

**Science and Mathematics Education Centre**

**INFUSING EFFECTIVE LITERACY PRACTICE WITHIN  
SECONDARY SCHOOL DISCIPLINES**

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## Declaration

This thesis contains no material which has been accepted for the award of any other degree or diploma in any university. To the best of my knowledge and belief, this thesis contains no material previously published by any person except where due acknowledgement has been made.

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## ABSTRACT

The literacy challenges that adolescents encounter in secondary school environments are increasingly complex, particularly as they move into senior classes. This study, situated within a critical literacy framework, investigated the literacy learning environments that are most likely to lead to improved academic outcomes for students in the context of year 11 English, History and Science. The study includes a particular focus on literacy learning environments and outcomes for Māori students.

The study was conducted in the context of two New Zealand secondary schools, involving six teachers and their year 11 classes. Working from a collaborative teacher-researcher partnership, the researcher was able to gain insights into teachers' use of literacy data, the instructional decisions they made when infusing literacy practices alongside subject content, the response from students, and the academic outcomes that were achieved.

Diagnostic Literacy Assessment information and the analysis of writing samples in each class provided teachers with an understanding of specific group and individual reading and writing strengths and needs from which to base instructional decisions. Through the use of this information, engagement in professional reading, and through an analysis of the knowledge and skills valued by each subject, teachers were able to gain a deeper understanding of how their instructional practices might be refined in order to meet the specific learning needs of students. Students' academic results showed improvements over the period of the study.

Students varied in their independent use of literacy knowledge and skills in year 11. This year of transition between junior and senior secondary school is one in which teachers attempt to build greater student independence in learning.

Emerging from the study are a set of conditions that appear to support effective literacy practice in order to enhance academic outcomes for students at this year level.

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# CHAPTER ONE

## INTRODUCTION

### 1.1 INTRODUCTION

Adolescents in the twenty-first century face an increasingly complex learning environment where both traditional print texts and those of new media and information communication technologies require them to comprehend and engage with a multitude of texts for a wide range of purposes. The International Reading Association's position statement on adolescent literacy (Moore, Bean, Birdyshaw & Rycik, 1999) outlined that as adolescents move into adulthood they will need advanced levels of literacy to perform in the workforce, conduct their personal lives and cope with the flood of information available to them. This study focused on teachers and students in two New Zealand secondary schools, and the ways in which they both responded to the literacy demands encountered across different learning environments.

Literacy skills and knowledge are stated in The New Zealand Curriculum (Ministry of Education, 2007) as being central and important to all learning areas. As students gain confidence in the literacy and language of each learning area it is acknowledged that their thinking skills are enhanced and access to new knowledge is increased. One of the five key competencies identified in the curriculum is that of 'Using language, symbols and texts' whereby students work with and make meaning of the codes in which knowledge is expressed. Teachers in New Zealand secondary schools are expected to address the literacy and language needs of their students, in the context of each learning area.

This research investigated the ways in which teachers in two New Zealand secondary schools managed literacy requirements within three disciplines (English, History and Science), and the subsequent achievement outcomes for students in year 11. The study focused on students who were in their first year of study for the National Certificate in

Educational Achievement (NCEA), and included a particular focus on outcomes for Māori students. Year 11 is of particular interest because of the inherent literacy demands in the requirements of NCEA standards across a range of disciplines, requiring students to possess both subject content knowledge and literacy content knowledge.

The two schools in this study are both co-educational schools: School A (decile 2) is located in a semi-rural township and School B (decile 4) is located in a large urban area. The Ministry of Education (2009) defines a school's decile as “indicating the extent to which it draws its students from low socio-economic communities”, and uses decile ratings as a means to allocate funding to schools. Decile 1 schools are the 10% of schools with the highest proportion of students from low socio-economic communities. Decile 10 schools are the 10% of schools with the lowest proportion of these students. The two schools in this study are both considered ‘lower decile’ schools. A decile does not indicate the overall socio-economic mix of the students attending a school or measure the standard of education delivered at a school.

This study focused on ‘infusing’ effective literacy practices within the three subject areas selected. The definition of infusion in this study is similar to that used by Kowalski (1995) in studies of teacher development where infusion is described as a systematic weaving of various constructs throughout a curriculum. The term ‘infusion’ is also used in studies by Ennis (1989) in relation to critical thinking within subject-matter instruction. Ennis (1989) uses the term infusion in relation to deep, thoughtful, well-understood subject-matter instruction in which students are encouraged to think critically in the subject, and in which dispositions and abilities are made explicit. In a similar vein, the term ‘infusion’ is used in this study to describe deeply embedded and well-understood literacy practices that are situated within the context of each subject area. The act of ‘infusing’ effective literacy practice suggests that deliberate actions will be taken by teachers to combine both subject content and effective literacy practices within instructional experiences for their students.

## 1.2 BACKGROUND TO THE STUDY

Although New Zealand adolescents in the 21<sup>st</sup> century continue to perform well overall by international literacy standards, there are significant disparities in levels of achievement. According to the Organisation for Economic Co-operation and Development (OECD) Programme for International Student Assessment (PISA) 2009 results, around 14% of New Zealand 15-year-olds did not reach beyond proficiency level 2 on the reading literacy scale, suggesting that the literacy needs of this group of students are not being met. The New Zealand results are similar to those observed in Australia (14%) and Japan (14%), but significantly more than in Shanghai-China (4%), Korea (6%), Finland (8%), and Canada (10%). Proficiency level 2 has been established as the baseline level at which students begin to demonstrate competencies that will enable them to participate actively in life situations related to reading literacy. At proficiency level 2, participants are required to demonstrate basic reading competencies, such as locating a single piece of information in a text or making a simple connection with everyday knowledge. Without these basic competencies, students in New Zealand secondary schools will struggle to access curriculum content and meet academic requirements.

The 2009 PISA results highlight a national concern in terms of disparity, as Māori and Pasifika students are disproportionately represented within those groups of students performing at low levels. Whilst the performance of students in each ethnic group was diverse, Māori and Pasifika students were over-represented at the lower levels relative to students from other ethnic groups. A small proportion of Māori and Pasifika students in New Zealand achieved at the highest levels of proficiency on the PISA reading literacy scale, but Māori and Pasifika students were over-represented at the lower levels of the scale relative to students from other ethnic groups (Telford & May, 2010).

The gap between the academic performance of Māori and Pasifika learners, and New Zealand European learners is also outlined in the Education Review Office (ERO) report *‘Evaluation at a Glance: Priority Learners in New Zealand Schools.’* In 2011, 77 percent of Year 11 Māori students, and 79 percent of Year 11 Pacific students achieved

Level One Literacy requirements in the National Certificate of Educational Achievement (NCEA), compared to 91 percent of New Zealand European students (ERO, 2012a).

The performance of primary school students in reading and writing also highlights disparities between groups of students. The 2010 National Education Monitoring Project (NEMP) measured student performance and attitude in reading and writing in New Zealand primary schools at two year levels. In both reading and writing, New Zealand European and other students scored higher than Māori and Pasifika students at year 8 - the final year of primary school (Gilmore & Smith, 2010). Similar findings occurred in the 2010 PIRLS (Progress in International Reading Literacy Survey) results. Primary school students aged around 10 years demonstrated a wide range of scores in reading, with New Zealand students well-represented at the highest levels of achievement and also at the lowest levels of achievement. However, the results indicated a higher mean achievement level in reading for New Zealand European students than for Māori and Pasifika students (Chamberlain & Caygill, 2012).

If students are performing at low levels of reading proficiency, they are likely to struggle with literacy demands as they move through secondary school. According to McDonald and Thornley (2005) the students identified as performing at low levels of proficiency are most at risk of failing to participate and achieve in NCEA, where the demands of text and task require a wide range of literacy skills along with the knowledge associated with a specific curriculum area. An analysis of the literacy demands inherent in a number of level one NCEA tasks revealed that students not only need to be proficient at locating, evaluating and extracting information from a wide range of sources and stimulus material, but that they also need to competently bring together seemingly disparate pieces of information for explanation, justification, analysis and comparison, and then know how to present their findings for assessment (McDonald & Thornley, 2005). These are complex skills to develop, and require teachers to engage students in literacy learning within the context of each subject area.

### **1.3 CONTEXT OF THE STUDY**

Conley, Freidhoff, Gritter, and Van Duinen (2008) identified the need for purposeful quantitative and qualitative research of effective classroom adolescent literacy practices that deal with the real literacy struggles of adolescents and their teachers. Whilst the majority of literacy research focuses on instruction in primary schools (Fang & Wei, 2010; Freebody, 2007) there is a growing recognition of the need to focus attention on the literacy needs of adolescents (Moje, 2000; Snow & Moje, 2010). In particular, and as distinct from primary schools, adolescents in secondary schools are required to read large amounts of text, learn specialized and technical vocabulary, master knowledge of the various text structures that are used to organise subject material, and make meaning from the texts that are used as the basis of instruction (Bryant, Ugel, Thompson, & Hamff, 1999).

Studies about literacy in secondary schools have predominantly focused on generic approaches to reading, or reading and writing in content areas (Moje, 2008a). Originating from developments in cognitive psychology, a number of studies focused on the relationship between a reader's background knowledge and experience of a topic, and their ability to make sense of a text (Roberts, 1995; Smith & Elley, 1997), and resulted in the development of a number of generic strategies and approaches, such as those intended to activate students' prior knowledge as a means to improving comprehension (Moje, Dillon & O'Brien, 2000). Literacy came to be defined as the processes and skills necessary to read and write within secondary subjects, and to consist of strategies that could support the use of texts within each subject area (Patel Stevens, 2002.) However, in order to engage successfully with the secondary curriculum, adolescent learners must possess a range of literacy abilities that allow them to connect with each subject area for a range of purposes. Thus, adolescent literacy has moved from the use of general reading and writing strategies to encompass a deeper investigation of both the specific literacy demands in secondary school subjects, and consideration of the interaction between the adolescent learner and the literacy context.

