to, firstly, guide the analysis of the test data, then, secondly, to use these results to construct a whole-school plan for literacy and numeracy. Funded release of teachers to engage with the data analysis was provided. An important component in this process was the requirement for each school to submit this plan to the CEO by the end of the year. These plans would then become key documents for the work of curriculum officers with individual schools during the following year.

Even though the schools were obliged to analyse the results and formulate their literacy and numeracy plans, most interviewees were positive about their school's involvement in the process to date. Comments such as: "Doing the results on a staff development day really did give the staff the awareness that we are not just filing the results away. We are really using this to guide our planning. It gives us an overall picture" (*NSW Primary School assistant principal and Year 3 teacher*). Further, this interviewee also compared her experience in this school with the process followed in her previous diocese:

"In my previous diocese, there was training on how to use the SMART Data program, but that was it. The schools were virtually left to themselves. But here the expectations have been more explicit in analysing the data and developing a literacy and numeracy plan to be submitted. At first I found this confronting but, as we worked through it, I found it really worthwhile. You might not have done it that way if you weren't 'forced' to do so. I found it really worthwhile and being on a time frame, it was good to have it done by a certain date. The CEO provided a structure to

analyse the data and make it relevant to planning. We actually took the time to do it.”

(NSW Primary School assistant principal and Year 3 teacher).

In this case, the requirement for planning gave the school an impetus to analyse the results and use them to develop explicit whole-school plans, an observation that was supported by an interviewee in another school: “So the data analysis is done within the school and the CEO comes out to monitor its inclusion in the plan, as per template provided by the CEO. That plan was helpful. It guides the direction we have to go” (*ACT Primary School principal*). This view was developed further in another school where the literacy and numeracy plans were seen to have the potential to produce real educational change within the school:

“If the literacy/numeracy plans become an established, annual event, the next year when we put the plan into action, focusing on a few small things and doing them well, is a better way of tackling the issues than trying to pour too much into the year. If we continue the model over the next couple of years, the general culture of the school will change”.

(NSW Primary School Year 5 teacher)

One dissenting view, however, was held by a Secondary School teacher who had no engagement with the planning process to date. Her frustration was with her lack of involvement and the relationship the tests have with teaching practices: “What this means is, is it going to alter what we do in the classroom? Should we alter what we do in the classroom? Is the information going to be used to compare schools to schools?” (*ACT Secondary School Year 7 teacher*). When asked what evidence she saw of the testing feedback being used for whole-school planning, she replied: “In a word, none at this point in time.” Further, this interviewee was not aware of the CEO’s requirement to submit a literacy and numeracy plan by the end of the school year.

This finding implies that the processes of analysis and planning at the school did not necessarily involve the teachers themselves and, moreover, any analysis that was done did not progress into explicit, whole-school plans for action involving all teachers of at least Year 7.

5.2.3.2 *Theme Summary*

The comments by interviewees about the importance of whole-school planning in utilising the testing feedback data suggest that there was general acceptance of the CEO's role in providing leadership for the planning process. The plans themselves, as well as the process of planning within the school, were seen as key elements in deciding the direction the school should take to effectively use the testing results for teaching and learning. Further, the involvement of a critical mass of staff, if not all staff, in the planning process is regarded as important in developing not only teachers' engagement with the data, but their commitment to a shared understanding of what needs to be done with the results. These findings formed the third set of learnings to be discussed in the focus group (Phase 4).

5.2.4 **Theme 4: Use of Testing Data in the Classroom**

The fourth theme emerging from the ETP instrument (Phase 2c) involved examining how the testing results are being used in the classroom, and to ascertain in what ways teaching practices had been shaped. This theme is related to research questions 7 and 8 and is associated with the 'Impact on Teaching Practices' (ITP) scale from Part B of the ETP instrument. It also draws upon written responses to Question 4 of Part C.

The three areas emerging from the discussion with interviewees involved using the tests for diagnosis, shaping pedagogy, and establishing the relevance of the testing to school-based curriculum and assessment.

5.2.4.1 *Using the Tests for Diagnosis*

All interviewees regarded the external tests of literacy and numeracy as important for providing relevant information on student achievement, often to complement data provided by school-based assessment. The following comments support this: "Very often the results confirm what we believe ourselves about the students" (*NSW Central School principal*), and "On the whole, the tests reinforced where the kids were at" (*ACT Primary School Year 3 teacher*). Here, the interviewees stressed that the tests provided additional information to guide the classroom teacher, especially since "It helps me report to parents" (*NSW Primary School Year 5 teacher*).

However, more strategic information on students is achieved when considering where the students are placed from the testing. Most interviewees indicated that their school concentrates on those students who have not achieved the (pre-NAPLAN) benchmarks or are located in the bottom band of NAPLAN. These students have not achieved the National Minimum Standard for their year level: “We concentrate on the bottom end only” (*ACT Secondary School Year 7 teacher*) and “It’s a natural reaction to concentrate on the bottom end only. We naturally focus on those kids who have not met the national benchmarks” (*NSW Central School principal*).

However, see the need to move beyond diagnostic intervention of those students at the bottom end, but with varying success: “We focus on the kids who are struggling and that’s normal. But people have been talking about the need to extend to others as well at this stage” (*ACT Primary School Year 5 teacher*).

This view is also supported by those who have begun to look at the results for those in the middle to upper bands of the achievement continuum. Here the emphasis is placed on moving students from the upper-middle to the top bands: “What I try to instil in the staff is that the bottom kids were OK, but we really need to extend the top and middle area” (*ACT Primary School principal*). Again, “The top-end students still need help and support just as do those at the bottom” (*ACT Primary School Year 3 teacher*). In support, one teacher commented on the importance of not forgetting those students who still have performed well, but indicated a need for further work in this area: “In my previous school, we established a bit of an idea on how to move kids from the second-top into the top band. Here, I don’t think the school has been very successful in following through” (*NSW Primary School Year 5 teacher*). This teacher also made a comment that the importance of diagnosis may not be just in looking at the students at the top and bottom, but also those whose results were counterintuitive to teachers’ expectations: “It’s the kids who have surprised us ... The teachers know their kids well. The key is knowing the kids” (*NSW Primary School Year 5 teacher*). Here, the individual teacher’s knowledge of their students’ strengths and weaknesses is considered to be crucial in understanding the meaning of the testing results, not in isolation but in conjunction with other school-based assessment information.

This point relating external testing with teacher judgement and knowing the students was also made when considering reporting of student achievement, especially the

link with semester reports using a common five-point A to E grade scale: “The tests also reinforce the A-E reporting of students” (*ACT Primary School Year 3 teacher*). And again, “If you put [external testing results] with A-E reporting, what opportunities are we giving the kids to get the ‘A’? I think more and more, we are coming around to that. It is a slow process” (*ACT Primary School principal*).

5.2.4.2 *Shaping Pedagogy*

The second area concerned with the relationship between external literacy and numeracy testing and the classroom involved the impact of the tests in shaping teaching and learning. The link between the external testing and classroom pedagogy was not seen by all interviewees. Some saw little connection between the two. In their view, this link was tenuous at best, with scant evidence of it in their schools. When asked if they, or teachers in their school, saw pedagogy differently as a result of the testing feedback, most answered: “No, not really. I haven’t noticed any changes to teaching practices” (*NSW Primary School assistant principal and Year 3 teacher*), “Not to a very high level” (*NSW Primary School Year 5 teacher*), and “No, not really ... we have not done this yet, especially at this time of the year, with semester reports, etc.” (*ACT Primary School Year 5 teacher*).

There is a degree of uncertainty of the extent to which testing results shape pedagogy in schools. Comments from some interviewees range from: “Some to a greater extent than others” (*NSW Secondary School coordinator and Year 7 teacher*), and “To a point. They don’t use the results to fully inform them” (*NSW Central School principal*), to “It may to a small extent inform teachers in other areas, but from my knowledge of their curriculum documents, they are so overwhelmed with content, that any form of literacy teaching is secondary” (*NSW Secondary School coordinator and Year 7 teacher*). These views indicate varying perceptions of the link between external testing and classroom pedagogy on the one hand and actual practices in schools which may promote this relationship. Perhaps the most hopeful comments were made by two teachers who, when asked if teachers see pedagogy differently as a result of the tests, replied: “I hope so. It gives you purpose for your teaching” (*ACT Primary School Year 3 teacher*), and “The thing I was really happy about was saying to the teachers ‘stop thinking about the ‘big picture’ and let’s get down to the ‘nitty-gritty’. What is it we need to teach?’ They finally realised that you need to get down to the details” (*ACT Primary School principal*).

The dissimilar viewpoints and experiences expressed by participants were areas for further discussion in the next phase of the research, Phase 4: Research Learnings.

5.2.4.3 *Relevance to Curriculum and Assessment*

The third area associated with the use of external testing data in the classroom referred to its perceived application to curriculum and assessment. Again, some interviewees expressed uncertainty about the relevance of the external tests to curriculum and assessment in the school. Such doubt was expressed by interviewees in leadership positions and classroom teachers alike who were unsure as to how, or if, the testing feedback data is actually used in the classroom, or if it relates to the curriculum documents and teaching programs. Such varying views are expressed in the following comments when interviewees were asked if and how teachers incorporate the skills from external testing into their classroom-based assessment practices:

“I think so. People can see the link, although it is not widespread”
(*NSW Primary School assistant principal and Year 3 teacher*);

“Some to a greater extent than others” (*NSW Secondary School coordinator and Year 7 teacher*);

“To a point. They don’t use the results to fully inform them”
(*NSW Central school principal*);

“That’s a difficult one. I’m not too sure. From a whole school point of view, they are very relevant. But whether [the teachers] can see the correlation, I’m not 100% sure” (*ACT Primary School principal*);

“Yes, to some extent. With some age groups, anyway, especially in humanities” (*ACT Secondary School Year 7 teacher*).

These comments suggest there is a need for a whole-school approach to develop explicit links between the skills of, and results from, external testing of literacy and numeracy with the school curriculum and classroom assessment practices.

Relevance of the testing to curriculum and assessment was also discussed in terms of the cross-curricular nature of the literacy and numeracy skills. Here, some

specific issues were discussed when relating these skills to subjects other than English and mathematics:

“Literacy is a critical part of any KLA [Key Learning Area]. Numeracy lags a little bit. We do have Maths as a stand-alone. Teachers find it hard to take Maths out into the other KLAs. This could be a reason why Maths is not very strong in a lot of areas.”

(NSW Secondary School Year 7 teacher)

“There is value. But we certainly haven’t explored that avenue. As a staff, down to the teacher level, I don’t think I am fully aware of the possibility. As a staff we do have a fair understanding that Numeracy is number in the world. It’s not just Maths. But we haven’t taken that extra step and look at how can we create a focus in Science or across other KLAs [Key Learning Areas].”

(NSW Primary School Year 5 teacher).

These comments make the point that the transference of literacy skills is less problematic in humanities-based subjects (Religious Studies, English and the social sciences) than it is for numeracy skills to be seen as other than mathematics. This view is consistent with the researcher’s experiences with schools across the Archdiocese where, in many cases, literacy skills are more easily understood by teachers and are explicitly taught across the curriculum than are numeracy skills.

These comments suggest a need for a comprehensive appraisal of how the skills of literacy and numeracy are incorporated into curriculum documents, teaching programs, assessment practices and reporting across the Archdiocese. Again, these were areas for further discussion in the next phase of the research.

5.2.4.4 Theme Summary

The comments by interviewees about the impact of external testing of literacy and numeracy on classroom-based curriculum and assessment suggest that the results from these testing have value, and the diagnosis of these results provides important information to principals and teachers on student achievement. Interviewees also indicated that such diagnosis should not be restricted to analysing results of only those students who have not met the National Minimum Standard for the year level. To utilise this information fully,

connections need to be made between curriculum design and classroom-based assessment practices. Further, cross-curricular applications of the literacy and numeracy skills from external testing are important for the integration of these skills into the curriculum and classroom pedagogy. Finally, findings from the semi-structured interviews suggest that the results from the external tests could be used more effectively to shape teaching practices in the classroom.

These findings formed the fourth set of learnings to be discussed in the focus group (Phase 4).

5.3 CHAPTER SUMMARY

This chapter reported on the findings from Phase 3 of the research. It involved a series of semi-structured interviews to explore the main themes identified in Phase 2 of the research from the ETP instrument. Specifically, the purpose of the semi-structured interviews was to explore the identified issues concerning how schools use the results from external testing of literacy and numeracy across the Archdiocese, including the perceptions of leadership in this process. Each theme was examined and analysed using relevant statements from interviewees.

Analysis of the data from the interviews produced four themes centred on attitudes of staff towards external testing, leadership in data analysis and use, issues involved in the planning and coordination of feedback data at the school level, and the degree to which results from external testing are used in the classroom to inform teaching practices. These themes revealed some discrepancies in how external testing was perceived and valued, the role of accountability in reporting student results, the level of access to the data given to teachers, and the quality of the feedback data. Concerns were also expressed about the level of access by teachers to the data, the time needed and provided for effective analysis of testing results, as well as the degree to which staff across the school are involved in the analysis of testing results. There was general acceptance of both the need for whole-school planning for the use of such testing feedback, as well as for a critical mass of staff to be involved in the process of planning within the school. However, the reality in schools revealed a different situation where much analysis had been done by a select few members of staff, often in isolation from other teachers and with little involvement of the majority of staff.

Teacher engagement in the use of testing feedback for diagnostic purposes was seen to be of importance, especially with the linkages between data from external testing and classroom-based pedagogy and assessment practices. Here, external testing was viewed as an integral source of information on student achievement to complement existing classroom-based teaching, assessment and reporting. However, even though this aspiration was highly regarded, in reality such diagnosis was usually concentrated on a particular sub-group of students, primarily at the bottom end of the achievement scale.

These issues indicate varying degrees of acceptance within schools of the value of external testing and the degree to which the analysis and use of feedback data is being led and operationalised to improve student achievement. Similarly, the effectiveness of the way testing data have been analysed at the school level, and the actual impact the tests have had on teaching practices, have been questioned by interviewees in this third phase of the research. These views and concerns from the participants in the semi-structured interviews, when combined with the themes and issues identified from the initial focus group and ETP instrument, provide the framework for the next research phase – research learnings (Phase 4). This analysis is contained in Chapter 6.

CHAPTER 6: PRESENTATION OF RESULTS: Research Learnings (Research Phase 4)

6.1 INTRODUCTION

In the previous two chapters the findings from the first three phases of the research were presented. These involved pre-research meetings with principals to ascertain the level of support for the study (Phase 1). Secondly, issues and themes for research were identified, initially, by a focus group (Phase 2a) which informed the construction and development of a pilot survey (Phase 2b) and subsequent administration of the External Testing Profile (ETP) instrument (Phase 2c) sent to all 55 schools across the Archdiocese. With the identification and analysis of research themes emerging from this phase, the third research phase involved a series of semi-structured interviews designed to explore these with principals and teachers from a selection of school types and sizes in both the ACT and NSW sectors. This process provided the researcher with rich and textured qualitative data that added contextual meaning to the themes previously developed.

The present chapter discusses the quantitative and qualitative data reported in Chapters 4 and 5, specifically in relation to the major research question and contributing questions. It reports on the findings from the focus group (Phase 4) that was reconvened to consider the learnings from the previous research phases and to consider the implications for the Archdiocese. In doing this, the data gathered from the first eight research questions were considered in the light of question 9: *‘What do system leaders find significant about the findings of this school-based research?’*. By returning to the group of key school and CEO personnel who played a significant role in the identification of themes for research, the findings were reflected upon and analysed from both a school and system perspective as a forerunner for possible policy and procedural implications for the Archdiocese.

This approach reinforces both the sequential and iterative nature of the research, strengthens the results generalisability of the study and enhances the verification, clarification and further exploration of issues and themes arising from the previous research phases. Further, such an approach is congruent with the Constructivist epistemology adopted for the research (Stake, 2005), together with the Pragmatist perspective that is contextual and focused on action (Cohen & Manion, 1985); not just *understanding* the issues involved with external testing of literacy and numeracy in

Archdiocesan schools, but *finding solutions* that may contribute to changes in the way that feedback information is viewed, valued and acted upon at school and system levels.

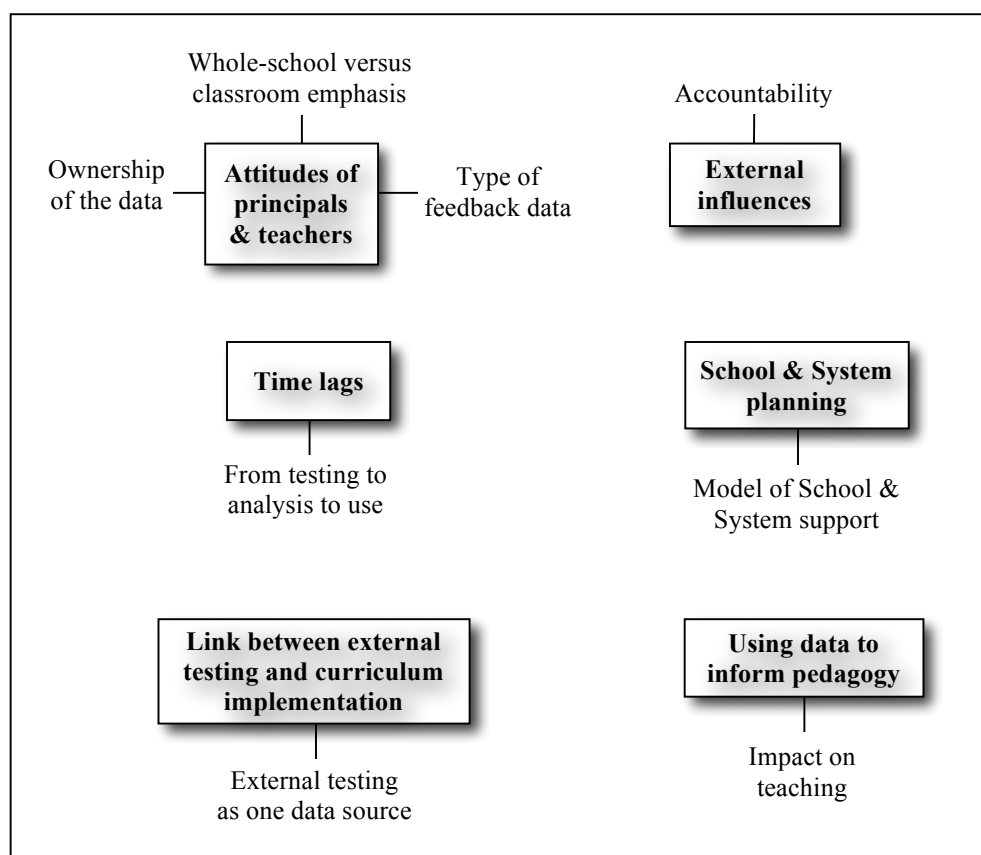
In this context, then, the discussion of the research findings by the focus group in Phase 4 was informed by each participant's in-depth knowledge of schools and a common desire to improve leadership and teaching practices across the Archdiocese.

6.2 THEMES FROM THE FOCUS GROUP

The focus group discussion produced a number of themes and issues centred on the analysis and use of external testing data at both the school and system levels. The two questions that guided the discussion were '*What are your reactions to the research findings?*' and '*What are the implications of the findings for the Archdiocese?*'. These questions were selected to allow the participants to, firstly, reflect on the findings of the study based on their particular context – from a school perspective (principal/assistant principal) to system representative (CEO officer). Then, using each participant's experience in relation to the research findings, discussion centred on generalisations, observations and opinions on the meaning of the results as a prelude to a consideration of question 2 – implications for the Archdiocese. This was an important component in the research design that supported the Pragmatist approach (Cherryholmes, 1993; Creswell, 2002, 2003; Teddlie & Tashakkori, 2003) where the emphasis is on the research problem to find a way forward, not just to understand it; to ascertain the practical implications of the research findings.

The six themes generated by the focus group discussion, are shown in Figure 6.1. The following sections report on their contribution to the research findings for Phase 4. Further, these themes generated two main ideas centred on the importance of the *value* placed on the data and the *link* between data analysis and use emerged as the two unifying themes from the discussion. These ideas provide an important framework for the discussion of findings from the research in Chapter 7.

FIGURE 6.1
THEMES FROM THE RESEARCH LEARNINGS



6.2.1 Attitudes of Principals and Teachers

The first theme emerging from the focus group discussion related to the differing attitudes of principals and teachers towards external data. In commenting on the results from the ETP instrument, the CEO Student Achievement coordinator pointed to the apparent disparity placed on the value of the testing data between the school's leadership and classroom teachers: "the teachers are not valuing the data the way that the school's leadership team is, and perhaps we need to re-look at this". This view was supported by the NSW Primary School principal, who indicated that:

"The principal and assistant principal are thinking there is more value in the external testing than some teachers are feeling and, if that's an indication of what is happening in the school, I guess there is some work to be done to continue to educate the teachers about the value of

the data and to continue to work with the teachers about what we see as the value in it.”

Here, recognition of the importance placed on the data from external testing by the focus group participants was clear, and this was regarded as an essential pre-requisite before any consideration of data analysis and use can be made. However, the disparity of perception between principals and teachers on the value of external testing was noted as an issue for both the school and system.

From the discussion, the attitudes of principals and teachers towards external data identified by the ETP instrument and supported by subsequent interviews was seen by the participants to depend on three important elements: ownership of the data, the differences between a whole-school and classroom emphasis on the analysis and use of testing data, and the type of data contained in the test results.

6.2.1.1 Ownership of the Data

The first element, ownership of the feedback data, was viewed by the focus group participants as a significant factor affecting the attitudes of teachers and principals towards external testing of literacy and numeracy. There was a perceived need for personal engagement of more staff members with the data to promote “greater ownership at the initial stage by getting more teachers to actually analyse the data” (*CEO Student Achievement coordinator*) rather than leaving it to a small group of teachers. This was supported by the CEO Primary curriculum officer who made the point that the issue of data ownership is usually restricted to teachers of students who have sat the tests that year, rather than a whole-school understanding: “I still don’t think teachers across the school think there is any ownership at all except for the teachers of Years 3 and 5” (*CEO Primary curriculum officer*).

The NSW Primary School principal discussed data ownership in his own context by raising the issue of “conscientious objectors of external testing and the standardised testing idea [who say] ‘we’re not changing because of a one-day test we’ve done in the middle of May’ ”. Likewise, it was pointed out that, in the Secondary School situation, there are “subgroups ... who feel it has nothing to do with them because they are in a practical area. They don’t feel as much responsibility for literacy and numeracy” (*ACT Secondary School assistant principal*).