As students move from junior secondary school into higher levels of instruction in the senior school, the demands of text and task become increasingly complex, and students begin to experience more specialized instruction related to the subject of study. The subject content becomes more complex. The concepts and ideas that students encounter in texts become increasingly abstract and sophisticated, and more difficult to connect to the everyday lives of adolescents. However, there is little known about the literacy instruction that is required to enable students to access and use subject content successfully. As noted by Conley et al., (2008, p. 98) “there is little understanding of the development of learning strategies with texts as students’ progress into more sophisticated texts and disciplinary contexts.”

In a comprehensive review of adolescent literacy studies, Freebody (2007) identified the need to conceptualise literacy within the knowledge categories that organize the way learning occurs in secondary schools. The development of literacy awareness within the context of each subject area is identified as an urgent matter for literacy researchers, in order to develop more connected and curriculum-specific ways of teaching and learning (Freebody, 2007). Teachers of senior secondary school students are expected to know how to instruct students to respond to the increasingly complex texts and tasks that they encounter in order to develop subject content knowledge, however the notion of effective literacy practice infused with subject content is not widespread.

In a move towards developing understanding of literacy learning within subject contexts, Shanahan and Shanahan’s (2008) study of reading across three subject areas challenged the notion that reading in secondary schools could be viewed as a basic set of skills and applied to all kinds of texts and reading situations. In their work with specialists in mathematics, chemistry and history, they identified reading skills that would support student progress, and discovered that the experts from those subjects read their respective texts quite differently (Shanahan & Shanahan, 2008). Using that information, the researchers studied how students and teachers might use the identified skills and concluded that the literacy instruction that teachers’ preferred mirrored the kinds of thinking and analytic practices common to their discipline.



Furthermore, McDonald and Thornley's (2005) longitudinal study involving five New Zealand secondary schools demonstrated that whilst there are some commonalities across the literacy requirements of secondary school subjects, there are also significant variations in the literacy skills necessary for success in each subject. The findings of McDonald and Thornley (2005), Freebody (2007), and Shanahan and Shanahan (2008) signal the importance of examining literacy practice in the context of a subject rather than as a generic approach to literacy across all learning areas, and that further studies are needed in order to develop understanding of effective literacy instruction, especially at senior levels.

Adolescent literacy studies in the late twentieth century began to investigate the settings and contexts in which literacy learning occurred (e.g., Alvermann & Moore, 1991; Sturtevant, 1996) and raised issues around the social, political, and cultural aspects of secondary schools and literacy learning. From a sociocultural perspective (Vygotsky, 1978), learning is seen to be embedded in social contexts, and occurs as the learner interacts with people, objects, and events within a learning community. In sociocultural theory, learning cannot be separated from its cultural, social and historical context, and therefore studies emanating from this perspective seek to understand the context within which learning occurs. Increasingly, as described by Moje (2002), educators came to understand that learning in the secondary disciplines is shaped by the reading and writing that learners do in those subjects, and that literacy is a dynamic process involving an interaction between a learner and a text, situated in a particular context.

A broader concept of adolescent literacy has emerged, repositioning the adolescent at the center of inquiries into literacy processes and practices, and including the relationship between literacy and the development of adolescent identity (Moore, Bean, Birdyshaw & Rycik, 1999). In addition to considering the textual demands made on adolescents as readers and writers in various subject areas, researchers have begun to examine the social and cultural demands on students, including the interactions between learners and teachers in secondary classrooms and how literacy practices are enacted effectively in those environments (Moje, 2002). This study draws on sociocultural theory by investigating the context in which effective literacy practice occurs in senior secondary

school, and by seeking to understand the conditions that might lead to improved academic outcomes in three subject areas.

Within the context of adolescent literacy learning in secondary schools, critical literacy theory (Freire, 1970; Luke, 2004) provides a framework for this study. Firstly, the social, cultural and political construction of knowledge is able to be examined from various perspectives (Luke, 2004). In this study, teachers engaged in discussions about the kinds of knowledge and pedagogy that they and others valued within the context of their subject area, how knowledge was constructed, for example, examining perspectives in texts, and how that influenced learning in the subject. The literacy practices that each subject area valued and incorporated into learning experiences for students were investigated in this study.

Furthermore, stemming from Freire's (1970) critical pedagogy, the voices of all participants are valued and have power. In this study, students' perceptions and the students' response to instruction were valued and made an important contribution towards a deeper understanding of effective literacy practice, alongside the voices and classroom practice of teachers. Observing the reciprocal relationship between the teacher and learner, conducting interviews, and holding regular discussions with teachers and students contributed towards an understanding of the conditions whereby effective literacy practice occurs.

In light of the disparities in literacy achievement in New Zealand outlined previously, this study includes a focus on literacy teaching and learning for Māori students. The extensive New Zealand study related to Māori students known as *Te Kotahitanga* (Bishop, Berryman, Tiakiwai & Richardson, 2003) was developed in response to the problem of educational disparities facing Māori, and provides valuable insights into ways in which the educational achievement of Māori students might be improved. The *Te Kotahitanga* research informed this study by providing key considerations in terms of effective teaching practice for Māori students.

The engagement of teachers in professional learning experiences over a period of time led to improved participation, engagement, retention and achievement of Māori students

in Te Kotahitanga schools (Bishop, Berryman, Wearmouth, Peter & Clapham, 2011), where teachers saw themselves as agents of change. The approach was one of self-determination for the teacher participants, whereby theory and practice were contextualized and owned by the teachers, rather than being imposed. Of significance for Māori learners, was the extent to which teachers engaged in meaningful and caring relationships with students, had high expectations for success, managed the learning environment successfully, and monitored student progress in order to make changes when necessary.

The beliefs that teachers hold regarding literacy learning in the context of their subject influences their classroom practice, and as noted by Readance, Kile and Mallette (1998), Sturtevant and Linek (2003), and O'Brien, Stewart and Moje (2008), in order to learn how and why teachers use literacy within the subjects they teach, it is necessary to examine their beliefs. Recent case studies, such as that of Jenkins' (2011), highlight the extent to which teachers believe they are responsible for developing students' literacy skills. Similar to the findings of Shanahan and Shanahan (2008), the literacy strategies used by teachers in Jenkins' (2011) study were aligned with their beliefs about effective learning in their subject. Jenkins' (2011) study did not include students' viewpoints or student assessment data however, which would have provided a deeper understanding of the students' response to instruction and the effects of teachers' use of literacy practices to effect student achievement. These studies emphasize the value of investigating teachers' beliefs in order to understand the ways in which literacy practices may be used to enhance student learning and achievement in secondary classrooms.

#### **1.4 CHALLENGES OF INFUSING EFFECTIVE LITERACY PRACTICE**

Effective literacy learning occurs in senior secondary subjects when adolescents learn through reading, writing, listening, viewing and discussing, in order to acquire new knowledge (Sturtevant & Linek, 2004; Vacca & Vacca, 2007). When teachers are engaged in effective literacy practice, they have an understanding of the literacy and language demands in their subject area, and know how to support students to meet those

demands. Effective literacy practice actively engages students in accessing and using multiple texts that are required for learning within each subject, and supports students to engage in learning tasks in order to develop new understandings about subject content.

The infusion of effective literacy practice across the curriculum is often challenging and difficult for secondary school teachers. One of the reasons for the difficulty is related to the ways in which secondary schools are organized and structured as separate learning areas. As O'Brien, Stewart and Moje (1995) explain, subject matter is the most comprehensive organizer and determiner of the secondary school curriculum. Students experience the curriculum through a compartmentalized structure of subjects. Each discipline has its own discourse, way of working, and set of values and beliefs about how the subject content should be learned. The language of each subject is shaped by the content and processes that are valued by those working in the discipline, and the goal of subject literacy instruction is to introduce students to the ways in which experts in each discipline look at the world, investigate, and communicate what they see and learn (Heller & Greenleaf, 2007). For example, Science is shaped by an ideology of the discipline as being objective, authoritative, and precise, where students need to be verbally explicit, avoid colloquialisms and personal references, and use causal explanations rather than narrative accounts. Within the study of English however, students are encouraged to develop personal responses to texts, write creatively and read widely. Students are required to recognize the demands of each subject area and adjust their responses accordingly.

Moje (2008a) argues that without careful attention to what it means to learn in the subject areas and what counts as knowledge in the disciplines that underpin those subjects, educators will continue to struggle to integrate literacy instruction into the content areas. Moje (2008a) describes 'disciplinary literacy' as a matter of teaching students how the disciplines are different from one another, how texts are constructed within a discipline and that knowing how knowledge is produced is as important as access to the knowledge itself. The focus moves away from accessing texts only to obtain information towards an understanding of how texts represent both the knowledge and the ways of knowing, doing, and believing in different discourse communities.

The engagement of secondary students in literacy practices to support learning is part of the complex nature of literacy learning in each subject area and must recognize the social, cultural and political life of adolescents both in and out-of-school. As noted by Moje (2008a), young people encounter many different forms of text and employ many different literate practices throughout a given day. In addition to seeing secondary school disciplines as being about learning practices and discourses, and constructing knowledge, subject area teachers may also need to provide opportunities for students to engage in many different discourse communities, know how and why they are engaging, and recognize the social positioning of their engagement (Moje, 2008a; Freire, 1970; Luke, 2004). Connecting the in-school learning activities to the everyday lives of adolescents is an ongoing challenge and an essential aspect of motivating adolescents to engage in subject area learning.

## **1.5 LITERACY PROFESSIONAL LEARNING**

Whilst secondary teachers may agree in theory that the infusion of literacy practices across the curriculum is worthwhile, a tension exists between theory and actual classroom practice. Secondary teachers often struggle to see the connections between their traditional approach to teaching subject content and the infusion of effective literacy practice. They may have difficulty accepting literacy practices if they do not see the connections between literacy learning and their own understandings of how the subject should be taught and learned. Teachers' past experiences of how they themselves received instruction, their pre-service training, knowledge of their subject, and their own experiences of professional learning have shaped the way they view the teaching and learning relationship. However, definitions of literacy and beliefs about effective literacy practice are not necessarily fixed or immovable. Engaging in professional learning and developing teachers' understanding about effective literacy practice can have an effect on changing beliefs and practice (Velez, 2010).