Importantly, a link was made in the discussion between ‘data engagement’ and ‘data ownership’. It was observed that schools that have engaged with the data *own* the data where:

“The staff go and work with the data before they do anything. They’ve gone and played with it; they’ve gone and done the inservice on how to analyse it, and they’ve everyone on board to look at the data. That’s something that may be an indication of the schools that have been effective in owning the data. They have the ownership and they’ve gone through a fairly rigorous process”.

(CEO Student Achievement coordinator).

These points were seen as significant for the focus group. They suggest that an important element affecting attitudes to testing data is, firstly, ownership of the data and, for this to occur, a critical mass of teachers must firstly engage with the data.

6.2.1.2 *Whole-school versus Classroom Emphasis*

Apart from the emphasis placed on the level of engagement with the feedback data throughout the school, the second element affecting attitudes of principals and teachers to external testing rests with whether the focus is on aggregated information about the testing cohorts or information for the classroom teachers.

The discussion made a distinction between the different focus of the principal and leadership team compared with the classroom teachers. From a leadership perspective, the school’s executive is “concerned about the whole school, the big picture, and comparisons with last year’s cohort ... whereas the teachers look at their kids’ results, to see whether their kids have done well, especially compared with children in other classes” (*ACT Primary School principal*). This observation then was linked to the development of explicit school-based programs based on testing data and the communication of these with the teaching staff. Here, the school’s leadership team was seen to “have the long term view” (*ACT Primary School principal*). However, in the context of the classroom, it was noted that there is a danger such whole-school programs may not actually make the clear and unambiguous links with the testing data and, consequently, any relevance for the teacher in the context of the classroom may be diminished. This point was made clear in the Secondary School situation:

“We probably now need to go back and say to the whole staff, as a result of what we’ve learned from NAPLAN and other information, this is what we have done. And I guess we haven’t put it in to that context. We have told them we are doing these things and our aim is to improve numeracy and literacy, but we haven’t linked it back to NAPLAN; we haven’t made it explicit” (*ACT Secondary School assistant principal*).

These views indicate the importance of ensuring there is a shared understanding of the relevance of the testing and subsequent data feedback for both the whole school and the classroom. This issue of the purpose of the external testing and its whole-school and individual relevance, then, was seen to impact on people’s attitudes to such testing.

6.2.1.3 *Type of Feedback Data*

The third element affecting attitudes to external testing involved the type of data contained in the feedback to teachers through the ‘SMART Data’ application. Much of the information in this package is quantitative and involves the production and display of means, standard deviations, scaled scores and percentages in achievement bands in both graphical and tabular form. Further, in the ACT sector of the Archdiocese, the application was new in 2008; there were problems downloading both the application itself and related data files involving passwords, and in some cases, it was not possible to install the application on school computer servers for staff to have access.

In pursuing the issue of data relevance, the following question was asked by one participant about the type of data contained in the SMART Data application: “Could it come back to a bigger question about data use generally?” (*CEO Student Achievement coordinator*). This was followed by an observation that specifically related to the type of data feedback presented to teachers:

“I perceive that national testing is about quantitative data whereas I think that some people don’t value quantitative data as much as qualitative data. And I think the relational nature of teaching leads to questions being asked about how is this [quantitative] form of data any

more important than what I can find out myself in the classroom”
(*CEO Secondary curriculum officer*).

This interplay between quantitative and qualitative data, between challenge and familiarity, was also noted by another focus group participant as a potential factor affecting attitudes to external testing, involving the “relational aspect of teaching and the importance teachers place on that relationship” and the possibility of “this being a little bit intrusive on that relationship may be a factor” (*ACT Secondary School assistant principal*).

In this sense, then, the importance placed on quantitative feedback data from external testing was seen to impact on the essentially ‘qualitative’ relationship that exists between teacher and student; and that this has the potential to affect teachers’ attitudes towards external testing.

6.2.2 External Influences

The second theme related to the findings on the attitudes towards external testing was seen by the focus group participants to be affected by external influences beyond the control of the school. The increasing role of accountability for both student and school results was regarded as an important element in affecting attitudes towards external testing of literacy and numeracy.

Within the context of results from external testing becoming a more high-profile feature of the Australian Government’s agenda of ‘transparency’ of information about student achievement (see Section 2.5.2), one participant was “concerned that NAPLAN will become more prominent when ‘league tables’ may be introduced [because] teachers will see it as a great reflection on them when the results become public” (*ACT Primary School principal*). This possibility was seen in terms of the potential for “outside influences [to] impact on how we value the data” (*CEO Primary curriculum officer*), indicating that people’s attitudes towards the purpose for which national testing was introduced may, in fact, impact on how they value its value in the first place and, consequently, affect how they use the testing results to inform their teaching.

Thus, the potential for comparison (of teacher, school, system and jurisdiction) and for simple and simplistic judgements to be made or inferred could produce “scepticism about anything the government is pushing as an agenda. This may switch people off”

(*CEO Secondary curriculum officer*). The danger here is that, regardless of the moral purpose (Fullan, 2005; Sergiovanni, 2005; Frick, 2009) that the testing may possess in and of its own right, from an operational or practical perspective, teachers' attitudes to such tests may be coloured by the potential for perceived misuse over which they have little or no control. This relationship between moral and practical purpose is discussed further in Section 7.4.

The first two themes emerging from the focus group discussion - attitudes of principals and teachers to external testing and the impact of external influences on these attitudes - shows congruence with research questions 1 and 2: '*What attitudes do teachers and principals hold about external literacy and numeracy testing?*' and '*What factors influence these attitudes?*' This alignment from the focus group discussion in Phase 4 represents an important element in mixed methods research and helps to strengthen the 'inferential trustworthiness' and 'generalisability' in analysing data from multiple sources and at different phases in the research process to interpret the information and make inferences about the findings (Bassey, 1999b; Lincoln & Guba, 2000).

6.2.3 School and System Planning

The third theme emerging from the focus group discussion involved the importance of effective leadership in planning for the analysis and use of external testing feedback. The main elements of this theme centre on the need for planning, the development of expertise in analysis at both the school and system level, and a different way of looking at the current model of support.

In the light of the research findings from Phase 2a (focus group), Phase 2c (External Testing Profile instrument) and Phase 3 (semi-structured interviews), some evaluation of the current system of support for data analysis was discussed by the group, particularly the need for "time to actually develop an effective plan [for analysis], and in this, the processes we have in place as far as the dissemination of the data are probably not effective" (*CEO Student Achievement coordinator*). This call for a comprehensive approach to strategic planning was viewed in light of the current CEO requirements for schools to submit several annual plans in Term 4, notably a whole-school Strategic and Management Plan and separate plans for literacy and numeracy, learning support provision, and information and communications technology. The issues of 'time' and

‘timing’ were prevalent here: “We should be able to incorporate these plans into one overall comprehensive school plan, rather than duplication across several plans” (*CEO Student Achievement coordinator*) and “Having to do these [plans] at that time of the year is against best practice and forces schools to rush through the process” (*ACT Secondary School assistant principal*).

This call for a more strategic approach to planning across the system is also related to the need for a longer-term approach to effecting change in current practices at the school level:

“What we really need to focus on is that any change takes time. If we have to put literacy and numeracy and all these other plans into action, we should be encouraged to narrow the focus to what are you going to do over the next five years, not feeling you have to do it all at once”.

(*NSW Primary School principal*)

The second element in school and system planning from the focus group discussion centres on the quality of data analysis from external testing feedback. At the school level, a call for analysis from people with expertise to work *within* and *across* schools in analysing the data was regarded as significant:

“The more help we can get with analysis from people with expertise who can see trends and help us because when we are only looking at our own data. We may miss something in comparison with other schools or other ways of looking at the data, not just our narrow ways.”

(*ACT Secondary School system principal*)

Here the question was whether a school, in relative isolation, can effectively analyse the feedback data and draw relevant and accurate interpretations of the information without having an appreciation of the wider Archdiocesan perspective.

A third element associated with the theme of school and system planning involved some evaluation of the current model of system support for schools. This concerned recognising and publicising examples of effective data analysis and use at particular schools across the Archdiocese. In adopting a ‘lighthouse school’ approach, “the celebration of good practice is something we have hidden away for too long. We need to

show what they are doing that works. If something really good is happening in a school, we need to know why so we can inform everyone else” (*CEO Student Achievement coordinator*).

The inclusion of this approach to school and system support was also seen to recognise and acknowledge the role of CEO staff who were regarded as “incredibly supportive in offering professional development to us at school” (*ACT Secondary School assistant principal*). A combination of CEO and school expertise in data analysis, together with the use of exemplars from Archdiocesan schools, was viewed by participants as an option worth considering to promote strategic planning for the analysis and use of feedback data from external testing.

The emergence of the third theme of school and system planning was related to research questions 3 and 4 concerning data leadership at both the school and system level: ‘*How is external testing data analysed and feedback given in the school?*’ and ‘*Who is leading the process of analysis and feedback?*’. This theme was concerned with whole-school planning and emphasised the important role of leadership in the analysis and use of testing feedback data from both a school and system perspective.

6.2.4 Time Lags

Considerable discussion by focus group participants produced the fourth theme concerned with the nature and effects of time lags from the time of the actual tests to when the results were available; and this was seen to have an impact on the ability of schools to adequately analyse and use the testing data feedback. These lags were of two types: lags between the time of the testing itself and the availability of results, and those between results availability and the subsequent analysis and use of such data to effect change within the school. Each was regarded as a source of frustration for school personnel in their efforts to make effective use of the data to inform student achievement.

The national tests of literacy and numeracy are completed over a three-day period in mid-May, however the results are not available to schools or parents until mid-September, approximately two or three weeks before the end of Term 3. This time lag between test and results, where “the analysis is removed from the event” (*ACT Secondary School assistant principal*) prompted the following comment as a representative view from focus group participants:

“I think it’s the lag time between the actual tests and the results coming out that does contribute to an issue. There’s great excitement around test time and I think the teachers are very keen to see how their own students did. I’m surprised they don’t see the value of it because they are quite keen about it and quite anxious about it at the time of the tests.”

(ACT Primary School principal).

The four-month gap was seen to impact on students’ ability to receive effective feedback within an acceptable timeframe akin to that of classroom assessment. This “...timing and the lag between the test and the results” (*NSW Primary School principal*) was viewed as a detraction from the real diagnostic power of the tests and the teachers’ ability to work with the data.

The second aspect of the time lag between test and results involved the timing of the feedback itself towards the end of Term 3. From the CEO’s viewpoint,

“...time is an issue because we get the data in September and we are asking the schools to get a plan sorted by December. We provide some time to do the analysis, but not a lot of time to actually develop an effective plan and the processes we have in place as far as the dissemination of the data are probably not effective from what these results are saying” (*CEO Student Achievement coordinator*).

The acknowledgement that Term 4 is a busy time of the academic year was also supported at the school level: “The time restriction that No.2 has spoken about is really critical, especially at this time [Term 4] when people are preparing for report writing” (*ACT Primary School principal*).

While the need for schools to have developed literacy and numeracy (and other) plans before the end of the year is a system requirement, the process of explicitly engaging classroom teachers with the data for diagnostic purposes during Term 4 was viewed as problematic. Statements such as the following underscore the tension that exists between system requirements of accountability and the school’s need to fully analyse the testing data:

“You can brush over it, saying this [data analysis] is another task that has to be done by this deadline. So we’ll do it quickly, get it done, out of the way and move on, then work on Strategic and Management Plans, now the IT plan, etc” (*NSW Primary School principal*).

This view was supported by one school’s approach to both the timing of the availability of results and the subsequent lack of time to fully engage with analysis of the testing feedback data:

“What we tend to do is, at the beginning of the next year, show the data, show the trends, to encourage the new teachers of the children to look at the SMART data, but I actually doubt they have done that because that was last year” (*ACT Primary School principal*).

At this school, even though some analysis is done in Term 4 after the results are released, most teacher engagement with the data occurred at the beginning of the following year when students are assigned to their new classes with teachers who will work with them throughout the year. This was seen as a possibility for teachers to engage with the testing data when they have their new student cohorts at the start of the new year.

The fourth theme of time lags between the actual testing and subsequent analysis and use of the feedback data was related to research questions 5 and 6 involving the effectiveness of leadership in the analysis and use of testing feedback data: ‘*How effective is leadership in data analysis?*’ and ‘*What factors influence leadership in data analysis?*’. The focus group discussion made the point that substantial gaps in time between testing, analysis and use of the data impacted on how effectively such feedback information from the testing is analysed and used at the school level. The possibility of alternative models for analysis could be considered to improve the diagnostic power of the testing feedback.

6.2.5 Link between External Testing and Curriculum Implementation

The fifth theme emerging from the discussion focused on the link between external testing of literacy and numeracy and classroom assessment practices. Exclusively, the discussion centred on the call “to make more explicit the link between national testing

results and what happens in the classroom; with teachers who ... don't see the relevance of the testing to their classroom practice" (*CEO Secondary curriculum officer*).

With unanimous agreement on the importance of this link, several lines of discussion followed to expand elements of the surrounding issues. One reason given for the apparent disjunction between the desire to use external testing and the practicalities of such use lay in the timing of the introduction of national testing with respect to the introduction of a national curriculum. The Australian Curriculum, Assessment and Reporting Authority (ACARA) was formed in 2009 and is responsible for the development of Australia's national curriculum from Kindergarten to Year 12. Starting with the learning areas of English, mathematics, the sciences and history for implementation from 2011, its planned introduction will have been preceded by national testing of literacy and numeracy by three years. This has meant that "we have a national test before we have a national curriculum, and the national test is based on the Statements of Learning [used to form the new curriculum] (*CEO Student Achievement coordinator*). The importance of this point lies in the real possibility that "...teachers may not have created the links and haven't seen the ... relevance of creating those links to inform their teaching and learning" (*CEO Student Achievement coordinator*). Whereas the previously employed state/territory-based external tests were based on outcomes from the relevant state/territory curriculum documents, NAPLAN is based on a national curriculum that has hitherto not been implemented. And with teachers not familiar with its proposed content, emphases and nuances of this new curriculum, alignment between testing and classroom curriculum implementation, assessment and reporting has been problematic.

A second element from the discussion of the link between external testing and classroom curriculum implementation involved the importance of using testing and its diagnostic information as a validation tool; that is to "make use of several types of data sources on student achievement. We know, we've done our own testing and have school reports. And if they are marrying up it becomes a really good validator." (*NSW Primary School principal*). Data validation was also linked with the idea of tracking both student achievement and progress over time; to obtain valid and reliable information about students and to ascertain whether such monitoring and intervention adds value to their learning. The following comment reinforces this point:

“... if we have good tracking systems of our students and school data for assessment, that kind of information should be used in conjunction with this and say ‘look what this is saying in an external sense’, ‘look at this internal data’ because we’ve got it. Do they marry or not?”

(CEO Primary curriculum officer)

Moreover, tracking student progress over time centres the analysis on the diagnosis of student achievement rather than issues associated with teacher ‘effectiveness’ or responsibility for their students’ results:

“What’s important in terms of data analysis is not specific year data but trend data – the difference between when the students were in Year 3 as to when they are in Year 5 and Year 7 so you are actually looking at what’s happening over time. Otherwise we try and attribute it to particular teachers or cohort. In some ways, that’s irrelevant. It’s about what’s happening to those kids over time.”

(CEO Secondary curriculum officer).

This call for the integration of internal and external sources of data on student achievement and the tracking of results over time were seen as critical in showing the relationship between what teachers do in the classroom and objective information obtained from the results of external testing of literacy and numeracy. Further, such tracking of student achievement was viewed as the responsibility of the school: “In schools we need to track our own data more effectively and not just rely on the CEO” (*ACT Primary School principal*). This point also links with data ownership in affecting the attitudes of principals and teachers towards external testing (see Section 6.2.1.1).

This discussion also emphasised that, if real connections are to be made between external testing and classroom curriculum implementation, data on student achievement should be presented “... as a whole package to improve student learning; not NAPLAN just on its own, but part of the school’s cycle of renewal and review” (*ACT Secondary School assistant principal*). This view was seen to have two important consequences. Firstly, if such important links are to be made between internal and external data, information on student achievement should be viewed as integrated and multi-sourced. Secondly, such data should form the basis on which evidence-based decisions are made (see Section 2.3.4) to inform school-based planning (see Section 6.2.3).

Since these links may not yet be made at the school level, further work on “the connections between the testing and classroom teaching and learning” (*CEO Primary curriculum officer*) was seen as a real need across the Archdiocese, and “any promotion of data analysis needs to be done in the context of its connection with teaching and learning; it’s not a natural link that everyone makes” (*CEO Secondary curriculum officer*).

6.2.6 Using Data to Inform Pedagogy

Apart from linking external testing data with the curriculum, the sixth theme emerging from the focus group discussion involved the relationship between data from external testing and classroom teaching practices. While there was no question about the purpose of the testing or worth of the feedback data, the link between such information and its impact on classroom pedagogy was regarded as somewhat tenuous.

Some questions were raised about the efforts spent on data analysis compared with its use: “in terms of the use of the data, is it possible we are spending too much time on the interpretation without making the link to how this is going to impact on pedagogy in the classroom?” (*CEO Secondary curriculum officer*). Since there has been such an emphasis on effective data analysis of the testing results at both the school and system levels, this may have been at the expense of the next crucial step – that of linking the data to effect changes in pedagogy in the classroom. This view was supported and extended as a challenge to principals, assistant principals and school executives to “use data as a catalyst in our classrooms” (*NSW Primary School principal*).

A second consideration in linking testing data with classroom pedagogy was also discussed within the context of how people perceive its worth:

“If it is not going to impact on teaching, why would I perceive that external testing is worthwhile? Why would I be concerned about the leadership of it? Or the process, which I see is foreign anyway? And how would I see the data is effective if I don’t see it as important in my teaching?” (*CEO Secondary curriculum officer*).

This point was seen as important by the group, and it links with the first two research questions concerning attitudes towards external testing. The discussion suggested that if such testing is not seen to be relevant, it will not be used in a practical sense by the classroom teacher to impact on teaching practices. Moreover, this view “comes back to a

bigger question about data use generally” (*CEO Student Achievement coordinator*) and raises the issue of the purpose for the testing in the first place, and the practical implication of using the results for enhancing student learning.

The third element in the discussion about using data to inform teaching practices focused on “the idea of good pedagogy in making connections” (*CEO Primary curriculum officer*). The suggestion of a *causal* link between testing results and pedagogy was questioned:

“It’s a bit of a ‘chicken-and-egg’ thing. What comes first? Getting data that says that there are issues in the school in literacy and numeracy does not equate to, further down the track, there being better pedagogy. But, better pedagogy, I think, will lead ... to better results in literacy and numeracy. So, it’s about where you put your emphasis and knowing what’s caused the interest for the promotion of pedagogy in the school and whether that’s data analysis” (*CEO Secondary curriculum officer*).

This point was seen to raise the important issue of motivation of school staffs to see the link between external testing feedback and the impact it can have on the teacher in the classroom. That is, data analysis *per se* will not enthuse principals and teachers to necessarily use such information. From the discussion, “talking about good pedagogy, good teaching and learning and improving the outcomes for students gets them [teachers] onside. They’re keen about those things, but maybe it depends on the way it’s sold as well” (*CEO Secondary curriculum officer*). This view indicates that the focus should not necessarily be on how to start with the testing data to link with classroom pedagogy, but rather to begin with the discussion about good teaching/learning practices in the school and to see how the information from external testing of literacy and numeracy can support these. That is, begin with what is important to the teacher and then examine how data from external tests of literacy and numeracy can inform teaching practices to enhance student achievement.

The final two themes of linking external testing with curriculum implementation and using data to inform pedagogy were related to the impact of external testing data on classroom teaching practices and the way curriculum is taught and assessed. These themes were linked with research questions 7 and 8: ‘*In what ways, and to what*

extent, are teaching practices shaped by testing data?’ and ‘What factors influence the shaping of teaching practices by testing data?’ The discussion concerned the role of external testing data as a catalyst for the classroom in affecting curriculum decisions and informing pedagogy to make an impact on teaching and learning.

6.3 CHAPTER SUMMARY

This chapter reported on the findings from Phase 4 of the research. It involved a focus group discussion to consider the learnings from the previous research phases and to consider the implications for the Archdiocese.

In analysing results of the study, participants considered research question 9: *‘What do system leaders find significant about the findings of this school-based research?’*. This phase represented a culmination of research learnings from the previous three phases and eight research questions, involving the formation of the initial focus group (Phase 2a), the pilot survey and ETP instrument (Phases 2b and 2c), and semi-structured interviews (Phase 3). These data collection instruments provided information on how results from national literacy and numeracy testing are analysed and used in the school, and who leads the process. Section 6.2 presented the findings from each of the six themes emerging from the discussion: attitudes of principals and teachers to the testing, external influences, school and system planning, time lags, the link between external testing and curriculum implementation, and using data to inform pedagogy.

The next chapter presents these results together with those from the previous phases of the study to synthesise the research findings and to develop a model for understanding the interrelationships among the emergent themes and issues.

CHAPTER 7: DISCUSSION OF RESEARCH FINDINGS

7.1 INTRODUCTION

This chapter discusses the quantitative and qualitative data reported in Chapters 4, 5 and 6, and links them to suggest explanations for the research findings and to provide answers to the major research question and contributing questions. Explicit connections are made with each phase of the present research. The chapter concludes with the development of a framework for understanding the findings from the study. It explains how these findings are linked to a model based on the concept of ‘professional purpose’ related to the analysis and use of results from external testing of literacy and numeracy. This provides an important link with the final chapter where the implications of the study for further research and practice are discussed, together with recommendations for action.

7.2 OVERVIEW OF THE RESEARCH

The study arose out of the experiences and observations of the researcher regarding how feedback data from external testing of literacy and numeracy have been used to provide objective and independently-derived information on student achievement. Further, the role of leadership in this process and the relationship between such external data and classroom-based information on student performance have been sources of contention at both the school and system levels. The findings from the study suggest that a variety of opinions exist throughout the Archdiocese regarding the value of national testing and its usefulness to effect changes in teaching practices and student learning. This has led to a dissonance between the role of leadership in demonstrating accountability and in promoting improvement of student outcomes. Moreover, the present research has pointed to questions arising about the impact that non-classroom-based data from external testing has on student achievement, as well as government-promoted and mandated agendas of accountability and transparency in reporting school performance in the public arena.

The importance of the present study emanates from the tensions between externally-imposed accountability requirements for reporting student achievement on literacy and numeracy testing, the desires of teachers and principals for students to achieve their potential, the increased emphasis by governments on measuring and reporting such achievement, and the specific system contexts in which schools operate. Effective and

efficient use of data from external testing, therefore, requires an understanding of the current context regarding the measurement and reporting of student achievement within the system (i.e. the Catholic systemic schools of the Archdiocese of Canberra and Goulburn), the relationship between external testing and school-based assessment and reporting, and the perceptions of principal leadership and classroom teachers' pedagogy.