Literacy professional development experiences for secondary teachers have in recent years focused on general instructional strategies, such as approaches to reading and writing, that teachers are expected to translate into the context of each subject area. The traditional approach of encouraging every subject-area teacher to be a reading teacher by encouraging them to adopt general-purpose literacy strategies has neither been widely accepted by teachers nor resulted in wide scale improvements in reading achievement (Shanahan and Shanahan, 2008). Secondary teachers read their respective texts quite differently, and therefore different instructional approaches may be needed to enable students to engage with content in different subject areas. Whilst there are some general literacy principles that can be addressed through cross-curricular professional learning, such as reading comprehension strategies, there is a need to align literacy professional learning for teachers more closely with the subject content and requirements of each learning area.

### **1.5.1 Literacy Professional Learning Projects**

Some efforts in regard to teacher professional learning have been made in New Zealand secondary schools to address literacy teaching and learning across subject areas, including the Ministry of Education Secondary Schools Literacy Initiative 2003-2005, and the Secondary Literacy Project 2006-2011. These initiatives aimed to improve cross-curricular literacy learning within each school selected to participate in the project. The projects focused on improving literacy teaching and learning in years 9 and 10 (the first two years of secondary school), emphasizing the collection, analysis, and use of data in order to inform a professional development programme, and monitoring outcomes in terms of teacher practice and student achievement. The overall aims were to improve the literacy skills of students in junior secondary classes and to improve academic outcomes. Some significant improvements were achieved in terms of student achievement in reading in years 9 and 10. However, as Wilson and McNaughton (2013) contend, quality programmes of subject literacy instruction at years 9 and 10 are necessary, but may not be a sufficient condition for improving outcomes in the senior secondary school. In this study, one of the two secondary schools had participated in the

Secondary Literacy Project in recent years and the second school had conducted its own literacy professional learning programme.

The nature of teacher professional learning is a critical component when addressing student learning needs. When teachers engage in quality professional learning experiences, a substantial impact can be made on student learning (Timperley, Wilson, Barrar, & Fung 2007; Wilson & Berne, 1999). The Best Evidence Synthesis: Teacher Professional Learning and Development (Timperley et al., 2007) identified seven elements in the professional learning context as being important for promoting professional learning in ways that impacted positively and substantively on a range of student outcomes. These are: providing sufficient time for extended opportunities to learn, engaging external expertise, focusing on engaging teachers in the learning regardless of whether or not they volunteered, challenging problematic discourses, participating in a professional learning community, ensuring consistency with wider trends in policy and research, and active school leadership. In terms of effective content of professional development, Timperley et al. (2007) found that the outcomes for students were most effective when professional learning included an integration of theory and practice, clear links were made between teacher actions and student learning, assessment was used to focus teaching and learning, and a focus on sustainability of practice ensued.

Effective professional learning for teachers therefore involves active participation over a period of time, and focuses on the relevance and connectivity between theory and classroom practice. A further factor for consideration is the extent to which collaboration occurs in the professional learning relationship, which may involve teachers collaborating with each other or with other educational professionals. Successful collaboration may be an important factor in terms of the integration of effective literacy practice (Cantrell, Burns & Callaway, 2009; Thornley, 2008), as it can lead to increased levels of collegiality and problem-solving.

In this study, the teachers worked in partnership with the researcher, inquiring into their classroom practice and the effects on student achievement. Working in a collaborative manner is seen as the critical component of the teacher-researcher partnership.

Collaborative research projects are viewed as ones where people work together to create and produce knowledge that can benefit individuals, the group, or both. A distinction is drawn between partnerships that are collaborative and those which are merely cooperative in order to meet the aims of the researcher. Roles and responsibilities need to be clearly negotiated and mutually agreed upon in order to achieve the desired outcomes.

The factors outlined above were considered in the design of the study and the conceptualization of the teacher-researcher partnership. The particular focus of the study was to investigate the ways in which teachers across three secondary school disciplines addressed the literacy learning needs of students as they encounter the demands of year 11 programmes.

## **1.6 RATIONALE FOR THE STUDY**

This study adds to the small but increasing list of investigations into literacy learning environments in secondary school settings. It is distinctive however, because of the focus on investigating the conditions within two New Zealand secondary schools that might contribute towards improved academic outcomes by infusing literacy practices in three senior secondary school subjects – English, Science and History.

Literacy teaching and learning in secondary schools presents challenges for secondary teachers who encounter students with a wide range of achievement in each class. In New Zealand secondary schools teachers are required to attend to the literacy needs of a diverse student population where some students will be working at the highest levels, and others will be working well below international benchmarks. Because of the significant numbers of Māori students represented in the lower levels of literacy achievement in New Zealand, those students have been a focus group within this study.

Many teachers struggle to meet the literacy needs of all learners as they work through the complex demands of texts and tasks, particularly in senior classes. Secondary teachers may not always see the relevance of literacy learning to each subject area. In addition, not enough is known about how effective literacy practice can be infused in



senior classes and how that might support improved achievement outcomes for senior students.

This study moved away from the traditional cross-curricular and generic approach to literacy professional learning and into an investigation from within three specific learning areas in order to better understand the specific literacy requirements for students, and therefore the implications for teacher practice. The role of the researcher has been to build teacher-researcher partnerships that facilitate classroom observations and open dialogue and reflections on teacher practice, in order to improve academic outcomes for students. The researcher has had the opportunity to gain a deeper understanding of the specific literacy demands from within each subject, to investigate the conditions that might support effective literacy practice, and to relate the findings to relevant theory. Teachers who engaged in this study had the opportunity to investigate and reflect on their own teaching practice, and to receive support and guidance from the researcher, as they sought to improve the literacy outcomes for their students.

The inclusion of two secondary schools in the study has allowed the researcher to investigate two school environments, and to investigate the teaching instruction provided by six teachers inclusive of literacy learning in the classroom. The selection of subject areas for this study was based on the literacy demands inherent in English, Science and History at year 11. These three subjects require students to participate extensively in reading and writing activities in order to be successful. Including three subject areas has allowed for some comparisons to be made in terms of student outcomes across subjects.

Therefore, the aim of the research described in this thesis was to develop an understanding of the literacy learning environments that are most likely to lead to improved academic outcomes for students in the context of year 11 English, History and Science.

To achieve this aim, the following objectives were derived:

- To identify literacy strengths and needs of year 11 students included in the study
- To engage in a collaborative inquiry between the teacher and researcher that integrates theory and practice

- To identify the conditions that might support the infusion of effective literacy practice in senior subjects
- To track student achievement outcomes for all students in the study, and for Māori students
- To discuss the implications for teacher practice

## **1.7 RESEARCH QUESTIONS**

The teachers in this study worked in collaboration with the researcher over a period of one year, guided by the research questions. The study draws on sociocultural theory by examining the context in which learning occurs, recognizing that adolescent literacy involves a dynamic relationship between the learner, texts and the environment. Applying a critical literacy framework to the study allowed the researcher to examine the kinds of knowledge and practices valued by each subject area, consider different points of view, and recognize and value the voices of both teachers and students. Therefore the following research questions were developed:

1. *How effective is the infusion of literacy teaching and learning in improving academic outcomes for secondary school students at year 11?*
2. *How effective is the infusion of literacy teaching and learning in improving academic outcomes for Māori students at year 11?*

The study began by investigating the existing practice of the six teachers and the extent to which they were currently using effective literacy practices as part of their regular teaching instruction. Information was gathered by visiting each classroom and observing teacher practice, by conducting diagnostic literacy assessments for the students in each class, and through discussions and interviews with each teacher. Once this information was gathered, the researcher and teachers worked collaboratively to review the findings, review and discuss relevant research, and to plan teaching and learning experiences that involved the infusion of effective literacy practices. Data were collected related to achievement outcomes and the response to instruction by students.

3. *What are the conditions that support or inhibit the development of effective literacy practice in each subject?*

Throughout the study the teachers and researcher met regularly to review student responses and to discuss progress in terms of the academic requirements of the year 11 courses. In the course of these discussions, the researcher was seeking to find out the factors that support or inhibit the infusion of effective literacy practice and to better understand the location and use of literacy practices within each specific discipline.

In conjunction with the investigations into teacher practice, the participants and researcher continued to monitor the effects on student achievement at year 11. Throughout the year samples of student materials such as writing tasks were collected and reviewed, and a diagnostic literacy assessment was conducted at the start and end of the year. Student achievement results from internal and external assessments were collected and reviewed.

4. *How do students perceive the impact of literacy teaching in each subject?*

In order to gain deeper insight into the effects of literacy teaching and learning, a sample of year 11 students from each class was interviewed by the researcher. The sample included Māori students, and some Pasifika students, in order to further investigate the extent to which teacher practice was effective and having an impact on those students. In addition, classroom observations enabled the researcher to observe the students' response to particular literacy practices used by teachers.

5. *How does the relationship with the researcher have an impact on teacher practice?*

The teachers in this study engaged in regular meetings, reflections and discussions with the researcher in order to investigate and modify practice. Their response to the investigation was monitored through field notes and interviews, in order to gain an understanding of the likely impact on their practice.

## **1.8 SIGNIFICANCE**

By investigating the effects of infusing effective literacy practice within year 11 subjects, it was anticipated that the information gained would provide insights into how secondary teachers, specifically in New Zealand schools, can effectively support a wide range of students to meet the literacy demands inherent in each subject area.

Understanding the factors that may inhibit, or advance the infusion of effective literacy practice will allow educators to gain a greater understanding of context specific practices that will support an improvement in achievement outcomes for all students.

Of particular interest in the study is the extent to which the infusion of effective literacy practice has an effect on the achievement outcomes for Māori students, as these students are currently over-represented in the lower levels of literacy achievement in New Zealand. The results of this study will be of interest to secondary teachers, teacher educators, professional learning providers and other organizations that deal with improving teacher practice and academic outcomes for senior secondary students. The intention of the study was to investigate how literacy teaching and learning in senior secondary school subjects may lead to improved academic outcomes for students.