The research used a case study approach to understand how and why teachers and school principals make meaning of external literacy and numeracy tests, and how such meanings influence their actions. An inductive approach (Creswell, 1998) was used to build up conceptual images of the settings in which the participants are located. The treatment of the Archdiocese as a case study and the use of a multi-site case study methodology (Merriam, 1998b; Stake, 1997) enabled a range of schools across the to be studied. This constructed a composite picture of the research field to enhance the inferential quality and generalisability of findings. This approach was "strong in reality" (Cohen & Manion, 1985, p. 146). It concentrated on the experiential knowledge of the participants to provide a sound basis for understanding the research problem, analysing and evaluating current policies, practices and procedures at the case study sites, and formulating appropriate action plans.

The research was undertaken over four distinct, but complementary phases (see Table 3.2). These were pre-research meetings with principals (Phase 1), the identification of issues (Phase 2), exploration of issues (Phase 3) and discussion of research learnings (Phase 4). The findings were reported in Chapters 4, 5 and 6. The main data collection instruments involved the formation of a focus group (Phases 2a and 4), the construction of a pilot survey (Phase 2b), administration of the External Testing Profile (ETP) instrument to all 55 Archdiocesan Primary, Central and Secondary schools (Phase 2c) and the subsequent use of semi-structured interviews (Phase 3).

7.3 DISCUSSION OF FINDINGS

The following sections discuss the findings from these phases and analyse their significance in answering the research question:

**How does the experience of external testing and data utilisation
affect attitudes of teachers and principals to the tests, teaching
practice and school leadership?**

Each section in this chapter is devoted to a discussion of the research findings grouped under four themes. These groupings are shown in Table 7.1.

TABLE 7.1
RELATIONSHIP BETWEEN SURVEY THEMES AND RESEARCH QUESTIONS

Theme	Contributing Questions
Attitudes towards External Testing	1. What attitudes do teachers and principals hold about external literacy and numeracy testing? 2. What factors influence these attitudes?
Leadership in Using Testing Data	3. How is external testing data analysed and feedback given in the school? 4. Who is leading the process of analysis and feedback?
Effective Data Analysis	5. How effective is leadership in data analysis? 6. What factors influence leadership in data analysis?
Impact on Teaching Practices	7. In what ways, and to what extent, are teaching practices shaped by testing data? 8. What factors influence the shaping of teaching practices by testing data?

The final contributing question: *‘What do system leaders find significant about the findings of this school-based research?’* was related to Phase 4 of the research where a group of CEO personnel and principals considered the findings of the study. This approach to analysing the research findings as a basis for action supported the Pragmatist theoretical perspective upon which the research was based (Cherryholmes, 1993; Creswell, 2003), and aligned with the focus of the study as situated in real-world practice. This approach went beyond ‘understanding’ the research problem to finding a way forward by considering the “consequences of ... findings” (Cherryholmes, 1993, p. 3). Research question 9 is also discussed in this chapter.

7.3.1 Attitudes towards External Testing

The first theme emerging from the research concerned the attitudes towards external testing (linked with the ETP instrument scale ‘Worth of External Testing’ - WET) and was related to the first two research questions: *‘What attitudes do teachers and principals hold about external literacy and numeracy testing?’* and *‘What factors influence*

these attitudes?'. To answer these questions, the research was designed to ascertain what views teachers and principals held towards the external testing of literacy and numeracy and what factors were responsible in shaping these views. Themes 2 and 3 from the Literature Review - 'Educational Change' and 'Educational Accountability' - dealt with the factors that inform the attitudes of teachers and principals towards change, school improvement and accountability (see Sections 2.4 and 2.5). The literature review showed that educational change and its dimensions inform (and are informed by) individual meaning-making as a precursor to action. The introduction of any change, such as a program of external testing, and the degree to which it becomes successful necessitates a re-evaluation of meaning by individuals (Hargreaves, 2004) as well as consideration of the importance of context (Ellsworth, 2000). Several authors have written about how individuals come to terms with change situations (Fullan, 1991; Geijsel & Meijers, 2005; Hargreaves, 2004), and whether their success depends on the change process itself being internally- or externally-initiated (Harris, 2005). In this connection, the present research supported previous studies and the academic literature regarding the response of the individual to educational change. Within the context of external tests of literacy and numeracy, the study demonstrated that the degree to which the external tests of literacy and numeracy were perceived to be of value was an important factor in determining the attitudes of teachers and principals to the tests; and these, in turn, influenced the level of engagement with the data. The initial focus group (Phase 2a) posited three issues affecting the attitudes of teachers and principals to the tests: the observation that not all teachers value the tests or the potential of the feedback to be useful, the perception of variable quality of the feedback itself, and the view that the tests are isolated from, and are unrelated to, the curriculum in the classroom.

The findings from Part C of the ETP instrument (Phase 2c) identified that, even though 76.8% of respondents regarded the tests as useful, attitudes towards them differed depending on the *role* performed by those respondents in schools. Principals and assistant principals commented favourably on the usefulness of the tests (28 out of 33 responses, or 84.9%), whilst coordinators and teachers – those with a classroom focus – found their value less convincing (73.0%, or 55 out of 75 responses).

These qualitative data were reinforced by the Analysis of Variance (ANOVA). This analysis found statistically significant differences among several demographic groups

regarding the Worth of External Testing (WET). Tukey's Honestly Significantly Different (HSD) *post hoc* tests were conducted to analyse the source of these differences. Cohen's (1988) Effect Size (*d*) was also calculated to measure the 'practical' significance of the differences.

Analysis of the demographic data showed that significant differences were found between the following groups in relation to the Worth of External Testing associated with the employment type and role performed in the school: *teachers and non-teachers* - between Year 3 classroom teachers and those who were non-teaching (principals and many assistant principals); *position in the school* - between principals/assistant principals and teachers; and *membership of the school executive* - between members of the school executive (principals, assistant principals and many coordinators) and those who were not on the school's executive team (classroom teachers and some coordinators).

The research findings show that external testing was regarded more highly by principals (many of whom were non-teaching) and assistant principals (with reduced teaching duties). Both of these groups were members of the school executive team. Lower mean scores by classroom teachers on all of the scales of the ETP instrument demonstrate that this group did not view the value of external testing as highly as the former. No statistical differences were found related to school size, type (Primary, Central, Secondary), location (ACT, NSW) or teaching experience.

Semi-structured interviews (Phase 3) explored these findings and provided further qualitative insights into the factors that determined attitudes towards the testing. Even though most interviewees supported the idea of external testing as another source of information about student achievement, factors such as the importance of school/cohort versus individual student results, the quality of feedback data provided to the school, and the access of individual teachers to the data all played a role in influencing how teachers and principals viewed the tests themselves and the associated feedback data.

Further, there was evidence from this research that a second element in determining attitudes towards external testing rested on *accountability for results*. Again, this was identified in each research phase and was seen in both positive and negative terms. For some respondents, accountability was regarded as a motivator for students, teachers and the leadership of the school. Elements such as the need for consistency and healthy

competition, the contribution that accountability makes towards professional reflection, together with opportunities for professional dialogue and collaboration were regarded by school leaders as driving forces for change in the school. Moreover, an emphasis was placed on the importance of standards monitoring and its impact on improving teaching practices, particularly *within* the school.

However, accountability was also seen in a negative light, particularly in relation to its potential for use in making comparisons *between* schools. Analysis of comments identified in Part C of the ETP instrument, and explored further in the semi-structured interviews, points to the view by classroom teachers of the potential of external tests of literacy and numeracy to be used as instruments of compliance and comparison between schools, systems and states/territories, especially when reported publicly. Of particular note was the view that such comparisons were unhelpful and unnecessary in promoting improvements in student outcomes. That is, classroom teachers noted that, if the purpose of the tests was diagnostic and designed to improve student outcomes, then inter-school comparisons were inappropriate and counter-productive.

These research data supported previous research findings from the literature. The role of accountability in education has been explored in the literature (Koretz, 2002; Levin, 1974; Nagy, 2000; Rowe, 2000). The measurement of educational outputs and the reporting of comparisons between schools has been a feature of the nexus between compliance and accountability in recent years, especially drawing on the experiences overseas. Such measures in the United States and United Kingdom have been predicated on the measurement, provision and reporting of school performance data across a wide range of contexts (Gray, 2004; Shaw, 2003).

With the public measurement and accountability agenda being a relatively recent phenomenon in Australia (Cumming & Maxwell, 2004), attention has been focused on the development of a national approach to the development of curriculum, and the testing and reporting of student achievement based upon transparency. This approach has been questioned as a means to improve school performance, on the grounds that the reporting of results can become an end in itself (Gorard et al., 2002).

The linking of such measurement and reporting to Australian Government legislation for the provision of quadrennial funding agreements with the states/territories

(Schools Assistance Act – 2004, 2008) has meant that each school's results in the national tests of literacy and numeracy have become public property. Moreover, the perception that school 'league tables' may be produced from student achievement results has tended to raise the profile of test-based accountability and has produced an assessment-accountability dilemma (Rowe, 2000) that is 'high-stakes' (Linn, 2000). This "accountability as surveillance" model (Earl & Fullan, 2003, p. 393), involving external mandates and performance measures, raises external testing to a new level of significance that requires strategic ways of thinking about leadership in the analysis and use of data on student achievement.

These findings from the study involving different attitudes towards external testing by school leadership and classroom teachers highlight the possibility that external testing regimes run the risk of undermining professional collaboration and reinforcing hierarchical relationships which have been previously found to unproductively separate teaching and administration. This is discussed in the next section where the differences between teacher and leader are brought into sharper focus when considering leadership in data analysis.

7.3.2 Leadership in Using Testing Data

The second theme emerging from this research concerned the nature of leadership in the use of testing feedback at the school level. This is associated with the third and fourth research questions: '*How is external testing data analysed and feedback given in the school?*' and '*Who is leading the process of analysis and feedback?*'. The identification and role of data leadership in the school is based on Theme 2 of the Literature Review, 'Educational Change'.

Analysis of the demographic data from the ETP instrument on the Data Leadership (DL) domain showed widely differing perceptions about how the analysis of feedback data is being led in the schools across the Archdiocese and who is leading the process. Statistically significant differences were found between groups in the schools in relation to the following: *teaching experience* - between beginning teachers and experienced teachers; *teachers and non-teachers* - between Year 5 teachers in Primary schools and those who were non-teaching (principals and many assistant principals); *role in the school* - between principals and classroom teachers, and between principals and

assistant principals as a leadership group and teachers; and finally *membership of the school executive* - between members of the school executive (principals, assistant principals and many coordinators) and those who were not on the school's executive team (classroom teachers and some coordinators).

In each case, the research showed that the highest mean scores on the Data Leadership (DL) scale from the ETP instrument were returned by principals/assistant principals (many of whom were non-teaching) and experienced teachers. The study showed that classroom teachers, especially those who were inexperienced, had a lower opinion of the quality and extent of leadership in the analysis and use of the feedback data from the external tests. No statistical differences were found related to school size, type (Primary, Central, Secondary), location (ACT, NSW) or teaching experience.

Further qualitative analysis of this theme reinforced the differing perceptions of the role of leadership in using testing data. Interestingly, about one quarter (25.7%) of respondents who wrote comments in Part C of the ETP instrument could not identify who actually leads the process in the school. Most respondents indicated that the principal seemed to play a relatively minor role in the process of explicit analysis and use of external testing data (11.9% of responses), with the assistant principal and coordinators taking on an operational responsibility (25.7% and 22.9% respectively). The majority of those who were unsure about who was leading the analysis process (19 out of 28 respondents) were classroom teachers. This finding is congruent with that of interviewees (Phase 3) who provided some clarification related to the size of the school. In small schools the person actually leading the process of analysis is easily identifiable. In large schools, a formal role or promotions position usually exists for this purpose. However, in the majority of schools throughout the Archdiocese (those between 301 and 500 students), the data showed some confusion and ambiguity as to who actually leads the process of data analysis. In this regard, the present research indicates that there is some uncertainty and ambiguity concerning the identification of leadership in the analysis and use of external testing results in the school, and that this is more pronounced in 'medium size schools' (i.e. those between 301 and 500 students).

A further aspect of leadership in using external testing data from this study was the belief that, even though the principal need not actually administer or manage the process in an operational sense, he/she must provide unequivocal direction and explicit

support by instigating and sustaining a strategic planning process. This was seen to involve the development of a whole-school plan, firstly, for the analysis of feedback data, secondly, for the diagnosis of student achievement results and, thirdly, to develop an integrated plan for the use of the data. The initial focus group (Phase 2a) saw that an essential element in leadership in data analysis and use was for the principal to value the testing data in the first place as a precursor for being the main driver in its use. This meant that, even though the actual data analysis can be done by other school personnel, the data analysis process needs the authoritative, explicit backing and involvement of the principal.

The themes from the initial focus group (Phase 2a) and ETP instrument (Phase 2c) suggest that the evidence-based leadership role of the principal in using testing data consisted of three components: the provision of appropriate school structures to enable data analysis, organising for the involvement of key staff in this process, and the formation of whole-school plans to use the testing results. These findings were echoed during Phase 3 by the interviewees who had concerns about the lack of adequate time provided to analyse the testing results in order to develop strategic and effective engagement with the data. In many schools, this was coupled with the limited access of staff to the testing results themselves. In some cases, staff were presented with the school-level results at a staff meeting, and then requested to download the SMART Data application themselves to work with results for their own students. The statistically significant differences found between groups within the school in relation to data leadership were demonstrated in research Phases 2a and 2c with the use of the focus group and External Testing Profile (ETP) instrument. Further, the frustration felt by interviewees over the perceived lack of leadership in planning for the *analysis* of testing feedback data, and in planning for the *use* of such feedback (Phase 3), echoes the issues surrounding leadership in the analysis and use of data identified by the literature.

The various dimensions of leadership in school-level change have been studied at length (Chapman & Fullan, 2007; Day, Harris, & Hadfield, 2001; Earl & Fullan, 2003; Power, 2004). The indirect impact of the principal's leadership on student outcomes has also been documented (Cotton, 2003), together with the impact of evidence-based leadership in the school (Hattie, 2005; Robinson, Lloyd & Rowe, 2008). The literature emphasises the crucial role played by the principal involving the development of shared vision, providing direction and influencing (Leithwood & Riehl, 2003). However, the

findings from the present research show that the necessity for, and positive impact of, evidence-based leadership in schools strongly indicated by the literature was not a feature in the analysis and use of data from external testing across the Archdiocese, nor was it easily identifiable in its operation. The findings from the study suggest that there is a perception by many teachers of little explicit, authoritative involvement by the principal in an active sense in leading the process of data analysis and use within the school. To elaborate on this, the next section discusses the operational factors associated with the research findings on data leadership in schools, particularly regarding its effectiveness in the analysis and use of testing feedback data.

7.3.3 Effective Data Analysis

The third theme emerging from the research concerned the effectiveness of leadership in promoting the analysis and use of feedback data from the external testing of literacy and numeracy ('Effective Data Analysis' – EDA). This is associated with research questions 5 and 6: '*How effective is leadership in data analysis?*' and '*What factors influence leadership in data analysis?*' and is closely aligned with Themes 1 and 2 from the Literature Review, 'Student Achievement' and 'Educational Change'.

The central role of the classroom teacher in promoting student achievement has been researched over recent years (Hopkins, 1997; Levin, Glaze & Fullan, 2008; Reed, 2001; Tschannen-Moran & Barr, 2004), together with improvement that is 'data-driven' (Noyce, 2002; Rowe, 2005; Rowley, 2005). Moreover, the use of evidence provides us with an "external point of reference" (DeCourcy, 2005, p. 97) on which teachers and principals can base decisions. Along with the preceding points, previous research has demonstrated the importance of feedback reaching the teacher in a way that is accessible, usable and relevant for teaching and learning (Axworthy, 2005). That is, teachers must have timely access to relevant data on student achievement progress to enable evidence-based decisions about student learning to be made.

The present research provided evidence from the initial focus group (Phase 2a) that suggested such access to information on student performance from the external tests was not widespread among schools in the Archdiocese. It was indicated that this had limited the effectiveness of shared understanding within the school regarding the value of testing results, and had inhibited interpretation of the testing results and their potential to

inform and support changes in teaching practice. Findings from the study also suggest that limiting teacher access to the data in these ways has also constrained the school's capacity to make sense of the test results and, therefore, to develop a valid and agreed school-determined annual Literacy and Numeracy Plan as required by the Catholic Education Office.

In addition, data from the ETP instrument demonstrated differences in the way that analysis of external test results was viewed by various staff groups within the school. Statistically significant differences were found in the effectiveness of data analysis in relation to: *teaching experience* - between beginning teachers and experienced teachers; *teachers and non-teachers* - between teachers of Years 3 and 5 in Primary schools and those who were non-teaching (principals and many assistant principals); *role in the school* - between principals and classroom teachers, and between principals and assistant principals as a leadership group and teachers; and finally *membership of the school executive* - between members of the school executive (principals, assistant principals and many coordinators) and those who were not on the school's executive team (classroom teachers and some coordinators).

As with the previous research themes, the findings on the effectiveness of data analysis show a disjunction between the views of the school leadership (principals and assistant principals – mainly non-teaching) and those of classroom teachers (especially those with little experience). Further, in replicating the previous theme, such effectiveness was rated far lower by classroom teachers than the school leadership.

The ETP instrument identified two important characteristics of effective leadership in the analysis of testing data. Firstly, the school's leadership team tended to adopt a *whole-school* approach to the results, concentrating on school- and cohort-analysis as the main areas of interest. The nature and extent of feedback was considered acceptable to the school leadership if it was given to the whole staff (usually in staff meetings or stage/department meetings). In some cases, the testing results were used to aid in the placement of students into classes for the following academic year. Alternatively, coordinators and teachers emphasised an operational, *student-centred* approach to the data based on the implications of the feedback for teaching and learning in the classroom. That is, for the teachers, the results were viewed as indicators of *their* students' achievement and were used to provide diagnostic information on progress.

The second characteristic of effective data analysis from the research findings was the perceived effectiveness of the leadership itself. While comments provided on the ETP instrument by principals and assistant principals on this matter were largely positive, coordinators and teachers were less enthusiastic or unsure about the effectiveness of such leadership. A lack of time for analysis and limited access to the data were cited as the main factors causing distraction and frustration. These were linked with a lack of follow-through after data analysis. Further analysis of the results from the ETP instrument (Phase 2c) and interviews (Phase 3) revealed that teachers' commitment to the testing data is influenced by their level of access, their involvement in the actual data analysis, as well as the provision of time for such analysis. These were also explored in Phase 3 of the study. Again, there was some frustration regarding each of these findings. In several cases, access to the data was restricted; the SMART Data application was installed on the principal's and/or assistant principal's computer only. In other schools, the analysis of results was undertaken by one or two people in the school and then presented to the whole staff.

The research also showed only sporadic evidence of a whole-school approach to the analysis and use of testing data. Moreover, there was little evidence of a shared understanding of the implications of the data for school planning or classroom learning. In this sense the study demonstrated that it is crucial for teachers' perceptions of the worth of testing data to be matched by effective school leadership in facilitating such engagement. This finding concurs with studies indicating the essential role played by teachers (Hattie, 2005; Noyce, Perda, & Traver, 2000) and the impact of leadership in promoting data-informed improvement (Cotton, 2003; Richardson, 2005). It has implications for pedagogy regarding the use of the testing results to improve student outcomes in and for the classroom. This is discussed in the next section.

7.3.4 Impact on Teaching Practices

The fourth theme emerging from the research concerned the impact of external testing feedback data on teaching practices (ITP). This is firmly placed in the classroom and involves Theme 1 from the Literature Review, 'Student Achievement'. It is associated with research questions 7 and 8: *'In what ways, and to what extent, are teaching practices shaped by the testing data'* and *'What factors influence the shaping of teaching practices by testing data?'*

Previous research has demonstrated the importance of the teacher's role in promoting student achievement (Bonesronning, 2004; Hopkins, 1997; Reed, 2001). Within the classroom, effective and explicit teaching has been shown to be the key element in program alignment (Hayes, 2004) and student engagement (Stephens, 2000). Studies have also suggested that what matters ultimately is the classroom teacher's role in designing appropriate learning activities for their students and the provision of quality feedback on student achievement (Gray, 2002; Hattie, 2005). The relationship between the use of data from external testing programs and teacher awareness of how these results can be used to affect classroom-based learning has been demonstrated and discussed (DeCourcy, 2005; Herman & Golan, 1991; Williams & Ryan, 2000). However, the present research found that such a link is often missing or is tenuous, and seems to be related to how teachers view the efficacy of such tests for their own classroom practices.

Data from the focus group discussion (Phase 2a) indicated strong support from CEO personnel and school principals for the use of testing data in effective diagnosis of student learning, as well as the importance of aligning test results with other classroom-based evidence of student achievement. The value of the tests themselves and in having access to feedback information from them was not questioned. This is in line with other findings on such a link (Harris, 2001; Rowe, 2005). However, further analysis from the present research found differences between the analysis of data at the whole-school and individual teacher levels.

Data from the External Testing Profile (ETP) instrument (Phase 2c) found differences in the way the analysis of external test results was viewed by different groups within the school. Regarding the impact of external testing results on teaching practices, statistically significant differences were found between groups in the schools in relation to the following: *teachers and non-teachers* - between teachers of Years 3, 5 and 7 across both the ACT and NSW sectors of the Archdiocese and those who were non-teaching (principals and many assistant principals); *familiarity with teaching students in the 'testing years'* - between those who were non-teaching (principals and many assistant principals) and those who had taught either Years 3, 5 or 7 for less than three years out of the previous five; *role in the school* - between principals and assistant principals as a leadership group and classroom teachers; and finally *membership of the school executive* - between members of the school executive (principals, assistant principals and many coordinators)

and those who were not on the school's executive team (classroom teachers and some coordinators). The ETP instrument showed that, in all cases, lower mean scores were found from classroom teachers and those who were less familiar with the 'testing years' (Years 3, 5 and 7) than were produced by the school's leadership team. Again, this indicates a mismatch between the views of teachers and leaders concerning the perceived impact of literacy and numeracy test results on teaching practices within the classroom. Further analysis of qualitative data from Part C of the ETP instrument and semi-structured interviews supported this finding. The majority of positive responses about the impact of external test results were made by principals and assistant principals while classroom teachers were less enthusiastic about the link between the tests and classroom pedagogy. The findings indicate the possibility of an implicit assumption that teachers can understand the data and can translate results into practical teaching and learning strategies. However, this study has shown that there has been little evidence of changes to teaching practices as a result of the external tests. Again, this indicates the difference between a holistic (whole-school) view of the data and an operational (classroom-based) approach to its value in affecting teaching practices.