The study is also significant because of the extent to which the teacher-researcher partnership is developed in order to investigate classroom practice. Teachers in this study were not provided with a specific model of literacy instruction, but rather were considered to be researchers alongside the author in order to investigate effective practice from within the subject, rather than engage in a generic literacy professional learning programme. The teacher-researcher partnership is a model of professional learning that could be used more widely by other educators.

In addition, the results of this study could stimulate further research into a deeper understanding of the literacy needs of teachers and students at higher levels of secondary school and of the specific requirements for academic success within each subject area.

## **1.9 OVERVIEW OF METHODS**

A mixed method research design (Creswell, 2009) was used in this study, enabling the researcher to develop an understanding of the teaching and learning context, and to monitor outcomes for students. As outlined by Cohen, Manion and Morrison (2007), the educational world is rich, complex, often full of contradictions, and therefore needs to be studied in total rather than in fragments if a true understanding is to be reached. A mixed method approach allowed the researcher to collect both quantitative and qualitative data concurrently, as the researcher worked with the teacher participants in their classrooms over the period of one year.

The study was conducted in the context of two New Zealand secondary schools, involving three teachers and their year 11 students at each school. The three subjects selected for this study were English, Science and History as these subjects have been identified as having high literacy demands at NCEA level one (McDonald & Thornley, 2005). Teachers in two schools were invited to participate in the research along with their year 11 classes. Similar to patterns evident in the PISA results, the students in these classes represented a wide range of achievement levels. The classes selected included Māori students, and a small number of Pasifika students, as these learners are of particular interest to this study.

A range of data was collected including student achievement data, classroom observations, student and teacher interviews, samples of student work, discussion notes and workshop notes. The collection of data required negotiation and collaboration with the classroom teachers, and a process of ongoing discussion and review between the teacher and researcher ensued.

Diagnostic Literacy Assessments (DLA) were used at two time intervals in each year 11 class. The DLA is an assessment tool that provides authentic information about the literacy skills and knowledge of students in each subject area, and was originally developed by the national secondary literacy facilitators in New Zealand (McDonald & Thornley, 2005). It is an authentic performance measure that reflects the kinds of instructional opportunities afforded in secondary classrooms, as well as providing

information about the achievement of students. The DLA had been used extensively by the researcher in the context of teacher professional learning. A DLA pre-test was conducted at the beginning of the year in each subject, and once the data was checked and analysed, the information was used by the researcher and teachers to inform literacy professional learning and classroom practice. The DLA post-test was conducted at the end of the year in order to ascertain any shifts in students' literacy achievement. Data were also collected from students' results in NCEA as a measure of academic achievement in year 11.

The analysis of data in mixed method research can be complex and difficult (Creswell, 2009) due to the range of data collected in different forms. The emerging data were reviewed throughout the project, using a grounded theory approach in order to look for links between teacher beliefs, professional learning, the actions of the teachers, and the impact on students. According to Glaser and Strauss (1967) grounded theory can be used in a flexible manner to understand the studied experience, and is equally applicable to both qualitative and quantitative data. Similarly, Johnson, McGowan and Turner (2010) and Charmaz (2006) purport that grounded theory can be tailored to work well in mixed methods research. A grounded theory approach was applicable in this study as there was a range of data collected including meetings and interviews with teachers and students, the gathering of teacher beliefs about literacy and teaching, and observations of classroom practice. As qualitative data were collected and coded, the researcher was able to search for patterns and links between the data in order to gain a deeper understanding of the literacy learning environment, and then make links to the quantitative data showing academic outcomes for students.

## **1.10 OVERVIEW OF THE THESIS**

This thesis describes how New Zealand secondary teachers of year 11 classes across three subject areas might affect student academic outcomes through the infusion of effective literacy practices into their teaching instruction. Classroom practices, teacher beliefs, and student perceptions are discussed in relation to student outcomes.

The thesis is divided into eight chapters. Chapter One of this thesis provides relevant background to the study including an indication of the current status of literacy achievement in New Zealand, the recent experiences of literacy professional learning, the need for a focus on senior secondary students and their literacy learning, and the need for quality professional learning experiences for secondary teachers. The context for the study is outlined, including the place of this study in relation to other New Zealand and international studies. The rationale for the study, significance, and research questions are outlined in the first chapter as well as an overview of the thesis and methodology.

Chapter Two is a review of the literature in the field of adolescents and literacy. Theoretical perspectives are outlined as they relate to this study. The New Zealand context for adolescent literacy learning is discussed, as is the research in relation to Māori student achievement. Subject-specific literacy and literacy instruction are discussed in relation to student learning in the senior secondary school. The role of assessment in New Zealand schools is discussed, and related to the assessment tools used in this study. The literature in relation to teacher beliefs, professional learning and the teacher-researcher partnership is also discussed.

Chapter Three presents the research design and methodology used in this study, outlining the sample selection, process and measures used, and how the research questions were addressed. The chapter outlines the choice of methods, the reasons for a mixed methods approach, and how the data were analysed. A description of the professional learning intervention is included. The limitations, assumptions and ethical considerations are described in this chapter.

Chapters Four presents the qualitative results from teacher practice including classroom observations, interviews and meetings between the teacher and researcher. Teacher perceptions and beliefs in relation to literacy learning in the context of English, Science and History teaching, and literacy learning for Māori students, are described in this chapter. The teacher-researcher relationship is also outlined.

Chapter Five presents the qualitative results from student interviews. The ways in which students responded to the teachers' instruction have been described, particularly in relation to reading, vocabulary, processing information and writing. Students' perceptions of the literacy demand across the three subjects, and their perceptions of the teacher actions that have supported their literacy learning are outlined.

Chapter Six presents the quantitative results for students including comparative results from literacy diagnostic assessments, results for Māori students, and NCEA Level One results in English, Science and History.

Chapter Seven presents a discussion of the findings from the investigation in terms of overall student achievement, the links to changes in teacher practice in English, History and Science, the outcomes for Māori students and responses made by Pasifika students, and the conditions that support effective literacy practice.

Chapter Eight outlines the limitations of the study, the response to each of the research questions, the implications for future research, and provides final conclusions. Recommendations are made for future research.



## **CHAPTER 2**

### **LITERATURE REVIEW**

#### **2.1 INTRODUCTION**

Chapter Two presents a literature review outlining the nature of literacy learning for adolescents in the context of secondary schools. Theoretical perspectives in relation this study are outlined, the New Zealand context is described, and the achievement of Māori students is discussed in relation to relevant studies. The notion of subject-specific literacy in secondary schools is discussed, outlining the literacy demands that students encounter as they move into senior secondary school. The chapter then discusses teaching instruction, and outlines some of the complexities of infusing effective literacy practice. The professional learning needs of teachers are highlighted, and the teacher-researcher partnership is discussed.

#### **2.2 ADOLESCENTS AND LITERACY**

The field of adolescent literacy has emerged in recent years as being a significant area of study, distinct and separate from literacy learning in childhood or as an adult. Whilst an adolescent may be categorized in age as being anywhere between the ages of 13-20 years, the literature associated with adolescent literacy is mostly concerned with adolescents aged approximately 13 to 17 years of age, when most adolescents are attending secondary school.

The International Reading Association's (IRA) position statement on adolescent literacy in 1999 forecast that 'Adolescents entering the adult world in the 21<sup>st</sup> century will read and write more than at any other time in human history. They will need advanced levels of literacy to perform their jobs, run their households, act as citizens, and conduct their

personal lives. They will need literacy to cope with the flood of information they will find everywhere they turn. They will need literacy to feed their imaginations so they can create the world of the future. In a complex and sometimes even dangerous world, their ability to read will be crucial. Continual instruction in literacy is needed beyond the early grades' (Moore et al., 1999).

Twelve years later, the updated IRA position statement (2012) affirms that this forecast was indeed accurate; that adolescents are immersed in complex literacy learning situations that require the ability to read, write, understand, interpret and discuss multiple texts across multiple contexts, and emphasizes that literacy policy and pedagogy needs to be incorporated into middle and high school instruction. According to the Carnegie Council report *Time to Act* (2010), societal demands on adolescents to be literate have increased dramatically. These societal demands are reflected in the types of literacy practices that adolescents are expected to engage in at secondary school in preparation for their lives beyond school. Within the context of each secondary school subject, adolescents need to continually develop the literacy skills and knowledge that will enable them to access and understand the discourse of that subject area.

The literacy skills and knowledge that students' developed in primary school are not sufficient in themselves to ensure ongoing literacy development. As McDonald and Thornley (2005) outline, literacy instruction beyond the early grades is necessary to equip adolescents for the adult world and to enable them to successfully navigate the world of secondary school. Snow and Moje (2010) also refer to the increased demand for adolescent literacy instruction throughout secondary school, emphasizing that the focus on literacy in primary schools, accompanied by a high level of resourcing at that level, does not ensure that students will have the literacy skills and knowledge necessary for secondary school instruction.

Increasingly, students are engaging with multimodal texts in their daily lives and in classroom instruction. The IRA Position Statement (2012) outlines that new technologies and media are changing the literacy practices of adolescents. For example, adolescents may navigate and create fixed and moving images, contribute to online

discussions, author webpages and participate in virtual communities, often simultaneously and with the same device. For students to be fully literate in today's world they must become proficient in new literacy practices, as changes in technologies will continue to alter the ways we use language to communicate (Sternberg, Kaplan & Borck, 2007). Adolescents need teachers who are sensitive to the competencies that young people bring to comprehending and producing texts of many forms and functions, and who are able to make connections to the world of the adolescent learner.

### **2.2.1 Connecting Students' In-School and Out-of-School Literacy Practices**

Students have many literacy experiences outside of school, and there is a growing recognition that when teachers foster students' critical awareness of their own literacies and link them to school-based practices, they have a better chance of engaging students in their learning (Anderson & Pearson 1984; Hinchman et al. 2003; Moje 2002). School-based instruction often has a narrow view of what constitutes knowledge, and fails to recognize the rich source of literacy-related experiences that adolescents engage in on a daily basis. Moje (2000) outlines how students who struggle in a school context can have a fluent, active and valued literacy life outside of school. However, some researchers have warned educators against the use of students' out-of-school literacy practices for classroom learning as this may disrespect and defeat the purpose for which adolescents engage in them (Gustavson, 2007; Guzzetti & Gamboa, 2004). They instead urge educators to consider the qualities of these practices and engage students in exploring the links and disconnects between the out-of-school literacy practices and in-school literacy learning. The significant factor in the research related to students' literacy practices in both environments is that students' out-of-school experiences have purpose and meaning for them in that context, and therefore the challenge for educators is to foster authentic school-based experiences that recognize and build on the literacy learning that students experience out of school.

## **2.3 THEORETICAL PERSPECTIVES**

The context in which literacy and learning occurs, both in-school and out-of-school is socially, culturally, and politically constructed through the interactions between adolescents and others. As outlined by Alvermann (2006), Moje (2008a) and Langer (2002), literacy is understood to be situated within social and cultural practices, and embedded in relations of power.

### **2.3.1 Sociocultural Theory**

Sociocultural theories consider that knowledge is constructed through interaction. Derived from the work of Vygotsky (1978), sociocultural theories view learning as embedded within social contexts, occurring as the learner interacts with people, objects and events in a collaborative environment, or community of practice. The learning cannot be separated from the cultural, social and historical contexts from which it emerges. A view of literacy from a sociocultural perspective considers, and seeks to understand, the context within which learning occurs, whereby the learner brings their own experiences of the world, their ways of interacting with texts and their existing knowledge and skills to construct meaning from new texts and experiences that they encounter. A sociocultural perspective rejects the view that literacy consists of a set of discrete autonomous skills, and accepts a more constructivist view of literacy as situated in social practice (Lave & Wenger, 1991; McCarty & Perez, 2004). Sociocultural theory informs this study by acknowledging that literacy learning in secondary schools cannot be separated from the learner, the subject, or the environment in which it occurs.

A strength of Vygotsky's (1978) sociocultural theory is that it encompassed the notion that literacy practices should be meaningful - that reading and writing should have purpose, and that these practices should occur within an environment that allows literacy to occur naturally i.e. in conjunction with the learning of subject content (John-Steiner & Mahn, 1996). In contrast to this theoretical perspective however, literacy professional learning experiences for secondary teachers in recent years have centered on the development of a generic set of literacy practices that teachers were expected to apply within a subject area, regardless of whether or not they matched the intended learning

outcomes of a subject. This approach has resulted in a lack of engagement with literacy practices across the curriculum, often accompanied by a view from secondary teachers that literacy was the domain of English teachers only.

### **2.3.2 Critical Pedagogy and Critical Literacy Theory**

A sociocultural perspective situates learning within context, and critical pedagogy challenges us to examine that context in terms of power sharing and reciprocity.

Freire's (1970) critical pedagogy theory, originating from his work with the development of literacy in underprivileged populations, has influenced theories of learning, literacy and language. Freire (1970) argued against a 'banking' model of education where learners' lives and cultures were taken as irrelevant, and proposed a model of learning that focused on the concept of power sharing between teachers and learners; where students become critical co-investigators in the development of knowledge. Inherent in Freire's (1970) critical pedagogy is a dialogic approach to literacy based on principles of reciprocity. Mutually respectful dialogue is created between teachers and learners - therefore in a classroom setting, the voice of the student is highly valued, and their lived experiences are a valued part of the classroom experience.

Freire (1970) challenged educators to examine the dominant discourse of the secondary school classroom, to find ways that empower and engage learners, and to have faith in their students and the power they have to shape their own lives and to transform their world. However, the traditional view of teaching that sees the student as a passive learner and recipient of content is still prevalent in many secondary school classrooms, and the challenge that Freire set over forty years ago, remains for many educators.

Developing a truly critical power-sharing approach within a secondary school classroom is not an easy task for some teachers, and some would view critical pedagogy as idealistic, as the approach may be in conflict with traditional school systems and values. Petersen (2003) suggests that in order to develop power-sharing in the classroom, teachers themselves have to go through a transformative process to break down the

‘chains’ of their own formal education or past training, and this may involve a process of professional learning over a period of time.

The concept of power sharing and reciprocity as outlined by Freire (1970) has much in common with aspects of a Māori world view, in particular, the concept of ‘Ako.’ Metge (1983) describes the concept of Ako as that of a unified co-operation of learner and teacher in a single enterprise, with no clear line of distinction between teachers and learners, but emphasizing the importance of learning that occurs between people holding each of these roles. Ako incorporates reciprocal teaching and learning interactions with students, and a respect for the knowledge that the students bring with them to the classroom setting. As outlined by Glynn, Berryman, Loader and Cavanagh (2005), Ako can be understood as an important and empowering tool for use in the context of academic learning, especially for Māori students, where powerful learning contexts can be created that respect what each person brings to the learning situation.

According to Freire, (1970) education must not only provide the poor and minorities with skills of literacy for achievement, it must also promote critical reflection upon their own circumstances and the ability to critique their own world (Luke, 2004). However, although Freirian models outline a critical pedagogy and a political stance, they do not specify details as to how this may be enacted in the classroom, signaling a need for refinement and a model that aligns more closely with the classroom environment.

Critical literacy theory developed beyond Freire’s (1970) critical pedagogy, and encompasses an approach towards texts and discourse that questions the social, political and economic conditions under which those texts were constructed. Critical approaches to literacy necessitate a shift away from psychological and individualistic models of reading and writing towards approaches that use sociological theory to view interaction with texts and classroom pedagogy (Luke, 2004). In a secondary school context, a critical literacy approach may involve students in tasks such as identifying author bias, discussing the function and purpose of texts, and focusing on the multiple meanings derived from the interaction between background knowledge and messages within texts. As students move through secondary school into the upper levels, they are required to

engage with increasingly complex texts and tasks, using advanced literacy skills such as judging the credibility of sources, evaluating arguments, understanding and conveying complex information, and constructing persuasive arguments. Franzak (2006) suggests that within a critical literacy framework, students could learn to question how a text is constructed both technically and socially, and therefore explore how certain discourses have perpetuated particular modes of thinking and behavior. Critical literacy can be seen therefore as not only comprehending the myriad of meanings in discourses, but also as being able to manipulate and use them for the benefit of self and others. When students and their teachers understand how knowledge is created within a subject, and the ways in which they can use and manipulate that knowledge, they become more active and powerful users of that knowledge.

Within a critical literacy framework, the voice of the student is acknowledged and respected. Teachers who demonstrate a critical literacy approach acknowledge that students arrive in the classroom with a wide range of experiences behind them that influence the meaning-making process, including their cultural competencies (McNaughton, 2002), and they provide opportunities for students to reflect on and construct meanings from increasingly complex texts and discourses. These opportunities may be through students discussing with peers in order to deepen understanding of important concepts, or wider discussions involving the teacher.

Elish-Piper and Tatum (2006) call for greater attention to be paid to the voices of adolescents, as their views are often ignored when planning for effective literacy instruction. Elish-Piper and Tatum (2006) interviewed middle and high school students about their reading and writing experiences in order to gain an understanding of their literacy needs and preferences for learning. The students in their study wanted to read 'texts that mattered', engage in authentic discussions about important questions, and receive instruction within caring and supportive environments.

Furthermore, oral communication in classrooms is an important component of the overall literacy development of adolescents. Oral participation helps students to learn vocabulary, syntax and the macrostructures needed for reading and writing across

disciplines. Most importantly, oral communication helps to shape students' development of ideas and concepts that are introduced in each subject area. Students who talk about and share their ideas with peers and teachers about subject content may come to a deeper understanding of the topic than they would on their own without conversation. Students need opportunities to engage in conversations in order to acquire the discourse patterns in each subject, however in traditional secondary school classrooms that are teacher-dominated, students are often not afforded those opportunities to engage in learning conversations. According to Franzak (2006) and Luke (2004), widespread adoption of a critical literacy approach is yet to occur, with most secondary classrooms dominated by teacher decision-making and teacher-led construction of meaning, suggesting that there is a need for further research and professional learning for teachers in this area.

As described by Luke (2012), how educators shape and deploy the tools, attitudes and philosophies of critical literacy is contingent upon students' and teachers' everyday relations of power, their lived problems and struggles, and their navigation through learning experiences. Critical literacy therefore provides a framework from which to view teaching instruction and the extent to which teachers support students to develop the higher level literacy skills and knowledge that they require in senior secondary school, and as they become active participants in wider society. Literacy cannot be viewed as a set of discrete skills and strategies to be learned, but rather as dynamic connections between teachers' and students' lives, prior knowledge and experiences, contexts, and relations of power, as explored in this study.

## **2.4 NEW ZEALAND CONTEXT**

New Zealand secondary school students demonstrate a wide range of literacy achievement, as reflected in the 2009 Programme for International Student Assessment (PISA) results on the reading literacy scale (Telford and May, 2010). New Zealand had the widest range of scores between the bottom five percent (5<sup>th</sup> percentile) and top five percent (95<sup>th</sup> percentile) of students among the eight top or high-performing countries or



economies in the OECD. This shows the extent of the diversity in students' reading ability amongst 15 year olds in New Zealand, and the expected range of reading abilities within a typical New Zealand secondary school classroom. Secondary teachers face the challenge of meeting the needs of all students, within a diverse student population.

A small proportion of Māori and Pasifika students in New Zealand achieved at the highest levels of proficiency on the PISA reading literacy scale, but Māori and Pasifika students were over-represented at the lower levels of the scale relative to students from other ethnic groups (Telford & May, 2010). As outlined in chapter one, NCEA results also show that Māori and Pasifika students achieve at lower levels than New Zealand European students (ERO, 2012a).