Notwithstanding this scepticism, however, the present study found general agreement by respondents that the results from external testing should have value, especially in the provision of important diagnostic information on student achievement (DeCourcy, 2005; Hattie, 2005). Further, the use of this information to make connections between curriculum design and classroom-based assessment practices was seen to be important for the integration of these skills across the curriculum and for pedagogy in the classroom (Hattie, Brown, & Keegan, 2003). That is, feedback data from external testing *should* be able to be used for both diagnostic purposes and pedagogical practices situated in the classroom. However, in practice, the present research found little evidence that this has been the case across the Archdiocese.

The previous sections have discussed the findings from the research across Phase 2a (focus group), Phase 2c (ETP instrument) and Phase 3 (semi-structured interviews). These results were grouped around respondents' attitudes to external testing of literacy and numeracy, the identification of explicit data leadership in the school, the effectiveness of data analysis and use, and the impact of the tests on teaching practices.

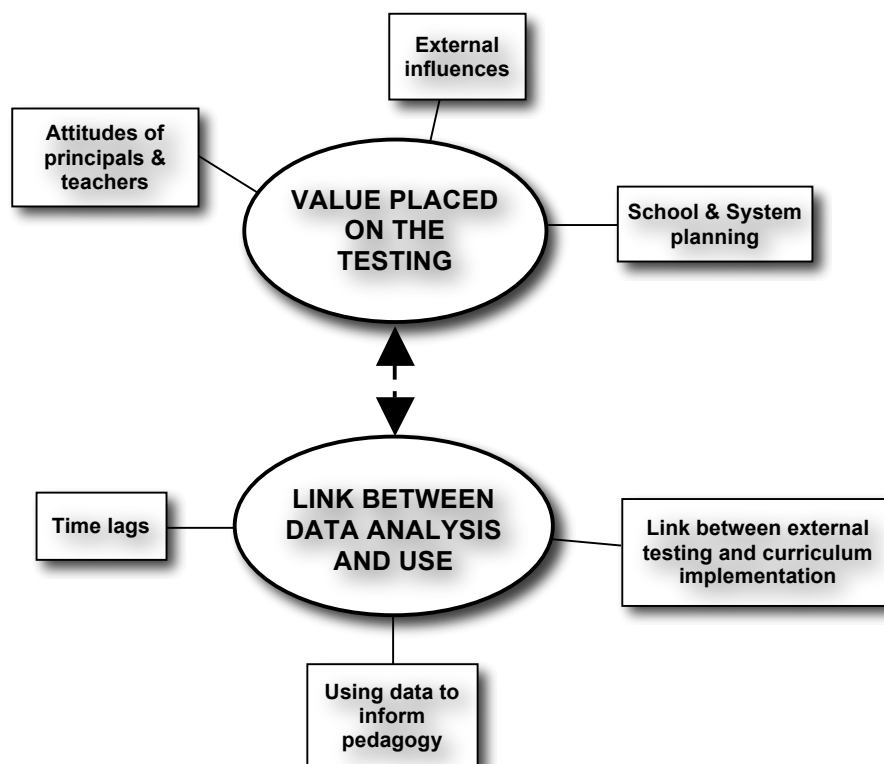
The next section synthesises the findings from the final research phase which explored the research learnings and their implications from a system viewpoint.

7.3.5 System Learnings

In Phase 4 of the research the focus group reconvened to consider the learnings from the previous research phases and identify implications for the Archdiocese. This provided information to answer research question 9: *‘What do system leaders find significant about the findings of this school-based research?’*. Discussion of the research findings produced six themes (see Figure 6.1).

In considering these themes from the discussion, Figure 6.1 can be rearranged and extended to identify two main ideas emerging from the analysis of system learnings from the research. This provides an essential link between what participants think of the purpose of the testing on the one hand, and the practical application of this in the school setting. These two ideas are represented as ‘value placed on the testing’ and the ‘link between data analysis and use’. Their relationship with each other and the themes from the focus group discussion are shown in Figure 7.1.

FIGURE 7.1
RELATIONSHIP BETWEEN FOCUS GROUP THEMES



From Figure 7.1, the first group of three themes involves the attitudes of principals and teachers to external testing, the external influences related to government, system and community accountability, as well as the importance of leadership in school and system planning. These themes relate to the *value* placed on external testing by individuals. They indicate that the degree to which principals and teachers value the purpose of the external tests themselves influences (and is influenced by) their attitudes towards external testing and leadership of the data in the school setting.

The second group of themes considers the role of time lags between testing administration, data analysis and use, the links between data from external testing and curriculum implementation in the classroom, as well as the use of testing and other data sources to inform classroom pedagogy. These describe the *links* between data analysis and use, the implications of effective analysis of testing data, and the impact of external testing results on teaching and learning. Here, the practical issues of firstly seeing the connection between data analysis and use and, then, actually using the data to provide information on student achievement to effect changes in classroom pedagogy, are relevant.

By themselves, there is no guarantee of a direct relationship between the *value* placed on external testing and the *practical* links between data analysis and use. This is shown by the broken two-way arrow in Figure 7.1. Even though one can be affected by the other, there is no suggestion of causality. It could be argued, for example, that the value one places on external testing influences the degree to which data are analysed and used to improve student achievement. Alternatively, the analysis and use of testing data to effect changes to teaching and learning could, in fact, have a direct bearing on the value one places on the testing itself. In this sense, the value of the testing to a principal or teacher could be enhanced once the benefits of data analysis and use are explored and understood. This supports the work of Hayes (2004) with ‘good teaching’, Richardson (2005) with the effective use of data by teachers, and Stephens’ (2000) emphasis on the responsibility of teacher intervention to improve student outcomes.

To investigate this further, the relationship between the value of the testing and the links between data analysis and their use need to be explored. This process involves a consideration of perceptions of the purpose and worth of the testing on the one hand and the practical implications and applications of analysing and using the data on the other. The concept of ‘*professional purpose*’ is posited as a framework to describe how one

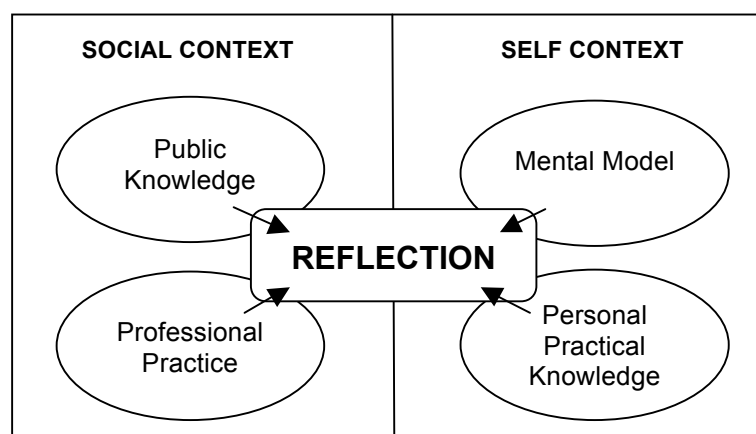
views the external testing of literacy and numeracy. Its influence in understanding this relationship is developed and discussed in Section 7.4, providing a framework for a coherent synthesis of the research findings.

7.4 CONCEPT OF PROFESSIONAL PURPOSE

The forgoing analysis discussed the findings from the four research phases using the following data collection instruments: Phase 2a (focus group discussion) to develop themes for research, Phase 2b (pilot survey trial) and Phase 2c (ETP instrument) to identify issues regarding external testing at the school. Phase 3 of the research (semi-structured interviews) explored the identified issues emerging from the survey instrument as a precursor to Phase 4 (focus group discussion) which discussed the research findings from the previous phases and identify system learnings.

The purpose of this section is to synthesise the major elements of the study in a conceptual framework to explain the relationship between these elements. To assist with the development of a conceptual framework as an aid to understanding the research findings, the ‘Model of Human Action’ developed by Butler (1992) is suggestive of a possible approach. This model as outlined in Figure 7.2.

FIGURE 7.2
MODEL OF HUMAN ACTION - adapted from Butler (1992)



Butler's (1992) model proposes a central process of reflection, which is identified as an active personal process that represents a dialogue between the inner self and the outside social context that enriches the self and enhances human action (Butler, 1992). 'Social Context' represents areas of Public Knowledge and Professional Practice that are highly contextualised. Actions by one person affect, and are affected by, those

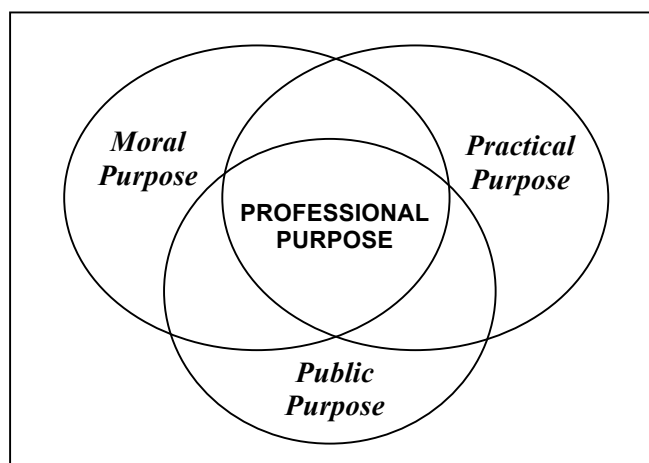
who are colleagues or friends; the conduct of one's professional practice impacts on others, and has ramifications for the individual and for the people with whom the individual interacts. The norms of the group, or public knowledge, also play a reciprocal role in influencing the behaviour and actions of the individual within the group. The Social Context, then, is concerned with one's behaviours and actions in a situation that involves interaction with others.

Within the context of the inner self ('Self Context') two domains are present: Mental Models and Personal Practical Knowledge. Mental Models are established early in life and are highly resistant to change. They represent what the self values and believes, and contain a "mixture of beliefs and a tablet of values and rules that the self holds as true" (Butler, 1992, p. 225). Consequently, they are difficult for others to change. One's values and beliefs then determine attitudes which, in turn, affect Personal Practical Knowledge, the second element. This represents a store of personal knowledge and understandings that accrue over time and are enhanced by one's repertoire of practices that work for the individual. Here, the power of inertia is real; procedures and actions are repeated and activities are performed because they have a highly personal, and practical, operational meaning for the individual. And they are heavily influenced by one's mental models.

'Reflection' is at the centre of the model and is an active personal process that represents a "channel between the social context and the inner self" (Butler, 1992, p. 223). It is here that the components of self context - one's personal beliefs and values, represented by mental models, and personal practical knowledge - combine with professional practice and the norms of behaviour and expectations in the social context. That is, how one acts in particular circumstances is dependent upon what one values and believes to be true.

Butler's (1992) 'Model of Human Action' is helpful for this study and represents one way to explain the relationship between the value placed on external testing by individuals on the one hand, and the link between the practical actions involving the analysis and use of data on the other (see Figure 7.1). This approach is useful for the present study as a framework for understanding how the results from literacy and numeracy testing are viewed and used in schools, and how the process of analysis and use is led. This relationship is explored in Figure 7.3 in the concept of 'Professional Purpose'.

FIGURE 7.3
CONCEPT OF PROFESSIONAL PURPOSE



One component of ‘Professional Purpose’ involves the concept of ‘*Moral Purpose*’ (Fullan, 2005) and is related to ‘moral action’ (Sergiovanni, 2005). It is related to the “living out of ethical beliefs and commitments” (Starratt, 2004, p. 5) and, in the context of the present study, includes the factors that contribute to the value one places on external testing, along with the differing attitudes of principals and teachers towards such testing. It is here where one’s values and beliefs are the basic building blocks for determining moral action based on the needs of the student (Frick, 2009). The concept indicates how moral purpose is constructed for the individual (Fullan, 2005; Levin & Fullan, 2008; Sergiovanni, 2005; Starratt, 1993; Van Meer, 2009). From the present research, this encompasses the theme of ‘Attitudes of Principals and Teachers’ to external testing identified as one of the themes from the system learnings (see Figure 6.1). The study found that, if one views the external testing of literacy and numeracy as a valuable component of knowledge about student achievement, data from such tests are more likely to be used within the classroom and for whole-school planning in an integrated sense. On the other hand, if little value is placed on the tests, external testing results are less likely to be incorporated into data leadership actions by the principal or classroom pedagogy by the teacher. This approach is also congruent with Fullan’s (1991) concept of “subjective reality” (p. 33), Geijsel and Meijers (2005) study of the emotional side of change, and Hargreaves’ (2004) study of the inseparability of change and emotion as significant determinants of attitude and behaviour. Thus, the present study found that a high value placed on testing feedback would be a likely precondition for the effective use of such information in leadership and practice in the analysis and use of feedback data.

The second component of ‘Professional Purpose’ from Figure 7.3, *Practical Purpose*, considers the factors that operationalise one’s beliefs into action and seeks to explain how one’s attitudes and practices affect current behaviour. Previous research has demonstrated that the school context by itself is not enough to drive effective or sustainable change (Fullan, 2005; Harris, 2005). Other studies have pointed to the perception of inclusivity (Hargreaves, 2004) as a key driver in determining one’s willingness to operationalise attitudes. The present research, however, has demonstrated that there are differences in the way the analysis and use of testing data is led in the school as well as in the degree to which teaching practices are changed in the classroom. The main influences on Practical Purpose from the study involve such factors as the effects of time lags between test administration and subsequent analysis and use of the testing data, the link between external and school-based datasets on student achievement, and the degree to which testing data informs pedagogy. These influences match the themes of ‘Time Lags’, ‘Link between External Testing and Curriculum Implementation’ and ‘Using Data to Inform Pedagogy’ identified from the system learnings (see Figure 6.1). Other studies (Chapman & Fullan, 2007; Cotton 2003; Harris, 2005) have demonstrated the importance of leadership at school and system level in generating and sustaining school improvement, the impact of the classroom teacher on effecting change in student achievement (McGuigan & Hoy, 2006; Tschannen-Moran & Barr, 2004) and the role of data in improving student outcomes (DeCourcy, 2005; Hattie, 2005; Rowe, 2000). The present study, however, found that, even though these factors identified by previous research were regarded as important, the degree to which feedback from external testing is actually led and used in the school in a *practical* sense, and the extent to which such information informs whole-school planning and classroom teaching practices, is dependent on the value placed on the data in the first place. This research found that such a link cannot be assumed.

The third element of the concept shown in Figure 7.3 - *Public Purpose* - represents the external context affecting one’s actions. In relation to the present study, academic literature has highlighted results accountability as an important feature of the way external tests of literacy and numeracy are viewed and how the results are interpreted (Cumming & Maxwell, 2004; Koretz, 2002; McWilliam & Perry, 2006; Rowe, 2000). Moreover, leadership at the school and system level has emerged as a crucial element in

any attempt to effectively analyse and use data on student achievement (Chapman & Fullan, 2007; Fullan, 2002; Leithwood et al., 2004).

The present research supports these findings. The study has shown that influences such as government and system accountability for student performance, as well as the role of leadership in designing and implementing school and system planning, are factors that influence principals' and teachers' use of the results from external literacy and numeracy testing. However, this study also found that accountability is viewed in two different ways. Some participants saw it in a positive light as a driver for change, while others viewed it in a negative sense based on comparison and competition between schools. Further, the present research found that the role of leadership in data analysis and school planning was viewed differently by teachers and principals, with classroom practitioners being less convinced about the quality of such leadership in supporting the teacher. These influences identified from the research are external to the individual's value system and repertoire of practices, and suggest this third component of the concept. They are congruent with the themes of 'External Influences' and 'School and System Planning' identified from the research (see Figure 6.1).

The core of the concept - *Professional Purpose* - lies in the area of intersection between the highly personal perception of 'Moral Purpose' of the testing itself, the 'Practical Purpose' for the individual in linking the analysis and use of testing data, and the external factors of 'Public Purpose' that influence action. This is similar to Butler's (1992) concept of 'Reflection' at the convergence of the external 'Social Context' and inner 'Self Context'. Here, one's actions in the former influence, and are influenced by, the set of beliefs and practices held in high value. It is here that one makes judgements about the worth of particular behaviours in influencing action (Fullan, 1991; Geijsel & Meijers, 2005; Harris, 2005; Romero, 1998).

In relation to the present study, the concept of 'Professional Purpose' has emerged from the analysis of the factors that have influenced how teachers and principals view external testing, how the results are analysed and used, how such a process is led at the school level, and the impact of testing on teaching practices. It represents a framework for understanding the approach to external testing of literacy and numeracy found from the study and the role of beliefs and values that determine attitudes and observable behaviours of principals and teachers over the three main phases of the research; to understand and explain the connection between the value placed on external testing of literacy and

numeracy on the one hand, and the degree to which actual practices of data leadership, effective data analysis and pedagogy are changed as a result of the testing.

7.5 CHAPTER SUMMARY

This chapter has discussed the findings from the data collection phases of the study and the emergence of four main themes from the research questions: Attitudes towards External Testing, Leadership in Using Testing Data, Effective Data Analysis, and the Impact on Teaching Practices. In summary, the research produced the following findings:

1. Differences exist in perceptions of the value of data from external testing

The degree to which the external tests of literacy and numeracy were perceived to be of value was an important factor in determining the attitudes of teachers and principals to the tests; and these, in turn, have influenced the level of engagement with the data. The research findings suggest that the extent and importance of effective analysis of testing data in the school and the contribution of external testing to changing teaching practices have not been universally understood throughout the Archdiocese.

2. Accountability for testing results was viewed according to their perceived purpose

Accountability for testing results was seen to have value if it was related to the *diagnosis of student achievement* and the contribution it had on influencing student and teacher motivation. On the other hand, if external testing data were used for *making comparisons* between teachers, schools and jurisdictions, its worth and purpose were diminished, and such results were regarded as disjointed and largely unrelated from the teaching and learning process. That is, such comparisons contributed little to improving student achievement. Moreover, teachers were more likely to regard accountability in negative terms than were school leaders.

3. The role of leadership in data analysis is critical, but often missing

The research findings suggest that the role of evidence-based leadership is seen as crucial in promoting ‘data utility’, but often is perceived to be absent in the analysis and use of external testing results at the school level. The components of such leadership involve the identification of the data leader/s and the provision of

operational elements to enable efficient and effective analysis and use of the data. These include appropriate school structures, adequate time to undertake such analysis, and the formulation of whole-school plans to make effective use of the information.

4. There are differences in the way leadership in data analysis and use is perceived

The research found differences in the perceptions of classroom teachers and principals with regard to the effectiveness of leadership in using external testing data at the school level. Across the four main research themes (Attitudes towards External Testing, Leadership in Data Analysis, Effective Data Analysis, and Impact on Teaching Practices), statistically significant differences were found between classroom teachers and members of the school leadership team (especially principals) regarding external testing. This was reflected in the lower mean scores of the former group on the External Testing Profile (ETP) instrument, indicating less enthusiasm by teachers, firstly about the worth of such testing in the classroom and, secondly, concerning the role of data leadership in the school.

5. Staff involvement in using results from external testing for whole-school planning requires leadership in data analysis and use

The involvement of staff in using external literacy and numeracy testing results for strategic, whole-school planning was found to be sporadic across the Archdiocese. Even though leadership in using external testing data at the school level was regarded as a key factor in enabling such involvement, a lack of participation by teachers in this process was seen to impact on the ability of schools to develop targeted plans for literacy and numeracy required by the CEO as an integral component of the school's annual Management Plan.

6. Differences exist in the degree of staff involvement in analysing external testing across the Archdiocese.

Findings from the research suggest that, even though the involvement of a critical mass of school staff in the actual analysis of the testing data is found to promote teacher engagement with the information, there are differences in the way this is operationalised in schools across the Archdiocese. This diversity ranges from, in some cases, one or two members of the school's leadership team analysing the testing results and presenting them to staff, to the involvement of a number of classroom teachers and learning support staff in collaboration with at least one member of the executive.

In some cases, this process extended to teachers of the ‘non-testing’ years. A general lack of involvement of school staff in data analysis was seen to impact on personal engagement with the data, thereby inhibiting a shared understanding of the results. This finding has implications for the development of a whole-school, coordinated approach to using the data the effect changes to classroom pedagogy.

7. Linking external testing data with classroom-based assessment is valued, but often missing

The research confirmed that external testing of literacy and numeracy has the potential to impact positively on student achievement, especially when used in conjunction with school-based assessment information. If treated as another source of data, such testing can complement classroom pedagogy and assessment practices in providing further information on student performance. However, the study found little evidence of external testing systematically effecting change in teaching practices across the Archdiocese.

The research findings provide insights into the attitudes that teachers and principals hold about external testing of literacy and numeracy, and the factors determining these attitudes. The study has also considered how data from these tests are analysed and who leads this process, as well as the effectiveness of such leadership in data analysis and the factors influencing this. Findings on the extent to which teaching practices are shaped by the testing data were also presented in this chapter. Finally, system learnings from the study were discussed in the context of the relationship between the value placed on external testing of literacy and numeracy and the link between subsequent data analysis and use.

In order to understand the factors operating in these findings, a framework for examining the relationship between the value one places on external testing and the link between data analysis and use in an operational sense was posited. Informed by Butler’s (1992) ‘Model of Human Action’ (adapted), the concept of ‘Professional Purpose’ emerged from this research and was posited as a conceptual framework to explain how teachers and principals use data from external tests of literacy and numeracy and who leads its use. Its purpose is to provide a framework for describing and explaining the nexus between three elements: how one views the ‘*Moral Purpose*’ of testing, the ‘*Practical Purpose*’ of action, and the ‘*Public Purpose*’ of external accountability. The junction of

these elements forms the core of the concept, the '*Professional Purpose*' of external testing for the individual, and seeks to provide reasons for the degree of engagement with the data and the extent to which such data analysis and use is led in the school.

The final chapter presents the implications and recommendations of these findings about the analysis, use and leadership of results from external testing of literacy and numeracy, as well as suggestions for policy and practice throughout the Archdiocese and, importantly, areas for further research.

CHAPTER 8: IMPLICATIONS AND RECOMMENDATIONS

8.1 INTRODUCTION

The present research investigated how schools use feedback from national literacy and numeracy testing programs, who leads its use and how leadership in the use of information from such testing programs can enhance school and system planning and educational outcomes for students.

The study is important because of the changing educational climate surrounding the assessment, analysis and reporting of student achievement. Significantly, little research has been undertaken in Australia in this area. If external testing in literacy and numeracy is to have educational value, and justify the considerable resources and investment involved in its development, implementation and reporting, the results need to be considered carefully by educational leaders at school and system levels. The present research found that the results of external testing of literacy and numeracy have the potential to inform and improve teaching practice, school planning and the exercise of leadership at the school level, as well as to provide strategic direction for system-wide planning, especially in relation to how best to support schools in improving outcomes.