In consideration of the literacy achievement of students in primary schools, the 2010 National Education Monitoring Project (NEMP) provides information about attitudes and performance in reading and writing in New Zealand primary schools at two year levels. The results from year 8 (the final primary school year) indicate that in reading, students were better at decoding and literal comprehension tasks requiring the extraction of information from texts, and that they were weakest overall on deep comprehension tasks requiring interpretation and identification of hidden meanings in texts. These results were similar to those in writing, where students in year 8 performed better on tasks related to surface features such as spelling and punctuation, and were weakest on writing tasks that required demonstrating understanding.

The gap between the academic performance of Māori and Pasifika learners and New Zealand European and other students is also highlighted in the NEMP results (Gilmore & Smith, 2010). In both reading and writing, New Zealand European and other students scored higher than Māori and Pasifika students at year 8. Similar findings occur in the 2010 PIRLS results (Progress in International Reading Literacy Survey). Primary school students aged around 10 years demonstrated a wide range of scores in reading, with New Zealand students well-represented at the highest levels of achievement and also at the lowest levels of achievement. However, as with other national surveys, the results indicated a higher mean achievement level in reading for New Zealand European students than for Māori and Pasifika students (Chamberlain & Caygill, 2012).

There are few studies reporting the extent to which teachers understand and use literacy data to inform their practice within senior subject areas. The Education Review Office (ERO) report *'Literacy and Mathematics in Years 9 and 10: Using Achievement Information to Promote Success'*, noted that most teachers did not make use of information about students, and that many schools did not know about the literacy strengths and needs of their Māori, Pasifika and students with high learning needs. ERO states in the report: 'Given that Māori, Pacific, and students with high learning needs are the main constituents of the priority learners group, it simply does not make sense to not know how well these groups of students are achieving and progressing in our schools, or to be making effective use of achievement information to plan appropriately focused, personalised programmes (ERO, 2012b). This report calls to attention the need for a closer examination of literacy data in order to better understand the specific literacy learning needs of these groups of students.

## **2.5 LEARNING AND ACHIEVEMENT FOR MĀORI STUDENTS**

With increased awareness of the disparities in educational achievement between Māori students and other groups of students in New Zealand, a number of studies have focused on gaining a better understanding of the school experience for Māori.

Bishop and Berryman (2010) argue that a necessary condition for improving Māori students' engagement and achievement is through teachers' rejection of deficit theorizing, and a repositioning with alternative discourses. Deficit theorizing occurs when educators attribute lower levels of student achievement to problems with the student and their communities, rather than considering the role of the teacher, instructional practices, or other influences on achievement outcomes (Shields, Bishop & Mazawi, 2005). Deficit theorizing positions the teacher to regard students' low achievement as something outside of their realm of influence, for example, teachers may believe that circumstances within a family prevent a student from achieving at school and therefore they may have low expectations of that student. However, deficit theorizing can be based on a lack of information, or misinformation about the student

and their family. As Castagno and Brayboy (2008) explain, teaching from a deficit viewpoint is associated with negative outcomes for indigenous and other minority students, and therefore will not lead to academic success.

Bishop and Berryman (2010) support an agentic approach whereby a teacher views each student as being able to learn, and where the teacher has an active role to play in achieving positive outcomes for every student. The rejection of deficit theorizing is a worthy aim put forward by Bishop and Berryman (2010), and it is likely that most educators would say that they agree in theory, however the achievement of this aim in practice remains a challenge. Many teachers still see low achievement by students as being a consequence of factors outside of their realm, believing that they have little influence over changing those outcomes for students.

Ladson-Billings (1995) asserted that a necessary step in effective pedagogical practice is a theoretical model that not only addresses student achievement but also helps students to accept and affirm their cultural identity – described as culturally relevant pedagogy. Sleeter (2011) cautions against simplistic definitions of culturally relevant or culturally responsive pedagogy that only focus on cultural celebrations or in some instances a ‘checklist’ of administrative actions for compliance reasons. Culturally responsive pedagogy must be concerned with examining student learning in the context in which it occurs, and with seeking ways to utilize students’ language, identity and culture as a resource for learning.

Bishop, Berryman, Tiakiwai and Richardson’s (2003) Te Kotahitanga programme provides a model of culturally responsive, relationship-based pedagogy that rejects deficit theorizing as a means of explaining Māori students’ educational achievement levels. Te Kotahitanga sought to improve the educational achievement of Māori students in New Zealand secondary schools, developed in response to the problem of educational disparities facing Māori. The Te Kotahitanga project began with a series of in-depth interviews with Māori students and those most closely associated with their education (Bishop and Berryman, 2006). The narratives developed from those

interviews showed that most teachers expressed a desire to positively support Māori students learning, yet spoke of their frustrations about not being able to engage these students in what they had to offer. Most teachers identified what they saw as Māori students' deficiencies as being the main reason for their low achievement, believing that poor parental support, low educational aspirations and limited skills and knowledge limited Māori students' progress – deficit theorizing. In contrast to those views, the majority of students, parents and school principals identified that the quality of in-class relationships and interactions they had with their teachers were the main determinants of educational achievement (Bishop, Berryman, Wearmouth, Peter, & Clapham, 2011).

As identified in the Te Kotahitanga project, some teachers may attribute low student achievement to issues of motivation. Banks, McQuater and Sonne (1995) argue that there are enduring myths that remain regarding motivation and ethnicity, leading some researchers to search for a 'cultural' explanation for motivation. In an earlier work, Banks (1976) found that persons perceived as dissimilar were more likely to be regarded as failing due to lack of effort and motivation issues, than persons perceived as similar. Banks et al. (1995) suggest that whilst there may be variable patterns of achievement between different ethnic groups, there was no support for the capacity of motivation between groups. The question of what values, experiences and interests students bring with them to a school context, and the extent to which a learning experience is connected to the students' own lives is of more relevance to the issue of motivation and engagement than issues of ethnicity. The work of Banks et al. (1995) aligns with critical pedagogy in regard to valuing the voice of the learner, and understanding and utilizing what the learner brings to the learning situation.

The exploration of teachers' underlying beliefs about student achievement was a critical component of the Te Kotahitanga project because bringing those beliefs to the surface enabled the facilitators to challenge teachers about their positioning, and seek ways in which teachers could develop a more agentic approach. Through an examination of their own assumptions, beliefs and positioning, and an increased understanding of the ways in which they could build relationships with and between their students and

families, the majority of teachers in the Te Kotahitanga project gradually made changes to their teaching practice and re-positioned their thinking in relation to Māori students (Hynds et al., 2011). The Te Kotahitanga study has therefore highlighted an important component of teacher professional learning in relation to Māori student achievement – that of exploring teachers’ underlying beliefs in relation to effective classroom practice and their expectations of the students they teach.

Macfarlane (2004) and Bishop and Glynn (1999) identified the importance of building relationships as a key to improving outcomes for Māori students. Mcfarlane’s (2004) ‘Educultural Wheel’ offers a framework for creating a Māori perspective in schools that encompasses positive student-teacher relationships, effective teaching practices, an ethos of care, unity and bonding, and sustainability. Mcfarlane (2004) suggests that attending to these components is a key factor in improving outcomes for Māori students.

In their evaluation interviews, teachers from the Te Kotahitanga project reported increased efforts to improve teacher-student and student-student relationships and interactions in the classroom, and regarded the building of positive relationships as essential to classroom climates conducive to learning. However, whilst positive student-teacher relationships are important in creating positive learning environments, if Māori student achievement is to improve, then the student-teacher relationship must also focus on improved student outcomes, and not merely consist of ‘getting on well’ with students. Te Kotahitanga teachers emphasized the importance of holding high expectations for Māori students and they talked about shifting from deficit thinking. Some teachers believed a significant change in their practice had been the co-construction and power sharing with students, as demonstrated through valuing, respecting and including Māori student perspectives, knowledge and voice, and respecting the contributions to knowledge building in the classroom (Hynds et al., 2011), echoing critical pedagogy.

The success of the Te Kotahitanga programme provides a platform from which to develop more specific inquiries into effective teaching practices in order to improve

academic outcomes for Māori, such as a more in-depth exploration of subject-specific literacy teaching and learning.

## **2.6 SUBJECT-SPECIFIC LITERACY**

From a critical literacy perspective, when teachers and students develop an understanding of how knowledge is created within a subject, and the ways in which they can use literacy to support knowledge development, they become more active and powerful users of that knowledge.

As students progress through secondary education, the literacy demands of texts and tasks become increasingly specialized to each subject area. Students experience the curriculum through the lens of each discipline, as they learn about the kinds of reading, writing, thinking and communicating that are specific to each subject. Shanahan and Shanahan's (2008) model of literacy progression outlines the increasing specialization of literacy development suggesting that as students progress beyond the basic aspects of literacy such as decoding and knowledge of high-frequency words, they develop literacy skills common to many tasks such as generic comprehension strategies and basic fluency. During secondary school years, many students develop even more specialized reading routines and language uses, but these are constrained by the increasingly disciplinary nature of literacy tasks. Shanahan and Shanahan (2008) suggest that although most students manage to master basic and intermediate literacy skills, many students never gain proficiency in the advanced skills that would enable them to read and understand challenging texts in senior school subjects such as Science, History or English.

Each discipline has a knowledge structure that includes ways of thinking, reading, writing, and speaking. For example, in English, students engage in the study of literature, requiring the interpretation of figurative language, recognition of language features and language devices used in texts, and an understanding of how an author constructs a text. Students are supported and encouraged to develop a personal response

to literary texts (Lee & Spratley, 2007). In Science, knowledge is gained from empirical evidence gathered through hypothesis testing or observation, and focuses on accuracy and supporting evidence when writing. Science students are required to design, carry out and record results of investigations, link practical investigations to theory, and communicate their findings (Lemke, 1998; Norris & Phillips, 2003). Learning in History however requires students to think analytically and critically about the contexts in which texts or ideas are produced, and seek to find sources of evidence to challenge or corroborate claims (McTygue & Tindall, 2005).

As students engage in a deeper understanding of what it means to learn within a particular discipline, Moje (2008b) and Gee (2007) suggest that students then begin to see themselves as the kind of person who can learn, use and value the knowledge within that domain. For example, historians investigate and seek possible explanations for historical events and trends. History students need a range of critical literacy skills to be successful including comprehending and analysing sources, discerning differing perspectives, evaluating arguments and expressing their ideas in writing (McTygue & Tindall, 2005). This requires specific literacy practices to be used that align with critical literacy, such as the consideration of viewpoints from which texts are constructed, and the representations of power in texts. However, students often believe that they are reading to learn 'facts' and do not take account of an author's perspective unless they are explicitly taught to do so (Hynd-Shanahan, Holschuh, & Hubbard, 2004). Students may be able to gain deeper connections with the subject and understand content more effectively, when they understand the literacy practices that are valued and practised within that discipline, however those practices also need to be well-understood by teachers.

Whilst the literacy skills that constitute secondary Science, History or English share some common features, each subject uses literacy differently. Shanahan and Shanahan (2008) argue that students need to learn these different approaches in order to be successful in learning the content of each discipline. Likewise, an investigation of students' use of secondary texts and tasks suggests that explicit instruction in the texts and language of each subject area is needed for students to succeed (McDonald &

Thornley et al., 2009). In their study, students who succeeded academically had developed an understanding that they had to read differently according to the task, and that the construction of text across the curriculum areas would differ as a result of the content knowledge appertaining to that subject.

Shanahan and Shanahan (2008) purport that secondary teachers are not well-prepared to address the challenges posed by the demands of texts across various disciplines, adolescents struggle to learn the content that they encounter on a daily basis, and that significant numbers of students are failing to achieve. Whilst there is little evidence to support their claim in regard to teachers' preparedness, there is sufficient evidence, in New Zealand secondary schools in this case, to say that a significant group of learners are not achieving at senior levels.

Moje (2008b) also suggests that is not clear whether or not secondary school teachers are themselves aware of the knowledge production and communication practices of their disciplinary subject area. As Moje (2008b) argues, when teachers develop students' literacy skills in the context of each subject, they build an understanding of how knowledge is *produced* in the disciplines, rather than just building knowledge in the disciplines. Literacy therefore becomes an essential and integrated aspect of teaching practice, rather than a set of strategies or tools brought into the discipline to improve reading and writing of texts. This view suggests an understanding of adolescent literacy whereby a person who has learned deeply in a discipline can use reading, writing, oral language, and visual language to communicate their learning, synthesize ideas across texts and across groups of people, express new ideas and to question and challenge ideas valued in the discipline and in broader contexts.

Viewed in this way, disciplinary literacy teaching and learning requires teachers and educators to consider the norms of practice for producing and communicating knowledge, understanding what is valued within a particular discipline, and then sharing that knowledge with students. However, beyond the studies conducted by Shanahan and Shanahan (2008) and Moje (2008b) there is little evidence to suggest the extent to which practicing teachers might consider how knowledge is constructed in a discipline, what knowledge is valued, and how that might affect their teaching practice and student



outcomes. This suggests that for many teachers, the first step in supporting students' literacy development may be to examine their own understanding of the literacy demands in their subject area, and then consider the ways in which they develop classroom instruction to attend to those demands.

## **2.7 LITERACY INSTRUCTION**

The IRA Position Statement (2012) asserts that the subject teacher is the preferred provider of literacy support in the context of the subject, rather than an external literacy educator, and that adolescents deserve teachers who provide instruction in the multiple literacy strategies needed to meet the demands of specific disciplines.

The subject teacher is more likely to understand what kinds of information are important, what kinds of questions need to be asked, how texts specific to the subject are structured, and how to evaluate the accuracy, credibility and quality of an author's ideas. The subject teacher has a key role to play in building literacy strategies that will enable students to access and use information derived from the discipline-based print and non-print materials in each subject, in order to construct knowledge (Draper, 2010). Subject teachers know and understand the complex content that students need to learn, and the depth of understanding that is expected at each year level of the secondary school. Fang and Schleppegrell (2010) argue that subject teachers are best positioned to apprentice students into meaning-making in their disciplines and that all teachers need to help adolescents understand how texts are created in their subject area.

However, Shanahan and Shanahan (2008) suggest that the high-level literacy skills required in order to meet the demands of senior school subjects are rarely taught. By the time adolescents encounter the challenges of texts and tasks in the senior secondary school, Shanahan and Shanahan (2008) suggest that literacy instruction has disappeared. If this is indeed the case, then as students engage with more complex academic requirements and do not receive ongoing literacy instruction, then this will likely lead to frustration, disengagement, and poor academic outcomes for students.

In their study related to literacy demands and practices in secondary schools, Wyatt-Smith and Cumming (2003) found limited evidence of teachers supporting literacy practices through their instruction. The students observed in the study were required to engage in a range of literacy practices within each subject area, often simultaneously, in order to engage with the curriculum. They were required to move between oral, visual and written modes in various circumstances, and adjust their response accordingly. However, Wyatt-Smith and Cumming (2003) found little evidence of teachers discussing how written, spoken and visual texts work in the context of each subject area, for example, the kind of language and structures used in writing an evaluative report. In their study, teachers assumed that students could develop an understanding of the language of the subject without explicit instruction. Wyatt-Smith and Cumming (2003) also found limited evidence of teachers discussing specific technical vocabulary in any depth, and little evidence of the discussion of subject differences in terms of literacy demands.

Heller and Greenleaf (2007) agree that few secondary teachers devote class time to showing students, explicitly, what it means to be a good reader or writer in a given subject area, and that most secondary school students engage in very little discussion of what they have read, how to write, or how to interpret, analyse and respond to texts. These studies highlight that the literacy skills that students need are often taken for granted and yet they require a high level of sophistication. Without paying attention to the literacy demands inherent in a subject, and explicit literacy instruction embedded in the context of subject learning, teachers risk a lack of engagement by students and low levels of understanding subject knowledge.

The assumption that students have acquired all of the necessary literacy skills in primary school is a barrier to literacy learning in secondary schools. If teachers believe that all students should come to secondary school with their literacy skills fully developed, then they are unlikely to see the need for literacy instruction in the context of their own teaching practice. This notion however, does not take into account the increasing complexity of texts and tasks that students encounter, and the increasingly specialized literacy skills that students need in senior classes. As outlined by Moje (2008a) and

Shanahan and Shanahan (2008), as texts and tasks become increasingly complex, multimodal, and necessary for discipline-specific learning, secondary students must adapt by using more advanced specific strategies for deeper understanding and composing, especially in the senior school.

Ongoing research is needed that is specific to secondary school settings. For example, Fang and Wei (2010) identified that many of the studies involving reading and Science have taken place in primary school settings, and the majority of those studies involved integrating science into the reading class, where the primary teacher is typically trained to provide literacy instruction. This is different from integrating literacy into a secondary science class where the science teacher is unlikely to have had formal training in literacy teaching, and provides only one period of instruction to the same group of students in a school day.

Is literacy instruction improving in secondary schools? The IRA Position Statement (2012) notes that there have been some advances in literacy teaching instruction as research in adolescent literacy begins to inform teacher practice, and some examples of effective literacy practice can be found in more recent studies, however the infusion of literacy practice across senior school disciplines is not yet widespread.

A recent study by McDonald and Thornley et al. (2011) investigated the development of students' metacognitive skills alongside literacy instruction. Students were positioned as text navigators who needed to be knowledgeable about the ways in which materials were presented according to the text form and authorial intent, in order to make active decisions about the use of literacy skills in different subjects. The findings from this study support the notion that there are benefits in terms of student achievement outcomes when students develop a deeper understanding of the ways in which texts are constructed in different subject areas, and that students must be knowledgeable about the literacy skills and strategies they must employ in order to access those texts (McDonald & Thornley et al., 2011). This study also highlights the need for subject teachers to be cognizant of the ways in which texts are organized in their subject area, and they also need to know how to support students to develop the literacy skills and knowledge they require.

Fang and Wei (2010) investigated the impact of an inquiry-based science curriculum that infused explicit reading strategy instruction in secondary science. Fang and Wei's (2010) study took place over one year and involved working with two teachers in a collaborative manner to plan and implement reading infusion in selected science classes. The researchers found that the students in the reading-infused science classes significantly outperformed their peers on measures of scientific processes and content and also the ability to read and reason with texts. The researchers believed that the students became more strategic in their reading, enabling them to cope better with the demands of secondary texts, leading to deeper understanding of content and improved academic outcomes. The reading infusion only happened however, as a result of professional learning with external facilitators, and was therefore not part of the regular existing teaching practice of those science teachers. Therefore whilst teachers may readily recognise that there are significant literacy demands for their students, they may not know how to support their students in effective literacy instruction without opportunities for professional learning.

Two further studies demonstrate that by paying attention to the literacy demands in the context of secondary subject areas, students' academic outcomes can be improved. Firstly, Guzzetti and Bang (2011) demonstrated that interacting effectively with print, digital and media texts helped science students to develop their inquiry skills and understand scientific concepts. The combined emphasis on literacy and inquiry in chemistry resulted in gains in student outcomes in science. Secondly, Gilbertson (2012) worked with secondary school history teachers to gain a deeper understanding of the construction of history texts, using a cause and effect structure, which the teachers were then able to apply with their own students. Students in this study improved their ability to comprehend cause and effect in history textbooks, and improved their own writing using a cause and effect structure. Studies that demonstrate effective literacy practice in secondary schools are emerging in the literature, as researchers focus on adolescents and their literacy needs, and inform teaching practice, however the transfer into practice is not yet widespread.

## 2.8 ASSESSMENT

Historically, a major role of assessment in secondary schools has been summative - locating differences in student achievement through assessment tasks, ranking students, and assigning marks or grades accordingly, however, there is now a broader approach to assessment in New Zealand schools that uses both summative and formative assessment practices. Whilst the term 'formative assessment' can describe a wide range of teacher and student practices, in this context, formative assessment is defined as the type of assessment that is designed to provide teachers and students with information about progress towards a particular goal or standard (Black 1995; Cowie & Bell; Gipps 1994/1999). Although summative and formative assessment are often thought of as mutually exclusive, Black and Wiliam (1998) suggest that they form the ends of a continuum along which all assessments lie, and a single assessment event may provide both summative and formative information.