The significance of the study was predicated on the three research themes: *student achievement* and the role of the teacher, the nature of *educational change* related to school-level leadership and school improvement, and *educational accountability* to governments and the associated perceptions of teachers and principals. In the context of the research, it was proposed that these themes impact on the perceived efficacy of external testing regimes in the first place, and the influences they potentially have on the ways principals and teachers use feedback data to improve student achievement and promote school improvement within the context of accountability to governments.

The previous chapter was devoted to a discussion and synthesis of the findings from the research and the development of the concept of 'Professional Purpose'. In the present chapter, a number of theoretical and practical implications of the research are presented along with recommendations for further work in the field. These have the potential to contribute to deeper understandings of how information from external literacy

and numeracy testing is analysed and used in the school, who is leading its use, and what learnings education systems and jurisdictions can gain from such analysis.

The next sections present the implications of this research, along with specific recommendations for further research and policy and practice.

8.2 IMPLICATIONS AND RECOMMENDATIONS

This study has answered the research question: *‘How does the experience of external testing and data utilisation affect attitudes of teachers and principals to the tests, teaching practice and school leadership?’*. The research process incorporated the three themes (Student Achievement, Educational Change and Educational Accountability) into the study in understanding how teachers and principals view, lead and use data from external testing in making evidence-based decisions for planning and pedagogy. The following sections examine the implications and recommendations of the present study for literature and further research, as well as for policy and practice. Limitations of the study are also revisited along with pertinent concluding remarks.

8.2.1 Implications and Recommendations for Further Research

This research has made a contribution to the body of knowledge in the relatively new area in Australia of linking the use of data from external testing with leadership in the school and teaching practices in the classroom. By integrating the three research themes, the study has extended the work of previous (largely overseas) studies and has applied these to the relatively new area of national testing of literacy and numeracy in Australia. The concept of ‘Professional Purpose’ was developed from the research to explain the degree to which this integration of the research themes is occurring across schools in the Catholic Archdiocese of Canberra and Goulburn. Moreover, the present research has been directed, for the first time, to a practical case study of one Catholic educational jurisdiction as an educational system. However, the implications of this research extend beyond the school and diocesan boundaries and apply equally to any educational jurisdiction.

From the perspective of *Student Achievement*, the study has applied the findings from previous research on the provision and subsequent use of quality information

about student achievement (Earl & Fullan 2003; Richardson, 2005). Further, research on the teacher's role in using information on student achievement (Christie, 1998; Hayes, 2004; Lingard et al., 2001), the importance of building teacher capacity and teacher leadership (Rowe, 2005), and data-informed improvement (Hattie, 2005; Noyce, 2000; Rowley, 2005; Williams & Ryan 2000) was extended by this study and applied to a relatively new, and growing, area of interest in Australia. The study also applied previous work on the importance of collecting and using evidence on student achievement from a variety of sources (DeCourcy, 2005; Harris, 2001) to an area of increasing policy interest in the measurement and reporting of student performance.

The present research adapted the concept of *Educational Change* pertaining to large-scale, mandated system-wide reform to its impact on teacher and principal perception and individual meaning-making. Educational change has been explored in depth in the literature (Ellsworth, 2000; Fullan, 1991, 1993, 2000a, 2000b; Gardner, 1998; Harris, 2005), with no commonly-agreed dimension of the term. The discourse from such studies has centred on the highly-contextualised nature of change and its personal impact on people. The "subjective reality" of change (Fullan, 1991, p. 33) and the emotional aspect of change on the individual (Geijsel & Meijers, 2005) indicate multiple layers of meaning to individuals. The present study has built on educational change and related concepts involved with studies on school improvement (Breemers, 2002; Byrne & Gallagher, 2004; Hopkins & Reynolds, 2001; Wikeley et al, 2005), and has applied these aspects to leadership in the analysis and use of external testing data in the school context. With previous research showing that the principal has a large and critical impact on school improvement (Leithwood & Riehl, 2003) and student achievement (Cotton, 2003), the findings on data leadership and effective data analysis from the present study indicate that more work needs to be done on the central role of the principal and school leadership team in promoting data utility within the school, as well as the effective integration of external testing with whole-school planning and classroom-based teaching and learning. No studies of this magnitude have been undertaken in this field in Australia. And with the increasing profile of national testing of literacy and numeracy coupled with the growing interest in its public reporting (Cumming & Maxwell, 2004; Rowe, 2005), research into this area has implications for the development and application of theory based on the link between external testing and classroom pedagogy.

The third research theme, *Educational Accountability*, has been the subject of many studies overseas (Koretz, 2002; Linn, 2000; Rowe, 2000). However, the Australian experience of school and system accountability has been relatively recent. The introduction of benchmarks for testing of literacy and numeracy (DEST, 2005) and the linking of Australian Government quadrennial funding decisions to requirements for national reporting of student performance (MCEETYA, 2008) have elevated the public prominence of such testing regimes. In this study, educational accountability has been situated firmly within the context of public reporting of student achievement.

Importantly, the present research has contextualised the impact of educational accountability at the school and system level. It has highlighted the need for further studies to explain the impact of such responsibility on data leadership and teaching practices at the school level, and the need for coordinated and strategic planning by systems to ensure that such measurement, monitoring and reporting does, in fact, have a positive and diagnostic impact on student achievement.

Taking into account the implications of the present research for further exploration along with findings from previous studies, it is recommended that the following research be undertaken. Firstly, to enhance the role of leadership in managing educational change, qualitative research should be undertaken to explore the factors influencing perceptions of principals and teachers about the value of external testing of literacy and numeracy (*Recommendation 1*). This should be complemented by further research on data leadership to examine ways of integrating such leadership with effective data analysis and use at the school and classroom levels to improve student achievement (*Recommendation 2*). To promote the diagnostic nature of results from external testing of literacy and numeracy, studies should be conducted to determine ways to integrate data from external testing with classroom-based assessment to provide rich information on student achievement (*Recommendation 3*). To ascertain the generalisability of findings from the present study, it is further recommended that this research be replicated in other educational jurisdictions to analyse similarities, differences and possibilities for policy and practice (*Recommendation 4*). Finally, an analysis of the concept of ‘Professional Purpose’ needs to be undertaken in this Archdiocese and other jurisdictions and contexts to examine its usefulness as a framework for integrating the research themes of student achievement,

educational change and educational accountability, and for explaining how the results from literacy and numeracy testing are used in schools (*Recommendation 5*).

8.2.2 Implications and Recommendations for Policy and Practice

The findings from the present research have implications for policy and practice in how schools use the results from national testing of literacy and numeracy and how leadership in the use of such data impacts on this process. Even though the research was undertaken in Catholic schools within the Archdiocese of Canberra and Goulburn, the study has wider implications at the school and system levels, as well as for the formulation of government policy and program measures around national testing. The research findings, their implications and recommendations for policy and practice are presented and discussed in this section. A summary of these, with the relevant research questions, is shown in Table 8.1.

TABLE 8.1
SUMMARY OF RESEARCH QUESTIONS, THEMES AND FINDINGS

<i>Research Question: How does the experience of external testing and data utilisation affect attitudes to the tests, teaching practice and school leadership?</i>		
Contributing Questions	Research Themes	Research Findings
1. What attitudes do teachers and principals hold about external literacy and numeracy testing?	Attitudes towards External Testing	Differences exist in perceptions of the value of data from external testing
2. What factors influence these attitudes?		Accountability for testing results was viewed according to their perceived purpose
3. How is external testing data analysed and feedback given in the school?	Leadership in Using Testing Data	The role of leadership in data analysis is critical, but often missing
4. Who is leading the process of analysis and feedback?		There are differences in the way leadership in data analysis and use is perceived Staff involvement in using results from external testing for whole-school planning requires leadership in data analysis and use
5. How effective is leadership in data analysis?	Effective Data Analysis	Differences exist in the degree of staff involvement in analysing external testing across the Archdiocese
6. What factors influence leadership in data analysis?		
7. In what ways, and to what extent, are teaching practices shaped by testing data?	Impact on Teaching Practices	Linking external testing data with classroom-based assessment is valued, but often missing
8. What factors influence the shaping of teaching practices by testing data?		

8.2.2.1 *Attitudes towards External Testing*

The two research findings related to the attitudes towards external testing were: ‘*Differences exist in perceptions of the value of data from external testing*’, and ‘*Accountability for testing results was viewed according to their perceived purpose*’.

The present study found that attitudes towards external testing (research questions 1 and 2) were influenced by two factors: the value placed on the data, and external accountability for results. The value placed on such tests by the individual was found to influence the level of engagement with the data. Significant differences were found in the attitudes towards external testing between two groups within the school – principals/assistant principals and classroom teachers. While both groups thought the data and feedback had value in the moral sense of doing what is right for the student, the latter group was less convinced about its practical purpose in an operational sense for use in the classroom to affect student learning.

The second influence centred on the growing impact of accountability for results, particularly with data from an external test over which the teacher has little control. Accountability was valued for its *diagnostic purpose* and contribution to influencing student and teacher motivation. However, if external testing results were used for *comparing* teachers, schools and jurisdictions, its worth was weakened, and such results were seen as unrelated to classroom curriculum, assessment and pedagogy. That is, such comparisons contributed little to improving student achievement. Accountability for the testing data at the school level, in relation public reporting of the results, is an area that has grown in significance and has implications for the ability of the individual school community to report and explain the results of external testing.

These findings have implications for the promotion of teacher and leader engagement with the testing data at the school and system levels. Notwithstanding the quality of the testing data, the present research has shown that little use will be made of the feedback if teachers and school leaders do not value it as an important source of information on student achievement, nor will they engage with the feedback if it is perceived to be unrelated to the classroom. Moreover, if results accountability emphasises comparison over diagnosis, the study suggests that even less value will be placed on external testing as a source of valid and reliable information on student achievement. Consequently, two recommendations flow from the research findings regarding the

attitudes towards external testing. Firstly, it is recommended that the Australian Government, through the Australian Curriculum, Assessment and Reporting Authority (ACARA), evaluates the impact of public reporting of student achievement to minimise the possibility of simplistic comparisons between schools (*Recommendation 6*). Secondly, to promote widespread engagement with the value of external testing data at the system level, it is recommended that the results of this research are disseminated to all school principals within the Catholic Archdiocese of Canberra and Goulburn (*Recommendation 7*).

8.2.2.2 Leadership in Using Testing Data

The second main theme from the study was related to research questions 3 and 4, and involved the following findings: *'The role of leadership in data analysis is critical, but often missing'*, *'There are differences in the way leadership in data analysis and use is perceived'*, and *'Staff involvement in using results from external testing for whole-school planning requires leadership in data analysis and use'*.

While participants considered leadership in using data from external testing to be important, the research showed statistically significant differences between teachers and principals (or school leadership teams) in the way it was firstly identified, then perceived to be enacted at the school level. The lower opinion of the quality and extent of such leadership by classroom teachers indicated that three key elements were missing - the provision of appropriate school structures (including adequate time) to enable data analysis, the involvement of key staff in this process, and the formation of whole-school plans to use the testing results. Even though the role of data leadership was considered important in forming a common understanding of the impact of the testing results for the school and classroom, in an operational sense such leadership was often absent.

These findings have implications for school leadership in data analysis and use, and the whole-school planning of literacy and numeracy based on data from external testing. The lack of explicit leadership in this process means that the 'moral purpose' of external testing of literacy and numeracy cannot be assumed, nor is its 'practical purpose' for the analysis and use of such information shared throughout the school or Archdiocese. The research has found that clear and unambiguous evidence-based leadership is required for effective diagnosis of student achievement to be made and for the results to be explained to the wider community. Further, the often low priority given in schools to the

analysis and use of testing data belies the importance placed on literacy and numeracy planning at the system level by the CEO. The lack of involvement of many staff in planning for literacy and numeracy has the potential to further disengage leaders and classroom teachers from understanding the data and its possibilities for integration with curriculum, assessment and pedagogy.

The implications of these findings for school leadership involve an emphasis on a coordinated, informed and whole-school approach to the analysis and use of results from external testing of literacy and numeracy. The significance of planning and integrating the feedback from the tests entails, firstly, a shared understanding throughout the whole school of the results themselves, then a coordinated response involving all staff to develop school-based plans to give the tests ‘data utility’. And for this to occur, strategic, leadership was found to be crucial. To promote improvements in evidence-based leadership throughout the Archdiocese, six recommendations are made. At the System level, it is recommended that evidence-based leadership is made an explicit element in the Archdiocesan ‘Leadership Framework for School Leaders’ (*Recommendation 8*). Specifically, it is recommended that the CEO develops a program for principal leadership in assessment literacy and data analysis and use based on linking external testing with pedagogy (*Recommendation 9*). Thirdly, the CEO should enable principals to be skilled in the implications of school and system NAPLAN results in the context of public reporting of the testing data (*Recommendation 10*). At the school level, it is recommended that principals, with CEO support, clearly identify a person or group of people within the school to take carriage of the process of data analysis and interpretation (*Recommendation 11*). Further, principals should initiate and develop plans for NAPLAN data analysis in the school to involve a cross-section of staff, with such analysis to be planned for and undertaken as soon as schools receive their testing results (*Recommendation 12*). To promote leadership in whole-school planning, it is recommended that principals use the results of NAPLAN data analysis to help formulate specific evidence-based literacy and numeracy plans as required by the CEO (*Recommendation 13*).

8.2.2.3 *Effective Data Analysis*

The findings on the effective analysis of external testing data from this research show a similar pattern to the previous theme of data leadership. Encompassing research

questions 5 and 6, this theme involved the finding that: *‘Differences exist in the degree of staff involvement in analysing external testing across the Archdiocese’*.

The study found that, even though access by staff to the feedback data was considered by classroom teachers to be an essential precondition for effective analysis of results, such involvement is sporadic across the Archdiocese, and cannot be assumed to be common practice both within and between schools. In many schools, data analysis is undertaken by very few staff, usually involving the assistant principal and one or two others. Often, results are presented at one whole-staff meeting, with little opportunities for effective follow-up at the curriculum team level. Individual teachers frequently have had little or no interaction with the ‘SMART Data’ analysis tool.

This finding from the study has implications for the personal commitment of teachers to the testing data, their ability to understand the results and implications of the information, and their capacity to contribute towards integrated, whole-school planning in using the results to improve student achievement. The research has found that the promotion of a coordinated approach to the analysis and use of external testing results at the school level, and subsequent planning for their effective use, relies on a critical mass of staff at the school engaging with the testing feedback data. To enable this, the following four recommendations are made to enhance effective data analysis in schools. Firstly, state and territory governments should continue to work closely with the government, Catholic and Independent educational jurisdictions in providing appropriate tools for the effective analysis of NAPLAN testing data based on diagnosis of student achievement rather than comparison (*Recommendation 14*). Secondly, at a System level, it is recommended that the CEO undertakes a system-wide analysis of NAPLAN results before the end of Term 3 each year and meets with principals soon after to examine the results of the testing and their implications for a coordinated Archdiocesan approach to making use of such information (*Recommendation 15*). Further, the Catholic Education Office should provide training and ongoing support of identified key school personnel to facilitate the analysis and use of NAPLAN testing data in conjunction with school-based assessment information to improve student achievement (*Recommendation 16*). Further, this should be undertaken in tandem with the development of appropriate and targeted teaching strategies at the classroom level to incorporate the literacy and numeracy skills identified by NAPLAN testing (*Recommendation 17*).

8.2.2.4 *Impact on Teaching Practices*

The final research theme considered the relationship between external testing and its potential to impact on teaching practices. In relating to research questions 7 and 8, the study found: *‘Linking external testing data with classroom-based assessment is valued, but often missing’*.

The study has shown that, for the results from external testing of literacy and numeracy to have utility, they need to be seen to support what happens in the classroom. The tests provide another source of evidence of student learning to complement the information accumulated by the classroom teacher in the usual processes of assessment in all its forms. The research findings strongly suggest that data from external tests of literacy and numeracy are not effectively used by classroom teachers in their curriculum, assessment and pedagogical practices. Even where teachers are involved in analysing the testing feedback data in particular schools, across the Archdiocese there is little evidence of any systematic integration of such information with pedagogy past the initial data analysis phase.

The implications of this finding are that, even though many schools have invested much time in the *analysis* of testing data at the school level, a more strategic approach is needed to develop comprehensive and targeted programs for the effective *use* of such information for pedagogy at both the school and system levels. Consequently, to make an impact on teaching practices, the following recommendations are made. Firstly, the CEO develops, as a priority and in association with school representatives, a suite of initiatives targeting the effective use of external testing data in, and for, the classroom (*Recommendation 18*). To support this at the school level, it is recommended that the CEO provides support for the development of appropriate and targeted teaching strategies at the classroom level to incorporate the literacy and numeracy skills identified by NAPLAN testing. (*Recommendation 19*). The final recommendation is for a sufficient mix of CEO and school-determined professional learning funds to be devoted to the development of teaching strategies to use the information from external testing of literacy and numeracy to effect appropriate changes in pedagogy (*Recommendation 20*).

8.2.3 Implications for School Leadership

The findings from the present research have implications for the nature and practice of school leadership, particularly with regard to the use of data on student achievement. In linking the themes of Student Achievement, Educational Change and Educational Accountability, the research findings highlight the importance of leadership in using evidence of student performance to improve learning, lead change and report achievement (see Figure 2.1).

The nexus between the value placed on the external testing of literacy and numeracy, and the link with subsequent data analysis and use (see Figure 7.1), is strengthened by *evidence-based leadership* that focuses on the diagnostic power of the data feedback to effect changes in teaching practices. This is supported through studies by Gurr et al. (2003), Richardson (2005), and Robinson, Lloyd and Rowe (2008) who emphasise the role of explicit, strategic and targeted leadership by the principal in using evidence of student learning to impact on classroom pedagogy and school planning decisions.

The present research examined the role of data leadership in the analysis and use of feedback from external testing as an element of evidence-based leadership within the school. The findings from this study demonstrate the importance of the perceived value of such data in informing decisions about student outcomes, and the central role of school leadership in utilising such evidence of learning. However, the lack of explicit leadership in this process was found to inhibit the potential effectiveness of data analysis and use. The associated low levels of access and engagement of teachers in this process further affected the ability and willingness of teachers to incorporate the testing feedback information into classroom teaching practices.

The findings point to the impact that a lack of evidence-based leadership can have on student achievement, school planning, teacher engagement and classroom pedagogy within the overall context of school leadership. The findings from the present study also suggest that the analysis and use of data from external testing of literacy and numeracy to effect change requires school leaders to cultivate ‘assessment literacy’ and ‘data utility’ within the school.

The concept of ‘professional purpose’ is suggested as a framework to understand how principals and teachers perceive the value, use and reporting of

information on student achievement to improve learning and teaching within the school. This is relevant in the context of evidence-based leadership. The concept suggests that, based on the present study, the exercise of leadership in using data from external testing of literacy and numeracy is contingent upon the school leader firstly perceiving the ‘moral purpose’ of such testing and the data derived from it. If the feedback from external testing is valued as having the potential to positively affect student outcomes, it is suggested that this would be a likely precondition for leadership in the sphere of the ‘practical purpose’ of the testing; that is, how the school leader enables effective analysis of feedback data to be operationalised in the school through the appropriate provision of personnel and resources. The concept also applies evidence-based leadership to the ‘public purpose’ of external testing within the context of government and system accountability for student performance. These external influences upon the school, together with whole-school planning in using the results from such testing, call for school leaders who not only value external tests as means for fostering student achievement, and are able to practically engage with their staff in data analysis and use; but also are able to mediate these external influences and communicate effectively ‘in public’ with important stakeholders.

The overlap between Moral Purpose, Practical Purpose and Public Purpose forms the basis of the ‘Professional Purpose’ of external testing of literacy and numeracy. More professional school leaders demonstrate greater integration (or overlap) with regard to these three elements. Within the wider context of evidence-based leadership within the school, the model suggests a framework for understanding the approach taken by school leaders towards external testing. This is based on the individual value placed on such tests, and the degree to which leadership impacts on data analysis and use, classroom pedagogy, school community and parent understanding, accountability and compliance assessments by important stakeholders, and ultimately student achievement.

8.3 SUMMARY OF RECOMMENDATIONS

Recommendations for Further Research

- Recommendation 1* Qualitative research should be undertaken to explore the factors influencing the perceptions of principals and teachers about the value of external testing of literacy and numeracy.
- Recommendation 2* Further research should be conducted on data leadership to examine ways to integrate such leadership with effective data analysis and use
- Recommendation 3* Studies to determine ways to integrate data from external testing with classroom-based assessment could provide rich information on student achievement.
- Recommendation 4* This research should be replicated in other educational jurisdictions to analyse similarities, differences and possibilities for policy and practice.
- Recommendation 5* An analysis of the concept of ‘Professional Purpose’ needs to be undertaken in this Archdiocese and other jurisdictions and contexts to examine its usefulness as a framework for integrating the research themes of student achievement, educational change and educational accountability, and for explaining how the results from literacy and numeracy testing are used in schools.

Recommendations for Policy and Practice

Attitudes towards External Testing:

- Recommendation 6* The Australian Government, through the Australian Curriculum, Assessment and Reporting Authority (ACARA), evaluates the impact of public reporting of student achievement to minimise the possibility of simplistic comparisons between schools.
- Recommendation 7* The results of this research are disseminated to all school principals within the Catholic Archdiocese of Canberra and Goulburn.

Leadership in Using Testing Data:

- Recommendation 8* Evidence-based leadership is made an explicit element in the Archdiocesan ‘Leadership Framework for School Leaders’.
- Recommendation 9* The CEO develops a program for principal leadership in assessment literacy and data analysis and use based on linking external testing with pedagogy.
- Recommendation 10* The CEO enables principals to be skilled in the implications of school and system NAPLAN results in the context of public reporting of the testing data
- Recommendation 11* Principals, with CEO support, clearly identify a person or group of people within the school to take carriage of the process of data analysis and interpretation.
- Recommendation 12* Principals initiate and develop plans for NAPLAN data analysis in the school to involve a cross-section of staff, with such analysis to be planned for and undertaken as soon as schools receive their testing results.
- Recommendation 13* Principals use the results of NAPLAN data analysis to help formulate specific evidence-based literacy and numeracy plans as required by the CEO.

Effective Data Analysis:

- Recommendation 14* State and Territory governments continue to work closely with the government, Catholic and Independent educational jurisdictions in providing appropriate tools for the effective analysis of NAPLAN testing data based on diagnosis of student achievement rather than comparison.
- Recommendation 15* The CEO undertakes a system-wide analysis of NAPLAN results before the end of Term 3 each year and meets with principals soon after to examine the results of the testing and their implications for

a coordinated Archdiocesan approach to making use of such information.

Recommendation 16 The CEO provides training and ongoing support of identified key school personnel to facilitate the analysis and use of NAPLAN testing data in conjunction with school-based assessment information to improve student achievement.

Recommendation 17 The CEO provides support for the development of appropriate and targeted teaching strategies at the classroom level to incorporate the literacy and numeracy skills identified by NAPLAN testing.

Impact on Teaching Practices:

Recommendation 18 The CEO develops, as a priority and in association with school representatives, a suite of initiatives targeting the effective use of external testing data in, and for, the classroom

Recommendation 19 At the school level, the CEO provides support for the development of appropriate and targeted teaching strategies at the classroom level to incorporate the literacy and numeracy skills identified by NAPLAN testing.

Recommendation 20 There should be a sufficient mix of CEO and school-determined professional learning funds devoted to the development of teaching strategies to use the information from external testing of literacy and numeracy to effect appropriate changes in pedagogy.

8.4 LIMITATIONS OF THE STUDY

The present research was based on a case study methodology using a mixed methods approach. This involved a combination of quantitative and qualitative data collection instruments to provide stronger inferences from richer data (Teddle & Tashakkori, 2003). However, the following limitations and delimitations of the study are acknowledged. First, the study was limited to the 55 Catholic systemic schools of the Catholic Archdiocese of Canberra and Goulburn. Consequently, no claims can be made about its applicability to other educational jurisdictions until further research is undertaken

(see Recommendation 4). Moreover, the concept of ‘Professional Purpose’ developed in this study cannot be assumed to have significance either in this Archdiocese or in other jurisdictions until it is tested and evaluated (see Recommendation 5).

Secondly, by concentrating only on external testing of literacy and numeracy, the study excluded other forms of information on student achievement obtained from tests that are curriculum-based. These include state-based external tests related to certification and credentialing of students. Further, teachers of Year 9 students were excluded from the research since, across the Archdiocese, these students were not involved in the state-based tests in NSW at the time the data were collected.

The research employed several data collection instruments, using focus group, survey and interview techniques. With the researcher working at the Catholic Education Office, it is recognised that another limitation of the study involves the possible perception by participants of an unequal power relationship between researcher and participant.

The shortcomings of the research methodology and data collection instruments employed by this study are also acknowledged. Case study methodology has the potential to be limited in its representativeness and generalisability. With qualitative data, the subjective biases of the researcher and participants can skew respondents’ responses and make them non-generalisable in the way that inferential statistics applied to quantitative data can draw conclusions. This limits their ability to provide inferences. Similarly, the conduct of focus groups can be subject to personalities dominating the group dynamics of direct discussion in agreement with their points of view. In the same way, responses from semi-structured interviews can be difficult to categorise or evaluate, especially if respondents are in very different school situations and contexts. These potential difficulties were recognised and were accounted for in the research design (see Section 3.8).

While ‘closed-response’ survey items can provide quantitative and statistically analysable data, they can be cold and objective and often do not allow respondents to qualify their answers. Notwithstanding the data collection methodology employed in Phases 2b and 2c of the current study, it is recognised that statistical inferences from quantitative data must be made with caution. Analysis of variance (ANOVA) was employed in this study. According to Stevens (1999), ANOVA has three underlying assumptions: dependent variable scores are normally distributed in each group, the

population variances for the groups are equal, and the observations are independent (i.e. each respondent's score on the dependent variable is not affected by other respondents in the same group). While ANOVA has been shown to be robust to violations of the first two assumptions, a violation of the independence assumption can have a substantial effect on the results of ANOVA (Dorman, 2009). In the present study, a total of 134 principals and teachers from a possible sample of 55 schools responded to the External Testing Profile (ETP) instrument (Phase 2c). As such, only a small number of respondents were from any one school. Thus, it is unlikely that the independence assumption was violated. That is, as far as possible in the research design, ANOVA assumptions were met. The ETP instrument was distributed to all 55 schools across the Archdiocese. The responses according to school size and type, roles within the school and teaching experience ensured, as far as possible, appropriate representation of respondents. Further, the four scales on the ETP instrument - Worth of External Testing (WET), Data Leadership (DL), Effective Data Analysis (EDA), and Impact on Teaching Practices (ITP) - were developed and validated using established psychometric procedures for scale development.

8.5 CONCLUDING REMARKS

Following the discussion of findings from Chapter 7, this final chapter presented the implications and recommendations for further research and policy and practice.

This research was undertaken to ascertain how the experience of external testing and data utilisation affects attitudes to the tests, teaching practice and school leadership. It was designed around a case study methodology, employing the epistemological approach of Constructivism and the Pragmatist theoretical perspective. The themes of 'student achievement', 'educational change' and 'educational accountability' provided the framework for the suite of data collection instruments using a mix of qualitative and quantitative approaches.

The study was undertaken because the measurement and reporting of student information from national tests of literacy and numeracy is a relatively new phenomenon in Australia. No previous studies had been undertaken to examine their impact on schools, nor had the concept of data leadership within the context of evidence-based leadership been studied in this context. This research found that, within the boundaries of the study,

no common understanding of the worth or value of external testing existed across the system of schools. Similarly, there were significant differences between principals and classroom teachers on the perception of evidence-based leadership in using testing data and the degree of effective data analysis occurring in schools. Consequently the impact that the results from external testing have on teaching practices was found to be sporadic and is often unrelated to classroom-based curriculum delivery, assessment practices and teaching and learning activities.

The challenge to governments identified by the recommendations is to ensure that the public reporting of the results of national tests of literacy and numeracy is focused on accurate diagnosis of student learning as well as methods and resources to improve student achievement, rather than on comparisons between schools and systems.

The challenge to schools and education systems is to ensure that the feedback from such testing is valued, and that principals and teachers are engaged with the possibilities of its utility. Importantly, this needs to be achieved not in isolation from the classroom, but as an integral component of school and system planning for improvement, together with appropriate teaching, learning and assessment practices.

Within the context of increasing policy interest in measuring and reporting student achievement in Australia, these challenges focus on the central role of evidence-based leadership at the government, system and school level. The findings from this research advocate the important role of school leadership in the analysis, use and reporting of data from national tests of literacy and numeracy. For schools and systems to be ‘data-informed’ is not sufficient; to be ‘data-led’ suggests the need for an understanding of the ‘professional purpose’ of such data, its relationship with other performance information to effect improvements in student achievement, and explicit leadership at the school level.

APPENDIX A
Focus Group: Information Letter
to Participants



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INFORMATION LETTER TO PARTICIPANTS – FOCUS GROUP

PROJECT TITLE:	'Data-informed or data-led? How schools use feedback from external testing of literacy and numeracy.'
PRINCIPAL SUPERVISOR:	Associate Professor Charles Burford
STUDENT RESEARCHER:	Philip Pettit
PROGRAM:	Doctor of Education

Dear Participant

You are invited to participate in a research project to be undertaken by me as part of the requirements for my Doctor of Education studies at Australian Catholic University. The purpose of the research is to explore how schools in the Archdiocese of Canberra and Goulburn are using feedback from the national tests of literacy and numeracy, who is leading its use and what learnings can be established to enhance school and system planning.

The research design consists of several phases:

- A *Focus Group* in two phases: the initial questionnaire construction and discussion of results from the research.
- A *Survey* questionnaire distributed to teachers of Years 3, 5 and 7 and principals at all 55 schools;
- Individual *Interviews* with a small number of participants;

Your participation is invited in the **Focus Group** phase to, firstly, determine the main issues and themes to assist in the construction of the questionnaire and, secondly, to reflect on the research findings and any implications. It is anticipated that the type of data gathering methods to be used for the Focus Group would cause minimal concern for the participants. The group will consist of several CEO personnel from the Education Services Division, principals and teachers of Years 3, 5 and 7 and will follow a discussion format with the emphasis placed on the sharing of ideas and reflection on research findings.

It is anticipated that the Focus Group will convene initially in May 2008 and for a second meeting in October 2008. Each meeting should last about 1 hour and will be conducted at a time and location by mutual agreement. A summary of research data and tentative results from the previous research phases will be given to Focus Group participants prior to the October meeting. The

meetings will be recorded using a digital audio recorder and later transcribed to text by me. The participants will receive a printed summary. At all times the research data will be stored securely.

The potential benefits to you of participating include an opportunity to articulate and discuss with colleagues important aspects of literacy and numeracy testing. The research will also have benefits to schools throughout the archdiocese. The use of feedback data from external literacy and numeracy testing has great potential to inform decisions about student learning and achievement at the school and system level. The results will be able to assist in planning by the CEO to support teachers and school leaders in designing programs of work for students. The research results will be published as partial fulfillment of my Doctoral studies and summaries will be made available to the Director of Catholic Education, Principals throughout the archdiocese and participants in the research.

Participants are free to refuse consent altogether without having to justify that decision, or to withdraw consent and discontinue participation in the study at any time without giving a reason. Refusal to participate or withdrawal from the process will not disadvantage the participant's employment.

Participant confidentiality will be assured. Identifying personal details will not be recorded, since each participant will be issued with a number and only this will be used in subsequent data analysis and reporting. Consequently, only the input of Focus Group participants will be used without the need to identify individual members.

If you need further clarification at any time please do not hesitate to contact my Principal Supervisor, Associate Professor Charles Burford at Australian Catholic University on 02 9701 4166 or by email c.burford@mary.acu.edu.au. Alternatively, information can be sought from me at the Catholic Education Office on 6234 5455 or by email phil.pettit@ceo.cg.catholic.edu.au

The research has been approved by the Human Research Ethics Committee at Australian Catholic University and the Director of Catholic Education, Archdiocese of Canberra and Goulburn. In the event that you have any complaint or concern about the way you have been treated during the study, or if you have any queries that the Principal Supervisor or Student Researcher have not been able to satisfy, you may write to the Chair of the Human Research Ethics Committee at the following address:

Chair
HREC
c/o Research Services
Australian Catholic University
Strathfield Campus
Locked Bag 2002
STRATHFIELD NSW 2135
Tel: 02 9701 4093
Fax: 02 9701 4350

Any complaint or concern will be treated in confidence and fully investigated. The participant will be informed of the outcome.

If you agree to participate in this Focus Group phase of the research project, you should sign both copies of the Consent Form (attached), retain the 'Participant's Copy' for your records and return the '**Student Researcher's Copy**' to the Student Researcher in the accompanying envelope.

Yours sincerely



Associate Professor Charles Burford
(PRINCIPAL SUPERVISOR)



Philip Pettit
(STUDENT RESEARCHER)

APPENDIX B
Focus Group: Consent Form



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CONSENT FORM – FOCUS GROUP

I (*Participant*) have read and understood the information provided in the 'Information Letter to Participants'. Any questions I have asked have been answered to my satisfaction. I agree to participate in the **Focus Group** phase of the research and realise that withdrawal from the process will not disadvantage my employment. I understand that the Focus Group discussions will be recorded using a digital audio recorder and later transcribed to text.

Focus Group discussions will be held in May and October 2008. Each session will last for no longer than 60 minutes and will be conducted at the Catholic Education Office, Manuka.

I agree that research data collected for the study may be published or may be provided to other researchers in a form that does not identify me in any way.

NAME OF PARTICIPANT:
 (*Block Letters*)

SIGNATURE OF PARTICIPANT: DATE:

Associate Professor Charles Burford
 (PRINCIPAL SUPERVISOR)

Philip Pettit
 (STUDENT RESEARCHER)

Date: 7 May 2008

APPENDIX C

Pilot Survey Questionnaire



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RESEARCH PILOT SURVEY

PROJECT TITLE:	'Data-informed or data-led? How schools use feedback from external testing of literacy and numeracy.'
PRINCIPAL SUPERVISOR:	Associate Professor Charles Burford
STUDENT RESEARCHER:	Philip Pettit
PROGRAM:	Doctor of Education

Dear Colleague

You are invited to participate in a research project to be undertaken by me as part of the requirements for my Doctor of Education studies at Australian Catholic University. The research has been approved by the Human Research Ethics Committee at Australian Catholic University and is titled: *'Data-informed or data-led? How schools use feedback from external testing of literacy and numeracy.'*

The purpose of the research is to explore how schools in the Archdiocese of Canberra and Goulburn are using feedback from nationally benchmarked literacy/numeracy testing programs, who is leading its use and what learnings can be established to enhance school and system planning.

Your participation is invited in the **Pilot Survey** phase of the research to provide clear direction for the administration of the Main Survey (scheduled for June 2008). The purpose of the Pilot Survey is to critique both the structure and content of the survey instrument with the view of ensuring that the structure is appropriate, the items are self-evident and that they fulfil the purpose of the survey as stated on the front page. On the final two pages of this document please attach your comments relevant to the questions/sections contained in the Pilot Survey. Completion of this survey will be taken as consent to participate. The survey begins on the following page.

When completed, please place in the accompanying envelope and return to the Returning Officer at the CEO using the Courier system by 11 May 2008

If you need further clarification at any time please do not hesitate to contact the Principal Supervisor, Associate Professor Charles Burford at Australian Catholic University on 02 9701 4166 or by email c.burford@acu.edu.au. Alternatively, information can be sought from Philip Pettit at the Catholic Education Office on 6234 5455 or by email phil.pettit@ceo.cg.catholic.edu.au. I look forward to your participation in this important project on how schools use feedback from external testing of literacy and numeracy.

Yours sincerely

Associate Professor Charles Burford
(PRINCIPAL SUPERVISOR)

Philip Pettit
(STUDENT RESEARCHER)

Fill in the appropriate circle that best indicates your situation and context

PART A: Basic Demographic Information

1. In which type of school do you work?	☐ Primary (ACT) ☐ Primary (NSW) ☐ Central (NSW) ☐ Secondary (ACT) ☐ Secondary (NSW)
2. What is the enrolment of your school?	☐ 100 or less ☐ 101-300 ☐ 301-500 ☐ 501 or more
3. For how many years (including this year) have you been teaching?	☐ 1 year ☐ 2-5 years ☐ 6-10 years ☐ more than 10 years
4. What year level are you teaching THIS YEAR ?	☐ Year 3 ☐ Year 5 ☐ Year 7 ☐ non-teaching
5. How often, in the last 5 years, have you taught Year 3, Year 5 or Year 7?	☐ once ☐ 2 or 3 times ☐ 4 or 5 times
6. What role best describes your current employment?	☐ Principal Coordinator ☐ Assistant Principal ☐ REC ☐
7. Do you hold a full-time or part-time position?	☐ Full-time ☐ Part-time

PART B: Fixed Response Questions

INSTRUCTIONS

Below are a number of statements relating to the use of feedback from external tests of literacy and numeracy. Please record your views in the boxes for each item. If you believe you do not know enough about a particular item, please mark the first column and leave the rest of that line blank. Such responses are important for this research.

The term “external testing” refers to the external tests of literacy and numeracy.

Mark ONE BOX ONLY per item

	I cannot make a valid judgement	Strongly Disagree	Disagree	Agree	Strongly Agree
1. The external tests of literacy and numeracy contain useful information for teachers' classroom pedagogy	☐	☐	☐	☐	☐
2. Teachers are expected to show evidence of the use of external testing data in my teaching programs	☐	☐	☐	☐	☐
3. It is unclear who is leading the analysis and use of external testing at my school	☐	☐	☐	☐	☐
4. I can see a clear link between student results from external testing and the curriculum I teach in the classroom	☐	☐	☐	☐	☐
5. Teachers have ready access to the results from the external testing	☐	☐	☐	☐	☐
6. In my school there is strong leadership in the use of feedback from external testing	☐	☐	☐	☐	☐
7. Feedback from external testing has great potential to affect student achievement	☐	☐	☐	☐	☐
8. I am not confident is using feedback from external testing for my teaching	☐	☐	☐	☐	☐
9. The use of external testing feedback at my school is driven by strong leadership	☐	☐	☐	☐	☐
10. There is little or no coordinated priority for using external testing results	☐	☐	☐	☐	☐
11. Feedback from external testing important for teaching	☐	☐	☐	☐	☐
12. Feedback from external testing is an essential tool to aid student learning	☐	☐	☐	☐	☐
13. The school's emphasis on using external testing feedback is the result of strong leadership	☐	☐	☐	☐	☐
14. The analysis of results from external literacy/numeracy tests has little impact on classroom teaching	☐	☐	☐	☐	☐
15. The quality of the feedback from external testing is poor	☐	☐	☐	☐	☐

	I cannot make a valid judgement	Strongly Disagree	Disagree	Agree	Strongly Agree
16. Teaching practices have changed at my school as a result of strong leadership in using external testing results	☐	☐	☐	☐	☐
17. External testing is unrelated to the curriculum taught in the classroom	☐	☐	☐	☐	☐
18. The use of feedback from external testing is left to teachers in the Faculty/Stage or Year level	☐	☐	☐	☐	☐
19. Teachers at my school are clear about how to use feedback from external testing in their teaching	☐	☐	☐	☐	☐
20. External testing has little to do with improving student achievement	☐	☐	☐	☐	☐
21. There is a whole-school plan for the use of external testing data	☐	☐	☐	☐	☐
22. Teaching practices at my school are influenced by external testing results	☐	☐	☐	☐	☐
23. There is little evidence of leadership in the analysis and use of external testing data in the school	☐	☐	☐	☐	☐
24. Results from the external tests influence the way teachers plan for and conduct their teaching and assessment programs	☐	☐	☐	☐	☐
25. Feedback from external testing has limited potential to improve student achievement	☐	☐	☐	☐	☐
26. There is a whole-school focus on using feedback from external testing	☐	☐	☐	☐	☐
27. The use of feedback data from external testing is the result of effective leadership in the school	☐	☐	☐	☐	☐
28. There is a coordinated approach in the school for the use of external testing feedback data	☐	☐	☐	☐	☐
29. The use of external testing feedback is left up to individual teachers	☐	☐	☐	☐	☐
30. I am confident in analysing the results from external testing	☐	☐	☐	☐	☐
31. There is no obvious coordinated plan at my school for using feedback from external testing	☐	☐	☐	☐	☐
32. Teachers have been shown how to use the results from external testing	☐	☐	☐	☐	☐
33. Adequate support for using external testing results has been provided at my school	☐	☐	☐	☐	☐
34. Teachers have changed their teaching practices as a result of using the results from external testing of literacy/numeracy	☐	☐	☐	☐	☐
35. Accountability to government is the main driver of the external literacy/numeracy testing agenda	☐	☐	☐	☐	☐
36. My school relies on the CEO to lead the analysis of external testing results in the school	☐	☐	☐	☐	☐
37. Feedback from external testing has limited potential to improve classroom pedagogy	☐	☐	☐	☐	☐
38. The analysis and use of external testing data is left to individual teachers or groups of teachers at my school	☐	☐	☐	☐	☐
39. The school's annual Management Plan contains explicit strategies for using the results from external testing	☐	☐	☐	☐	☐
40. Teachers at my school are clear about how to use feedback from external testing in their teaching	☐	☐	☐	☐	☐

PART C: Short Answer Questions

INSTRUCTIONS

Below are a number of questions relating to the use of feedback from external tests of literacy and numeracy. Please record your answers in the spaces provided.

1a. What do you think about the usefulness of external testing feedback in teaching and learning?

1b. Why do you hold these beliefs?

2. In what ways are teaching practices in your school shaped by the external testing data?

3. Are there any other comments you wish to make about how the data from external tests of literacy and numeracy is used in your school?

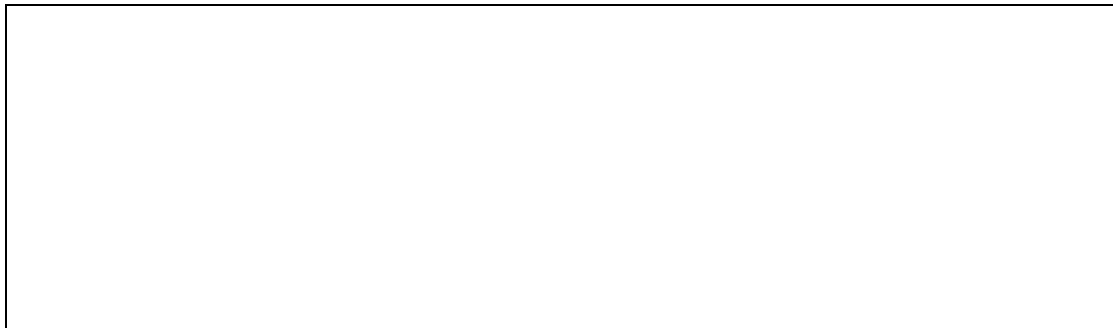
**Thank you for taking the time to complete this survey.
Your contribution is important for the success of the research.**

Please return the survey in the accompanying envelope to the CEO by 26 May 2008

Comments on Pilot Survey

Please provide comments on the Pilot Survey concerning the following:

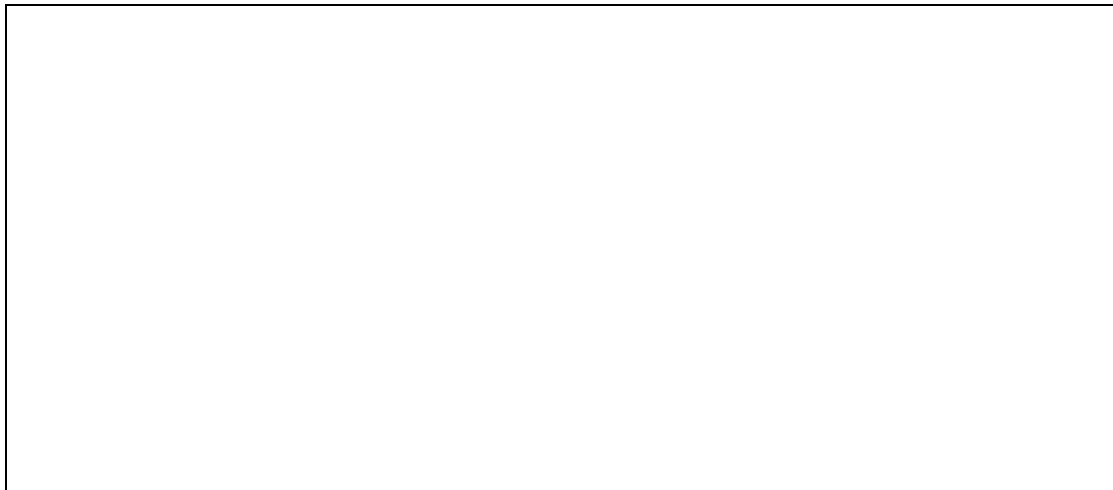
1. The Survey Instrument: structure, length, etc



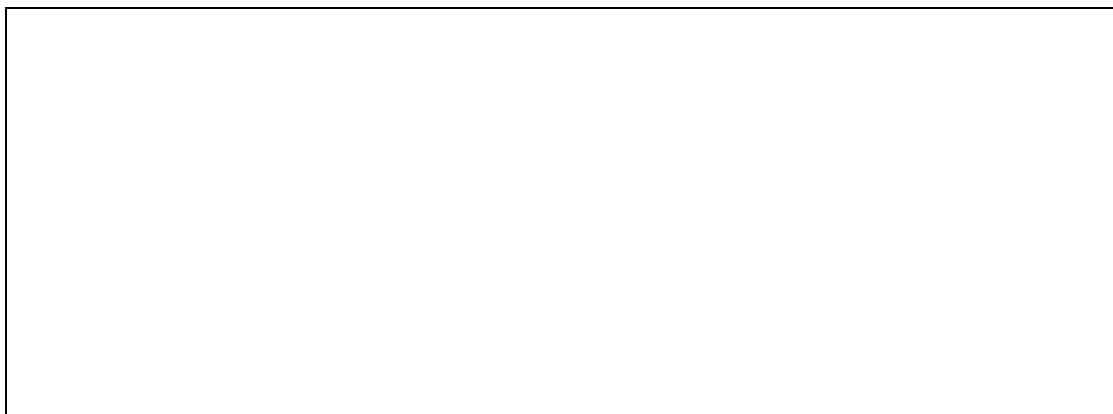
2. Part A: Basic Demographic Information



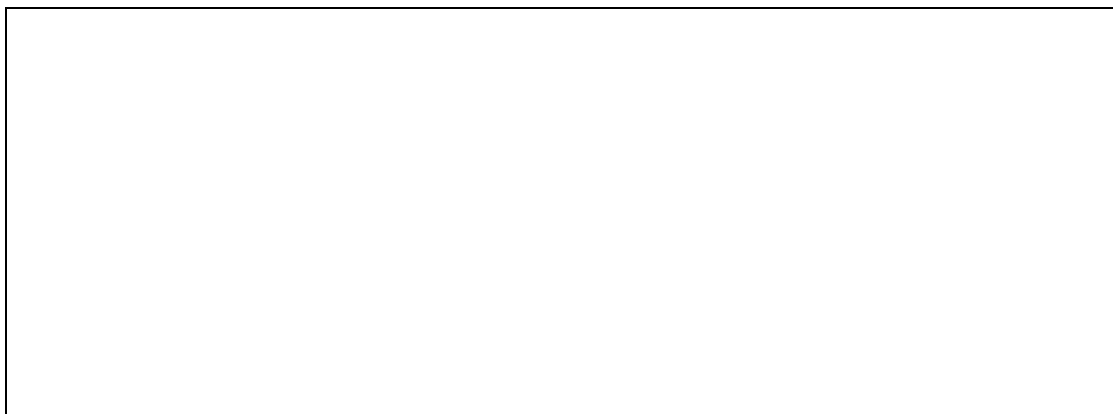
3. Part B: Fixed Response Questions



4. Part C: Short Answer Questions



5. Other Comments



Thank you for agreeing to take part in this Pilot Survey.

Please return your responses to me in the enclosed envelope.

APPENDIX D Main Survey: Covering Letter to Principals
--

19 May 2008

Dear Principal

Sometime ago I indicated that I was undertaking Doctoral studies through Australian Catholic University. My research centres on how schools are analysing and using the data from external tests of literacy and numeracy and who is leading its use.

The data gathering phase of my research this year consists of a focus group, survey of all Archdiocesan schools and semi-structured interviews with a selection of principals and teachers of Years 3, 5 and 7.

In this package please find the Survey instrument that will be used to obtain base-line data for the next phase of my research. I will be grateful if you could distribute a Survey form to your teachers of Years 3, 5 and 7 as appropriate (and to yourself!). Not all Year 7 teachers need to be involved. Teachers and Principals complete the same form and no individual or school can be identified by me.

Each Survey form is accompanied with an envelope that can be used to return the form through the usual courier system to the Returning Officer at the CEO. This process further distances me from any possibility of identification of teacher/principal or school.

There is no compulsion to participate in the Survey. However the results will provide me with valuable data for the next phase of the research.

Thank you (in anticipation) for your involvement in this process. The results should be able to help the Archdiocese in finding ways to support schools in the utilisation of external testing feedback to support student learning.

Kind regards

Philip Pettit
Student Researcher

APPENDIX E
Main Survey: External Testing Profile
(ETP) Instrument



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RESEARCH SURVEY

PROJECT TITLE:	'Data-informed or data-led? How schools use feedback from external testing of literacy and numeracy.'
PRINCIPAL SUPERVISOR:	Associate Professor Charles Burford
STUDENT RESEARCHER:	Philip Pettit
PROGRAM:	Doctor of Education

Dear Colleague

You are invited to participate in a research project to be undertaken by me as part of the requirements for my Doctor of Education studies at Australian Catholic University. The research has been approved by the Human Research Ethics Committee at Australian Catholic University and is titled: *'Data-informed or data-led? How schools use feedback from external testing of literacy and numeracy.'*

The purpose of the research is to explore how schools in the Archdiocese of Canberra and Goulburn are using feedback from national testing of literacy and numeracy, who is leading its use and what learnings can be established to enhance school and system planning. Your participation is invited in the **Survey** phase of the research to obtain information from Principals and Teachers of Years 3, 5 and 7 concerning how schools use feedback data from external testing. It is anticipated that the use of the survey questionnaire will cause minimal concern for the participants.

This survey is anonymous. Your identity cannot be determined and, therefore, cannot be disclosed to the researcher. You may withdraw from this survey at any time up until the submission of the survey. If you do decide to take part in this survey, please ensure that you complete ALL the relevant questions. Completion of this survey will be taken as consent to participate.

When completed, please place in the accompanying envelope and return to the Returning Officer at the CEO using the Courier system by FRIDAY JUNE 13, 2008.

If you need further clarification at any time please do not hesitate to contact the Principal Supervisor, Associate Professor Charles Burford at Australian Catholic University on 02 9701 4166 or by email c.burford@acu.edu.au. Alternatively, information can be sought from Philip Pettit at the Catholic Education Office on 6234 5455 or by email phil.pettit@ceo.cg.catholic.edu.au

I look forward to your participation in this important project on how schools use feedback from external testing of literacy and numeracy.

Yours sincerely

Associate Professor Charles Burford
 (PRINCIPAL SUPERVISOR)

Philip Pettit
 (STUDENT RESEARCHER)

Please fill in the circle that most applies to you

Please mark like this

☐ ☐ ☒ ☐

NOT like this

☐ ☒ ☐ ☐

Please return the survey in the accompanying envelope to the CEO by
FRIDAY 13 JUNE, 2008

PART A: Basic Demographic Information

1	In which type of school do you work?	☐ (1) Primary (ACT)	☐ (2) Primary (NSW)	☐ (3) Central (NSW)
		☐ (4) Secondary (ACT)	☐ (5) Secondary (NSW)	
2	What is the enrolment of your school?	☐ (1) 100 or less	☐ (2) 101-300	☐ (3) 301-500 ☐ (4) 501 or more
3	For how many years (including this year) have you been teaching?	☐ (1) 1 year	☐ (2) 2-5 years	☐ (3) 6-10 years ☐ (4) 11 years or more
4.a	What Year level are you teaching THIS YEAR?	☐ (1) Year 3	☐ (2) Year 5	☐ (3) Year 7 ☐ (4) non-teaching
4.b	If Year 7, what is your main Learning Area? (Select ONE only)	☐ (1) RE	☐ (2) English	☐ (3) Mathematics ☐ (4) Science
		☐ (5) HSIE/SOSE	☐ (6) PD/H/PE	☐ (7) The Arts/Creative Arts
		☐ (8) LOTE/Languages	☐ (9) TAS/Technology	☐ (10) Integrated subjects
5	Including this year, for how long, over the last 5 years, have you taught Year 3, Year 5 or Year 7?	☐ (1) 1 year	☐ (2) 2 or 3 years	☐ (3) 4 or 5 years
6	What role best describes your current employment?	☐ (1) Principal	☐ (2) Asst. Principal	☐ (3) REC ☐ (4) Coordinator
		☐ (5) Classroom Teacher	☐ (6) Teacher/Librarian	☐ (7) Resource Teacher
7	Are you a member of the School Executive?	☐ (1) Yes	☐ (2) No	
8	Do you hold a full-time or part-time position?	☐ (1) Full-time	☐ (2) Part-time	

PART B: Fixed Response Questions

INSTRUCTIONS

Below are a number of statements relating to the use of feedback from external tests of literacy and numeracy. Please record your views in the boxes for each item. If you believe you do not know enough about a particular item, please mark the last column and leave the rest of that line blank. Such responses are important for this research.

The term "external testing" refers to the external tests of literacy and numeracy.

<i>Mark ONE CIRCLE ONLY per item</i>	Strongly Disagree	Disagree	Agree	Strongly Agree	I cannot make a valid judgement
1. The external tests of literacy and numeracy contain useful information for teachers' classroom pedagogy	☐	☐	☐	☐	☐
2. Teachers at my school are clear about how to use feedback from external testing in their teaching	☐	☐	☐	☐	☐
3. There is little evidence of leadership in the analysis and use of external testing data in the school	☐	☐	☐	☐	☐
4. The use of feedback from external testing is left to teachers in the Faculty/Stage or Year level	☐	☐	☐	☐	☐
5. The analysis of results from external literacy/numeracy tests has little impact on my classroom teaching	☐	☐	☐	☐	☐
6. Accountability to government is the main driver of the external literacy/numeracy testing agenda	☐	☐	☐	☐	☐
7. Explicit programs are in place at my school to make use of external testing feedback	☐	☐	☐	☐	☐
8. Teaching practices have changed at my school as a result of strong leadership in using external testing results	☐	☐	☐	☐	☐
9. Feedback from external testing has great potential to affect student achievement	☐	☐	☐	☐	☐
10. Results from the external tests influence the way I plan for and conduct my teaching and assessment programs	☐	☐	☐	☐	☐

Mark ONE CIRCLE ONLY per item	Strongly Disagree	Disagree	Agree	Strongly Agree	I cannot make a valid judgement
11. External testing is unrelated to the curriculum taught in the classroom	☐	☐	☐	☐	☐
12. There is no obvious coordinated plan at my school for using feedback from external testing	☐	☐	☐	☐	☐
13. My school relies on the CEO to lead the analysis of external testing results in the school	☐	☐	☐	☐	☐
14. Feedback from external testing has limited potential to improve student achievement in my classes	☐	☐	☐	☐	☐
15. I am aware of a whole-school plan for the use of external testing data	☐	☐	☐	☐	☐
16. I am not confident is using feedback from external testing for my teaching	☐	☐	☐	☐	☐
17. I have received adequate support for using external testing results in my teaching	☐	☐	☐	☐	☐
18. The use of external testing feedback at my school is driven by strong leadership	☐	☐	☐	☐	☐
19. External testing has little to do with improving student achievement	☐	☐	☐	☐	☐
20. There is a coordinated approach in the school for the use of external testing feedback data	☐	☐	☐	☐	☐
21. The quality of the feedback from external testing is poor	☐	☐	☐	☐	☐
22. I have ready access to the results from the external testing	☐	☐	☐	☐	☐
23. My teaching practices are influenced by external testing results	☐	☐	☐	☐	☐
24. I have been shown how to use the results from external testing in my teaching	☐	☐	☐	☐	☐
25. The use of external testing feedback is left up to individual teachers	☐	☐	☐	☐	☐
26. I am expected to show evidence of the use of external testing data in my teaching programs	☐	☐	☐	☐	☐
27. I consider feedback from external testing important for my teaching	☐	☐	☐	☐	☐
28. I am not sure who is leading the analysis and use of external testing at my school	☐	☐	☐	☐	☐
29. I am confident in analyzing the results from external testing	☐	☐	☐	☐	☐
30. The use of feedback data from external testing is the result of effective leadership in the school	☐	☐	☐	☐	☐
31. The school's annual Management Plan contains explicit strategies for using the results from external testing	☐	☐	☐	☐	☐
32. Feedback from external testing is an essential tool to aid student learning	☐	☐	☐	☐	☐
33. The analysis and use of external testing data is left to individual teachers or groups of teachers at my school	☐	☐	☐	☐	☐
34. Feedback from external testing has limited potential to improve my classroom pedagogy	☐	☐	☐	☐	☐
35. I have changed my teaching practices as a result of using the results from external testing of literacy/numeracy	☐	☐	☐	☐	☐
36. In my school there is strong leadership in the use of feedback from external testing	☐	☐	☐	☐	☐
37. I can see a clear link between student results from external testing and the curriculum I teach in the classroom	☐	☐	☐	☐	☐
38. There is little or no coordinated priority for using external testing results at my school	☐	☐	☐	☐	☐
39. There is a whole-school focus on using feedback from external testing	☐	☐	☐	☐	☐
40. The school's emphasis on using external testing feedback is the result of strong leadership	☐	☐	☐	☐	☐

PART C: Short Answer Questions

INSTRUCTIONS

Below are a number of questions relating to the use of feedback from external tests of literacy and numeracy. Please record your answers in the spaces provided.

1. What do you think about the **usefulness** of external testing of literacy/numeracy? Why?

2. At your school, is the analysis and use of external testing feedback being led by a person in a particular role?

If YES ... 2a. What is the role/position of the person who actually leads the use of feedback information from external testing in your school? 2b. In what <u>practical ways</u> are the external testing results being used in your school?	If NO ... 2c. What are the main barriers to the analysis and use of external testing feedback at your school?
---	---

3. In what ways are **YOUR teaching practices** shaped by the external testing data? Why?

4. Are there any other comments you wish to make about how the data from external tests of literacy and numeracy is used in your school?

Thank you for taking the time to complete this survey. Your contribution is important for the research.

APPENDIX F
Semi-structured Interviews –
Information Letter to Participants



Australian Catholic University Limited
 ABN 15 050 192 660
 Strathfield Campus (Mount Saint Mary)
 25a Barker Road Strathfield
 New South Wales 2135 Australia
 Locked Bag 2002 Strathfield
 New South Wales 2135 Australia
 Telephone 02 9701 4166
 Facsimile 02 9701 4292
www.acu.edu.au

INFORMATION LETTER TO PARTICIPANTS – INTERVIEW

PROJECT TITLE: 'Data-informed or data-led? How schools use feedback from external testing of literacy and numeracy.'

PRINCIPAL SUPERVISOR: Associate Professor Charles Burford

STUDENT RESEARCHER: Philip Pettit

PROGRAM: Doctor of Education

Dear Participant

You are invited to participate in a research project to be undertaken by me as part of the requirements for my Doctor of Education studies at Australian Catholic University. The purpose of the research is to explore how schools in the Archdiocese of Canberra and Goulburn are using feedback from nationally benchmarked literacy/numeracy testing programs, who is leading its use and what learnings can be established to enhance school and system planning.

The research design consists of several phases:

- A *Survey* questionnaire distributed to teachers of Years 3, 5 and 7 and principals at all 55 schools;
- Individual *Interviews* with a small number of participants;
- A *Focus Group* for the initial questionnaire construction as well as discussion of results from the research.

Your participation is invited in the **Interview** phase to explore the main issues and themes arising from the previously-completed Survey questionnaire. It is anticipated that the type of data gathering methods to be used for the Interview would cause minimal concern for the participants.

The Interview will be conducted during 2008. The meeting will be recorded using a digital audio recorder and later transcribed to text by the Student Researcher. Participants will receive a printed transcript to check for accuracy. At all times the research data will be stored securely.

The potential benefits to you of participating include an opportunity to articulate and discuss important aspects of literacy and numeracy testing. The research will also have benefits to schools throughout the archdiocese. The use of feedback data from external literacy and numeracy testing has great potential to inform decisions about student learning and achievement at the school and system level. The results will be able to assist in planning by the CEO to support teachers and

school leaders in designing programs of work for students. The research results will be published as partial fulfillment of my Doctoral studies and summaries will be made available to the Director of Catholic Education, Principals throughout the archdiocese and participants in the research.

Participants are free to refuse consent altogether without having to justify that decision, or to withdraw consent and discontinue participation in the study at any time without giving a reason. Refusal to participate or withdrawal from the process will not disadvantage the participant's employment.

Participant confidentiality will be assured. Identifying personal details will not be recorded, since each participant will be issued with a number and only this will be used in subsequent data analysis and reporting. Consequently, only the input of Interview participants will be used without the need to identify individual members.

If you need further clarification at any time please do not hesitate to contact my Principal Supervisor, Associate Professor Charles Burford at Australian Catholic University on 02 9701 4166 or by email c.burford@mary.acu.edu.au. Alternatively, information can be sought from me at the Catholic Education Office on 6234 5455 or by email on phil.pettit@ceo.cg.catholic.edu.au

The research has been approved by the Human Research Ethics Committee at Australian Catholic University. In the event that you have any complaint or concern about the way you have been treated during the study, or if you have any queries that the Principal Supervisor or Student Researcher have not been able to satisfy, you may write to the Chair of the Human Research Ethics Committee at the following address:

Chair
HREC
c/o Research Services
Australian Catholic University
Strathfield Campus
Locked Bag 2002
STRATHFIELD NSW 2135
Tel: 02 9701 4093
Fax: 02 9701 4350

Any complaint or concern will be treated in confidence and fully investigated. The participant will be informed of the outcome.

If you agree to participate in this Interview phase of the research project, you should sign both copies of the Consent Form (attached), retain one copy for your records and return the other copy to the Student Researcher.

Yours sincerely



Associate Professor Charles Burford
(PRINCIPAL SUPERVISOR)



Philip Pettit
(STUDENT RESEARCHER)

APPENDIX G
Semi-structured Interviews – Consent Form



Australian Catholic University
 Brisbane Sydney Canberra Ballarat Melbourne

Australian Catholic University Limited
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New South Wales 2135 Australia

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New South Wales 2135 Australia

Telephone 02 9701 4166

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**PARTICIPANT'S
 COPY**

CONSENT FORM -- INTERVIEW

I (*Participant*) have read and understood the information provided in the 'Information Letter to Participants'. Any questions I have asked have been answered to my satisfaction. I agree to participate in the **Interview** phase of the research and realise that withdrawal from the process will not disadvantage my employment. I understand that the Interview will be recorded using a digital audio recorder and later transcribed to text.

The interview will be held during 2008 and will last for no longer than 45 minutes. It will be conducted at the participant's school at a convenient time.

I agree that research data collected for the study may be published or may be provided to other researchers in a form that does not identify me in any way.

NAME OF PARTICIPANT:

(*Block Letters*)

SIGNATURE OF PARTICIPANT: DATE:

SIGNATURE OF
 PRINCIPAL
 SUPERVISOR:

DATE:

SIGNATURE OF
 STUDENT
 RESEARCHER:

DATE:

APPENDIX H
ACU Human Research Ethics Committee
Approval



Human Research Ethics Committee
Committee Approval Form

Principal Investigator/Supervisor: Associate Professor Charles Burford Sydney Campus
Co-Investigators: Associate Professor Jeffery Dorman Brisbane Campus
Student Researcher: Mr Philip Pettit Sydney Campus

Ethics approval has been granted for the following project:
"Data-informed or data-led? How schools use feedback from external testing of literacy and numeracy."
(Research on the use of testing data feedback.)

for the period: 21 January 2008 to 30 October 2008

Human Research Ethics Committee (HREC) Register Number: N200708 19

The following standard conditions as stipulated in the *National Statement on Ethical Conduct in Research Involving Humans (2007)* apply:

- (i) that Principal Investigators / Supervisors provide, on the form supplied by the Human Research Ethics Committee, annual reports on matters such as:
 - security of records
 - compliance with approved consent procedures and documentation
 - compliance with special conditions, and
- (ii) that researchers report to the HREC immediately any matter that might affect the ethical acceptability of the protocol, such as:
 - proposed changes to the protocol
 - unforeseen circumstances or events
 - adverse effects on participants

The HREC will conduct an audit each year of all projects deemed to be of more than low risk. There will also be random audits of a sample of projects considered to be of negligible risk and low risk on all campuses each year.

Within one month of the conclusion of the project, researchers are required to complete a *Final Report Form* and submit it to the local Research Services Officer.

If the project continues for more than one year, researchers are required to complete an *Annual Progress Report Form* and submit it to the local Research Services Officer within one month of the anniversary date of the ethics approval.

A handwritten signature in black ink, appearing to read "K. Pashley".

Signed: Date: 21 January 2008
(Research Services Officer, McAuley Campus)



Archdiocese of Canberra and Goulburn
CATHOLIC EDUCATION OFFICE

DIRECTOR

File Ref: 2003/920-12

P.O. Box 3317
Manuka A.C.T. 2603
Telephone: (02) 6234 5455
Facsimile: (02) 6239 6567
Email: director@ceo.cg.catholic.edu.au
www.ceo.cg.catholic.edu.au
ABN: 47824127996

15 October 2007

Mr Philip Pettit
17 Carandini Street
MELBA ACT 2615

Dear Mr Pettit

I am writing in response to your request to undertake research titled '*Data-informed or data-led? How schools use feedback from external testing of literacy and numeracy.*' I am pleased to advise that your request to conduct research at schools throughout the Archdiocese of Canberra & Goulburn has been approved subject to the following:

1. The Principal gives final permission for research to be carried out in his/her school.
2. Confidentiality of findings and anonymity of students is adhered to. The research must comply with the requirements of the Commonwealth *Privacy Amendment (Private Sector) Act 2000*.
3. If you undertake research with children in an unsupervised capacity, you are obliged to obtain a "Working with Children Check" before you commence.
4. That upon completion of your research a copy of your report is forwarded to me.
5. The Dr Michael Gaffney, Head of Education Services in our Office, be contacted immediately should your research differ in any way from that proposed. Dr Gaffney's details are:

Telephone: (02) 6234 5412
Fax: (02) 6234 5496
Email: michael.gaffney@ceo.cg.catholic.edu.au

I look forward to the results and wish you the best over the coming months.

Yours sincerely

Moira Najdecki
Director

Bibliography

- Albrecht, T., Johnson, G. & Walther, J. (1993). Understanding Communication Processes in Focus Groups. In Morgan, D. (ed.). *Successful Focus Groups: Advancing the State of the Art*. Thousand Oaks, CA: Sage.
- Angelico, T. (2005). *An evidence-based approach to improvement: A case study of the Victorian Catholic Sector*. Paper presented at the Using Data to Support Learning Research Conference, Melbourne.
- Ambert, A., Adler, P. A., Adler, P., & Detzner, D. (1995). Understanding and Evaluating Qualitative Research. *Journal of Marriage and the Family*, 57(4).
- Angus, L. (2004). Globalization and educational change: bringing about the reshaping and re-norming of practice. *Journal of Education Policy*, 19(1), 23-41.
- Axworthy, D. (2005). *Turning data into information that improves learning: The WALNA experience*. Paper presented at the Using Data to Support Learning Research Conference, Melbourne.
- Balzacq, T. (2002). Security, Identity, and Symbolic Interactionism. *International Review of Sociology*, 12(3).
- Bassey, M. (1999a). *Case Study Research in Educational Settings*. Buckingham: Open University Press.
- Bassey, M. (1999b). Methods of Inquiry and the Conduct of Case Study Research. In P. Sikes (Ed.), *Case Study Research in Educational Settings*. Buckingham: Open University Press.
- Berg, B. (2004). *Qualitative Research Methods for the Social Sciences* (5th ed.). Boston: Pearson Education.
- Bloomer, M. (2001). Young Lives, Learning and Transformation: Some Theoretical Considerations. *Oxford Review of Education*, 27(3).
- Blumer, H. (1969). *Symbolic Interactionism: Perspective and Method*. Englewood Cliffs, NJ: Prentice-Hall.
- Bonesronning, H. (2004). Do Teachers' Grading Practices Affect Student Achievement? *Education Economics*, 12(2), 151-167.
- Breen, R. (2006). A Practical Guide to Focus-Group Research. *Journal of Geography in Higher Education*, 30(3), 463-475

- Brownlee, W. (1995). Accountability Initiatives: Necessary or Contrived? *Canadian Journal of Education*, 20(1), 80-84.
- Bruniges, M. (2005). *An evidence-based approach to teaching and learning*. Paper presented at the Using Data to Support Learning Research Conference, Melbourne.
- Burns, R. (1990). *Introduction to Research Methods in Education*. Melbourne: Longman Cheshire.
- Chase, S. (2005). Narrative Inquiry: Multiple Lenses, Approaches, Voices. In N. K. Denzin & Y. S. Lincoln (Eds.), *The Sage Handbook of Qualitative Research* (3rd ed.). Thousand Oaks: Sage.
- Cherryholmes, C. (1993). Reading Research. *Journal of Curriculum Studies*, 25(1).
- Christians, C. (2005). Ethics and Politics in Qualitative Research. In N. Denzin & Y. Lincoln (Eds.), *The Sage Handbook of Qualitative Research*. (3rd ed.). Thousand Oaks: Sage
- Coe, R. (2002). Evidence on the Role and Impact of Performance Feedback in Schools. In A. Visscher & R. Coe (Eds.), *School Improvement Through Performance Feedback*. Lisse: Swets & Zeitlinger.
- Cohen, L., & Manion, L. (1985). *Research Methods in Education* (2nd ed.). London: Croom Helm.
- Connolly, U., & James, C. (1998). Managing the School Improvement Journey: the role of continuing professional development. *Journal of In-service Education*, 24(2).
- Cotton, K. (2003). *Principals and Student Achievement: What the research says*. Alexandria, VA: Association for Supervision and Curriculum Development.
- Council of Australian Governments (COAG) (2009): *National Educational Agreement: Intergovernmental agreement on federal financial relations*. Canberra
- Creswell, J. (1998). *Qualitative Inquiry and Research Design: Choosing Among Five Traditions*. Thousand Oaks: Sage.
- Creswell, J. (2002). A Framework for Design. In *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches* (2nd ed.). Thousand Oaks: Sage.
- Creswell, J. (2003). *Research Design: Qualitative, Quantitative and Mixed Methods Approaches* (2nd ed.). Thousand Oaks: Sage Publications.

- Creswell, J. (2005). *Educational Research: Planning, Conducting and Evaluating Quantitative and Qualitative Research* (2nd ed.). Upper Saddle River, NJ: Pearson Education Inc.
- Crotty, M. (1998). *The Foundations of Social Research: Meaning and Perspective in the Research Process*. Sydney: Allen & Unwin.
- Cumming, J., & Maxwell, G. (2004). Assessment in Australian Schools: current practice and trends. *Assessment in Education*, 11(1).
- DeCourcy, J. (2005). *Using HSC data to give principals leverage*. Paper presented at the Using Data to Support Learning Research Conference, Melbourne.
- Denzin, N., & Lincoln, Y. (1994). *Handbook of Qualitative Research* (2nd ed.). Thousand Oaks: Sage.
- Denzin, N., & Lincoln, Y. (1998). *The Landscape of Qualitative Research: Theories and Issues*. Thousand Oaks: Sage.
- Department of Education, Science and Technology. (2005). Schools Assistance (Learning Together – Achievement Through Choice and Opportunity) Act 2004. Retrieved 10 August 2006, from http://www.dest.gov.au/sectors/school_education/publications_resources/profiles/Schools_Assistance_Regulations_2005.htm#publication
- Department of Employment, Education and Training. (1988). *Strengthening Australia's Schools*. Canberra: Australian Government Publishing Service.
- Dorman, J. P. (2009). Statistical tests conducted with school environment data: The effect of teachers being clustered in schools. *Learning Environments Research*, 12, 85-99.
- Earl, L., & Fullan, M. (2003). Using Data in Leadership for Learning. *Cambridge Journal of Education*, 33(3), 383-394.
- Eccles, R., & Nohria, W. (1992). *Beyond the Hype: An Action Framework*. Boston: S Press.
- Edgeron, D., Kritsonis, W., & Herrington, D. (2006). The Critical Role of the Teacher-Principal Relationship in the Improvement of Student Achievement in Public Schools of the United States. *Lamar University Electronic Journal of Student Research*, 3.
- Ellsworth, J. (2000). *Surviving Change: A Survey of Educational Change Models*. Syracuse: ERIC Clearinghouse on Information and Improvement.

- Fang, Z., Fu, D., & Lamme, L. (2004). From Scripted Instruction to Teacher Empowerment: Supporting Literacy Teachers to Make Pedagogical Transitions. *Literacy*, 38(1), 58-64.
- Fontana, A. & Frey, J. (2005). The Interview: from Neutral Science to Political Involvement. In N. Denzin & Y. Lincoln (Eds.). *The Sage Handbook of Qualitative Research*. (3rd ed.). Thousand Oaks: Sage
- Frick, W. (2009). Principals' Value-informed Decision making, Intrapersonal moral discord, and Pathways to Resolution: The Complexities of Moral Leadership Praxis. *Journal of Educational Administration*, 47(1), 50-74.
- Fullan, M. (1991). *The New Meaning of Educational Change* (2nd ed.). New York: Teachers College Press.
- Fullan, M. (1993). *Change Forces: Probing the Depths of Educational Reform*. London: The Falmer Press.
- Fullan, M. (2000a). The Return of Large-Scale Reform. *Journal of Educational Change*, 1, 5-28.
- Fullan, M. (2000b). *The Role of the Principal in School Reform*. Paper presented at the 10th Year Celebration Conference, New York.
- Fullan, M. (2000). The Three Stories of Education Reform. *Phi Delta Kappa*, 81(8), 581-584.
- Fullan, M. (2001a). *Leading in a culture of change*. San Francisco: Jossey-Bass.
- Fullan, M. (2001b). *The New Meaning of Educational Change*. New York: Teachers College Press.
- Fullan, M. (2002). The Change Leader. *Educational Leadership*(May).
- Fullan, M. (2005a). *Leadership & Sustainability: System Thinkers in Action*. Thousand Oaks: Corwin Press.
- Fullan, M. (2005b). Turnaround Leadership. *The Educational Forum*, 69(Winter).
- Fullan, M. (2009). Large-scale Reform Comes of Age. *Journal of Educational Change*, (10), 101-103.
- Fullan, M., & Earl, L. (2002). United Kingdom Literacy and Numeracy Strategies. *Journal of Educational Change*, 3, 1-5.

- Gall, M., Gall, J., & Borg, W. (2003). *Educational Research: An Introduction*. Boston: Pearson Education.
- Gardner, P. (1998). Classroom Teachers and Educational Change 1876-1996. *Journal of Education for Teaching*, 24(1), 1998.
- Geijsel, F., & Meijers, F. (2005). Identity learning: the core process of educational change. *Educational Studies*, 31(4), pp. 419-430.
- Gibbs, A. (1997). Focus Groups. *Social Research Update* 19. Retrieved from: www.soc.surrey.ac.uk/sru/SRU19/html.
- Goldstein, H. (2001). Using Pupil Performance Data for Judging Schools and Teachers: scope and limitations. *British Educational Research Journal*, 27(4).
- Goldstein, H., & Thomas, S. (1996). Using Examination Results as Indicators of School and College Performance. *Journal of the Royal Statistical Society*, 159, 149-163.
- Gorard, S., Selwyn, N., & Rees, G. (2002). 'Privileging the Visible': A Critique of the National Learning Targets. *British Educational Research Journal*, 28(3), 309-325.
- Gough, N. (March, 2002). *Blank Spots, Blind Spots, and Methodological Questions in Educational Inquiry*. Paper presented at the Higher Degrees by Research Summer School, Deakin University.
- Gray, J. (2004). Frames of Reference and Traditions of Interpretation: Some Issues in the Identification of 'Under-Achieving' Schools. *British Journal of Educational Studies*, 52(33), 293-309.
- Grobe, W., & McCall, D. (2004). Valid uses of Student Testing as Part of Authentic and Comprehensive Student Assessment, School Reports, and School Accountability. *Educational Horizons*.
- Gurr, D., Drysdale, L., Di Natale, E., Ford, P., Hardy, R., & Swann, R. (2003). Successful School Leadership in Victoria: Three Case Studies. *Leading & Managing*, 9(1).
- Hargreaves, A. (1997). Rethinking Educational Change. In M. Fullan (Ed.), *The Challenge of School Change: A Collection of Articles*. Sydney: Hawker Brownlow Education.
- Hargreaves, A. (2004). Inclusive and exclusive educational change: emotional responses of teachers and implications for leadership. *School Leadership & Management*, 24(2).
- Hargreaves, A., & Fink, D. (2000). The Three Dimensions of Reform. *Educational Leadership*.

- Harris, A. (2000). What works in school improvement? Lessons from the field and future directions. *Educational Research*, 42(1), 1-11.
- Harris, A. (2005a). Leading or following educational change? *School Leadership and Management*, 25(5), 417-419.
- Harris, A. (2005b). Leading or misleading? Distributed leadership and school improvement. *Journal of Curriculum Studies*, 37(3), 255-265.
- Harris, A., & Muijs, D. (2003). Teacher Leadership - Improvement through Empowerment? An Overview of the Literature. *Educational Management & Administration*, 31(4), 437-451.
- Hattie, J. (2005). *What is the nature of evidence that makes a difference to learning?* Paper presented at the Using Data to Support Learning Research Conference, Melbourne.
- Hattie, J.A. C., Brown, G.T., & Keegan, P. (2003, January). The Advantages and Disadvantages of Statewide and/or National Testing. Hawaii International Conference on Education, Honolulu.
- Hayes, D. (2004). *Whole school change that spreads and lasts: A technology of resilience for schools working within adverse conditions*. Paper presented at the International Education Research Conference, Melbourne.
- Herman, J., & Golan, S. (1993). The Effects of Standardized Testing on Teaching and Schools. *Educational Management: Issues and Practice*(Winter).
- Hofman, R., Hofman, A., & Guldemon, H. (2002). School governance, culture, and student achievement. *International Journal of Leadership in Education*, 5(3), 249-272.
- Holmes-Smith, P. (2005). Assessment for learning: Using Statewide Literacy & Numeracy tests as diagnostic tools. Paper presented at the Using Data to Support Learning Research Conference, Melbourne.
- Holstein, J., & Gubrium, J. (2004). The Active Interview. In D. Silverman (Ed). *Qualitative Research. Theory, Method and Practice*. (2nd ed.). Thousand Oaks: Sage
- Hopkins, D. (1997). Improving the quality of teaching and learning. *Support for Learning*, 12(4).
- Jaeger, R. (1997). Survey Research Methods in Education. In N. Jaeger (Ed). *Complementary Methods for Research in Education*. (2nd ed.). Washington: American Educational Research Association

- Kamberelis, G. & Dimitriadis, G. (2005). Strategic Articulations of Pedagogy, Politics, and Inquiry. In N. Denzin & Y. Lincoln (Eds.). *The Sage Handbook of Qualitative Research*. (3rd ed.). Thousand Oaks: Sage
- Kane, T., & Staiger, D. (2002). The Promise and Pitfalls of Using Imprecise School Accountability Measures. *The Journal of Economic Perspectives*, 16(4), 91-114.
- Kelly, A. (2004). The intellectual capital of schools: analysing government policy statements on school improvement in light of a new theorization. *Journal of Education Policy*, 19(5).
- Kemp, D. (1999). *Outcomes reporting and accountable schooling*. Paper presented at the Curriculum Corporation Conference, Melbourne.
- Koretz, D. (2002). Limitations in the Use of Achievement Tests as Measures of Educators' Productivity. *The Journal of Human Resources*, 37(4), 752-777.
- Leithwood, K., Jantzi, D., Earl, L., Watson, N., Levin, B., & Fullan, M. (2004). Strategic Leadership for large-scale reform: the case of England's National Literacy and Numeracy Strategy. *School Leadership & Management*, 24(1), 57-79.
- Levin, B., & Fullan, M. (2008). Learning About System Renewal. *Educational Management Administration Leadership*, 36(2), 289-303.
- Levin, B., Glaze, A., & Fullan, M. (2008). Results without rancour or ranking Ontario's success story: Successful large-scale change doesn't require punitive forms of accountability and teacher-proof curricula. Ontario is showing that positive partnerships between educators and policy makers can be the best strategy. *Phi Delta Kappan*, 90(4), 273-280.
- Liamputtong, P., & Ezzy, D. (2005). *Qualitative Research Methods* (2nd ed.). South Melbourne: Oxford University Press.
- Lincoln, Y., & Guba, E. (2000). Paradigmatic Controversies, Contradictions, and Emerging Confluences. In N. Denzin & Y. Lincoln (Eds.), *Handbook of Qualitative Research* (2nd ed.). Thousand Oaks: Sage.
- Linn, R. (2000). Assessments and Accountability. *Educational Researcher*, 29(2), 4-16.
- Lovey, J. (2000). Researching in Schools: Case studies based on three research projects. In D. Wilkinson (Ed.), *The Researcher's Toolkit: The Complete Guide to Practitioner Research* (pp. 117-131). London: Rotledge Falmer.
- Macpherson, R. (1996). *Reframing Accountability Policy Research with Postpositivism, Pluralism, Democracy and Subsidiarity*. Paper presented at the Conference Name|. Retrieved Access Date|. from URL|.

- McGuigan, L., & Hoy, W. (2006). Principal Leadership: Creating a Culture of Academic Optimism to Improve Achievement for All Students. *Leadership and Policy in Schools*, 5, 203-229.
- McMillan, J., & Schumacher, S. (2001). *Research in Education*. New York: Longman.
- McWilliam, E., & Perry, L. (2006). On Being More Accountable: The Push and Pull of Risk in School Leadership. *International Journal of Leadership in Education*, 9(2), 97-109.
- Merriam, S. (1998a). Designing the study and selecting the sample. In *Qualitative Research and Case Study Applications in Education* (2nd ed.). San Francisco: Jossey-Bass.
- Merriam, S. (1998b). *Qualitative Research and Case Study Applications in Education: Revised and Expanded from Case Study Research in Education*. San Francisco: Jossey-Bass.
- Miles, M., & Huberman, A. (1984). *Qualitative Data Analysis: A Sourcebook of New Methods*. Beverley Hills: Sage.
- Ministerial Council on Education, Employment, Training and Youth Affairs. (1989). *The Hobart Declaration on Schooling*. Melbourne.
- Ministerial Council for Education, Employment, Training and Youth Affairs. (1999). *The Adelaide Declaration on National Goals for Schooling in the Twenty-First Century*. Melbourne.
- Mitchell, K. (1997). What Happens When School Reform and Accountability Testing Meet? *Theory into Practice*, 36(4), 262-265.
- Moser, C., & Kalton, G. (1971). *Survey Methods of Social Investigations*. New York: Heinman.
- Moss Kanter, E., Stein, B., & Jick, T. (1992). *The Challenge of Organizational Change*. New York: Free Press.
- Murphy, G., & Fraser, B. (1978). Intuitive-Theoretical Scales of Content and Context Satisfaction. *Personnel Psychology*, 31, 485-494.
- Nagy, P. (2000). The Three Roles of Assessment: Gatekeeping, Accountability and Instructional Diagnosis. *Canadian Journal of Education*, 25(4), 262-279.
- Noyce, P., Perda, D., & Traver, R. (2000). Creating Data-Driven Schools. *Educational Leadership*(February).

- Onwuegbuzie, A., & Teddlie, C. (2003). A Framework for Analysing Data in Mixed Methods Research. In A. Tashakkori & C. Teddlie (Eds.), *Handbook of Mixed Methods in Social and Behavioural Research* (pp. 351-383). Thousand Oaks: Sage.
- Ouston, J., Fidler, B., & Earley, P. (1997). What Do Schools Do after OfSTED School Inspections -- or before? *School Leadership & Management*, 17(1).
- Petterway, A. (2006). Statewide Standardized Assessments and their Impact on ESL Students. *National Forum of Educational Administration and Supervision Journal*, 23(2).
- Philips, D. (2000). Curriculum and Assessment Policy in New Zealand: ten years of reforms. *Educational Review*, 52(2), 143-153.
- Poulson, L., & Avramidis, E. (2003). Pathways and Possibilities in Professional Development: Case Studies of Effective Teachers of Literacy. *British Educational Research Journal*, 29(4).
- Punch, L. (2003). Survey Research: the Basics. *Essential Resources for Social Research*. London: Sage
- Reed, J., & Learmonth, J. (2001). Revitalising Teachers' Accountability: learning about learning as a renewed focus for school improvement. *Journal of In-service Education*, 27(1), 11-27.
- Retallick, J., & Fink, D. (2002). Framing leadership: contributions and impediments to educational change. *International Journal of Leadership in Education*, 5(2), 91-104.
- Richardson, C. (2005). *Data-informed research and practice: Evaluating student achievement in secondary schools*". Paper presented at the Using Data to Support Learning Research Conference, Melbourne.
- Robinson, V., Lloyd, C., & Rowe, K (2008). The Impact of School Leadership on Student Outcomes: An Analysis of the Differential Effects of Leadership Types. *Educational Administration Quarterly*, 44(5), 635-674.
- Romero, M. (1998). Educational Change and Discourse Communities: representing change in postmodern times. *Curriculum Studies*, 6(1).
- Ross, J., Hogaboam-Gray, A., & Gray, P. (2004). Prior Student Achievement: Collaborative School Processes and Collective Teacher Efficacy. *Leadership and Policy in Schools*, 3(3), 163-188.
- Rowe, K. (2000). Assessment, League Tables and School Effectiveness: consider the issues and 'let's get real!' *Journal of Educational Enquiry*, 1(1).

- Rowe, K. (2005). *Evidence for the kinds of feedback data that support both student and teacher learning*. Paper presented at the Using Data to Support Learning Research Conference, Melbourne.
- Rowley, G., & Congdon, P. (2005). *Data-driven school improvement through the VCE Data Service*. Paper presented at the Using Data to Support Learning Research Conference, Melbourne.
- Ruebling, C., Stow, S., Kayona, F., & Clarke, N. (2004). Instructional Leadership: An Essential Ingredient for Improving Student Learning. *The Educational Forum*, 68, 243-253.
- Scanlon, M. (2000). Issues in Research. In D. Wilkinson (Ed.), *The Researcher's Toolkit: The Complete Guide to Practitioner Research*. New York: Routledge Falmer.
- Schagen, I., & Weston, P. (1998). Insights into School Effectiveness from Analysis of OfSTED's School Inspection Database. *Oxford Review of Education*, 24(3).
- Scheurich, J. (1997). A Postmodernist Critique of Research Interviewing. In *Research Methods in the Postmodern*. London: Falmer Press
- Serafini, F. (2001). Three paradigms of assessment: Measurement, procedure, and inquiry. *The Reading Teacher*, 54, 384-393.
- Sergiovanni, T. (2005). The Virtues of Leadership. *The Educational Forum*, 69(2), 112-123.
- Shaw, I., Newton, D., Aitken, M., & Darnell, R. (2003). Do OFSTED Inspections of Secondary Schools Make a Difference to GCSE Results? *British Educational Research Journal*, 29(1), 63-75.
- Stake, R. (1997). Case Study Methods in Educational Research: Seeking Sweet Water. In M. Jaeger (Ed.), *Methods for Research in Education* (2nd ed., pp. 401-404). Washington, DC: American Educational Research Association.
- Stake, R. (2002). Teachers Conceptualizing Student Achievement. *Teachers and Teaching: theory and practice*, 8(3), 303-312.
- Stake, R. (2005). Qualitative Case Studies. In N. K. Denzin & Y. Lincoln (Eds.), *Handbook of Qualitative Research* (3rd ed.). Thousand Oaks: Sage.
- Starratt, R. (1993). *Transforming Life in Schools: Conversations about Leadership and School Renewal*. Hawthorn: Australian Council for Educational Administration.
- Starratt, T. (2004). *Ethical Leadership*. San Francisco: John Wiley & Sons

- Stenhouse, L. (1988). Case Study Methods. In J. Keeves (Ed.), *Educational Research, Methodology, and Measurement: An International Handbook* (pp. 49-53). Oxford: Pergamon Press.
- Stevens, J. P. (1999). *Intermediate statistics: A modern approach* (2nd ed.). Hillsdale, NJ: Lawrence Erlbaum.
- Strauss, A. and Corbin, J. (1998). *Basics of Qualitative Research: Grounded Theory Procedures and Techniques*. (2nd Ed.). Thousand Oaks, CA: Sage
- Tan, K., & Prosser, M. (2004). Qualitatively different ways of differentiating student achievement: a phenomenographic study of academics' conceptions of grade descriptors. *Assessment & Evaluation in Higher Education*, 29(3), 267-282.
- Teddlie, C., & Tashakkori, A. (2003). Major Issues and Controversies in the Use of Mixed Methods in the Social and Behavioural Sciences. In Tashakkori, A., & Teddlie, C. (Eds). *Handbook of Mixed Methods in Social and Behavioural Research*. Thousand Oaks: Sage
- Tschannen-Moran, M., & Barr, M. (2004). Fostering Student Learning: The Relationship of Collective Teacher Efficacy and Student Achievement. *Leadership and Policy in Schools*, 3(3), 189-209.
- Van Meer, E. (2009). The Reemergence of Moral Purpose in School Administration. *Review of Education, Pedagogy, and Cultural Studies*, 15(2), 159-164
- Visscher, A. (2002). A Framework for Studying School Performance Feedback Systems. In A. Visscher & R. Coe (Eds.), *School Improvement Through Performance Feedback*. Lisse: Swets & Zeitlinger.
- Williams, J., & Ryan, J. (2000). National Testing and the Improvement of Classroom Teaching: can they coexist? *British Educational Research Journal*, 26(1).
- Yin, R. (1994). *Case Study Research: Design and Methods* (2nd ed.). Thousand Oaks: Sage.