As outlined in Absolum, Flockton, Hattie, et al. (2009) the Ministry of Education approach to assessment in New Zealand has moved beyond a narrow focus on 'end-point' testing to a broader notion of 'assessment for learning'. Within this broader notion is the understanding that effective assessment is a key component of quality teaching when it is used as a learning process to inform teaching and learning, and to improve student achievement outcomes. Within an effective assessment for learning approach, teachers engage in a process of gathering and interpreting information, making decisions about teaching and learning, adapting programmes and resources, and monitoring the outcomes for students. This approach allows for individual responses to be developed by the teacher in order to meet identified needs.

Underlying the discussions about assessment are theories of learning and how we conceptualise teaching as an activity. Sociocultural theories of learning recognize the situated nature of teaching and learning, and the impact of the social environment in supporting and directing learning (Lave and Wenger, 1991; John-Steiner & Mahn, 1996; Vygotsky, 1978). These theories provide a lens on assessment for learning by seeing it as information which guides both the teacher and student towards the next steps in the learning environment, whilst recognizing the importance of the social context of the

classroom. Furthermore, sociocultural theories and critical pedagogies recognize the centrality of the teacher-student relationship - and the co-construction of learning as a result of shared assessment information within the context of a particular subject.

Black and Wiliam's (1998) research across several school subjects showed that strengthening the practice of 'assessment for learning' produced significant and often substantial learning gains for students, many of whom were considered to be underachieving. Subsequent studies including those by Stiggins, Arter, Chappuis et al. (2004); Schroeder, Scott, Tolson, et al. (2007); and McManus (2008), also demonstrate that positive learning outcomes for students can be achieved when teachers engage in effective analysis and use of assessment information.

However, there are pitfalls for teachers within assessment for learning models which may result in little or no change in student achievement. In the first instance, teachers must decide on the purpose for their collection of data that is relevant and meaningful for their students, within the current learning context, and then choose an appropriate means of collecting data. Once data is gathered, teachers need to know how to interpret the information in relation to the specific learning context, and then make decisions about what is important to focus on for individuals, or groups of students. At that point, teachers need to determine the particular learning needs of their students, however they may not know how to address those needs in an effective manner. Assessment for learning is only effective if it leads to action on the part of the teacher to enhance student learning in some way, and at various points in the process, this could be interrupted. Successful assessment practices therefore involve teachers' assessment competence in the design, interpretation and use of data situated within specific learning contexts.

One way in which assessment for learning can be supported in a literacy context is within a 'planned' formative assessment model as described by Cowie and Bell (1999). This model is one which is likely to engage the whole class in the same assessment, identifies progress towards learning goals, and identifies areas where students may be struggling to achieve. Cowie and Bell (1999) describe three phases in a planned formative assessment that include developing, interpreting, and taking action towards identified goals. In this model, the teacher is actively involved in the design,

implementation and use of the information that is gathered, as therefore is more likely to engage with the assessment process.

Many of the central assessments of literacy used in secondary schools are not representative of the contextualized tasks that occur in the secondary school classroom, and do not have a close alignment between the content taught and that which is tested (Freebody & Wyatt-Smith, 2004; Whitehead, 2007). A lack of alignment fails to recognize the unique and actual literacy demands of subjects across the curriculum, and therefore an assessment that is more closely connected to subject-specific literacy is required. The Diagnostic Literacy Assessment (DLA) used in this study (described further in Chapter 3) involved teachers in the design of a subject-specific literacy assessment task, the implementation of the assessment, and the use of diagnostic information to inform teaching and learning. From a sociocultural perspective, this type of assessment recognizes that learning is situated in context and therefore the assessment task used in the classroom was closely aligned with the subject content, and the information gained was relevant to the individual learner. An important advantage of the DLA is that this type of assessment supported teachers to gather literacy data about individual students in the context of a particular subject, using actual subject-specific texts rather than a centrally developed assessment. Freebody and Wyatt-Smith (2004) describe this type of assessment as having ‘site-validity’ because it reflects locally relevant texts, tasks and contexts. Furthermore, teachers are likely to engage with the assessment task because they perceived it to be contextually relevant.

Once the data is collected and analysed however, teachers need to know what to do to address identified needs, and this may require a degree of flexibility to adapt existing programmes of work, and the involvement of additional literacy expertise. In addition, the DLA offers information to the teacher that is specific to a group of learners in a particular context, and therefore a disadvantage of the DLA is that the data collected may not be relevant or useful to other teachers with that same group of learners in other contexts.

NCEA assessment data was also used in this study as a measure of students’ academic performance in each subject. NCEA provides data from standards-based assessments

that are specific to the subject area. Each particular standard is assessed either as an internal assessment or external assessment. In this instance, NCEA data was used as both formative and summative data, because information gained from the internally assessed standards provided teachers with information from which to adjust their instructional response for each student, and also provided a measure of academic performance. However, results from the externally assessed NCEA standards provided a measure of academic performance as ‘end-point’ data only. NCEA allows considerable flexibility in the selection and design of assessments within courses, and therefore assessment can be more closely aligned with the learning needs of students, and the results reflect the context of each school programme. However, this does mean that it is more difficult to make meaningful comparisons between schools in relation to particular subjects.

## **2.9 TEACHER BELIEFS**

The underlying beliefs that teachers hold about teaching affects the classroom learning experiences and outcomes for their students, and studies of literacy learning are strengthened when teacher beliefs are examined (O’Brien et al., 2008). In a study of nine cross-curricular secondary teachers who were considered to be successful teachers, Sturtevant and Linek (2003) found that the successful teachers held similar beliefs, including the desire to meet students’ literacy and learning needs, the value of interpersonal relationships and wanting to participate in lifelong learning. Their study showed that the teachers’ underlying beliefs shaped the instructional decisions that the teachers made on a daily basis. In this particular study, the teachers’ desire to meet students’ literacy and learning needs within a positive interpersonal relationship links to aspects of critical theory including power-sharing and reciprocity in the learning relationship.

The beliefs that teachers hold in regard to the place of literacy in their learning area, also shapes their instructional decisions and the outcomes for learners. If subject teachers perceive literacy to be completely external to their learning area i.e. a set of generic



teaching strategies or activities imposed on them from outside of their subject area, they are unlikely to see any benefit in making literacy an integral part of their regular teaching practice. Literacy professional learning for secondary teachers has, in the past, involved the presentation of generic tasks and activities that often appeal to secondary teachers in the short term. However, those tasks and activities have not always been connected to the subject-specific needs of learners, do not necessarily reinforce the knowledge or practices that are valued in the discipline, and are therefore unlikely to be embedded in instruction (Moje, 2008a; O'Brien, Stewart & Moje, 1995). The appeal of generic literacy tasks and activities is most likely to be that they are pre-prepared and usable, however as many teachers discover, a generic task or activity may not be matched to the specific learning needs of their students in that subject area, and therefore achieves very little in terms of advancing student outcomes.

In some instances, teachers say that they believe literacy is important in their subject area however they do not know how to infuse literacy effectively. Cantrell, Burns and Callaway (2009) investigated teachers' beliefs about literacy teaching within a programme of teacher professional development. In their study, teachers displayed a willingness to infuse literacy into their subject area, but they felt unequipped or unprepared to do so, especially when their work involved students who were achieving well below their peers. Generally the teachers in their study had a limited understanding of how literacy could be embedded in a subject area, and believed that their role was one of developing content knowledge. Whilst teachers may recognize that some students struggle to achieve in a particular subject, and that there may be literacy issues involved, they may be unsure of how to diagnose individual literacy needs and how to determine an appropriate instructional response. The study by Cantrell et al. (2009) typifies the response from many secondary teachers whereby teachers across learning areas know about the content of their subject, and that some students may have difficulty accessing that content, but they may not know how effective literacy practice might enhance the learning in that subject.

Velez (2010) also investigated beliefs about literacy that influenced teacher practice. In his study he points out that the definition of literacy for each teacher was complex, and

was constantly evolving. As teachers engaged in professional learning, their understanding of literacy in the context of their subject developed, requiring them to rethink the ways in which literacy practices were enacted in the classroom, and shaped for instruction in each subject area. Velez' (2010) study shows us that definitions of literacy are not necessarily fixed, and that teacher professional learning can have an impact on beliefs and literacy practices.

Studies of teacher beliefs in relation to literacy provide valuable insight into the reasons why instructional decisions might be made by teachers, and that teachers' beliefs may change over time by engaging in further learning (Timperley et al. 2007; Velez, 2010), however there is often a lack of additional evidence in the studies to ascertain whether or not any change in teacher beliefs actually led to an impact on student outcomes. The collection and analysis of student work over time, or evidence of students' academic outcomes would be a worthwhile addition to these studies as they would provide evidence of the impact of any changes in teachers' beliefs and practice.

## **2.10 TEACHER PROFESSIONAL LEARNING**

Whilst there is a greater focus globally on how literacy is used within the multiple disciplines in secondary schools (IRA, 2012), many secondary teachers continue to feel ill-prepared to support the literacy demands within their discipline. Teachers' own experience as a student, their pre-service training, and their professional learning experiences in secondary schools have not always prepared them sufficiently to support students' literacy learning in their subject area.

O'Brien, Stewart and Moje (1995) outlined the complexities of infusing literacy practices in secondary school contexts. Effective literacy practice that focuses on the use of multiple texts, active engagement in learning, student-centered teaching, and the social construction of knowledge may challenge traditional and deeply-held values, beliefs and practices of secondary educators. Secondary schools utilize a traditionally structured curriculum of subjects and pedagogical practices that are deeply embedded in the acquisition of content knowledge. Teachers may be unwilling to modify those

traditional structures and consider the ways in which the infusion of literacy practices might enhance student achievement.

Heller and Greenleaf (2007) argue that perhaps the greatest challenge in developing adolescent literacy skills is the scarcity of ongoing, high-quality professional development for teachers. Whilst there has been an increase in literacy resources available, relatively few secondary teachers have had meaningful opportunities to learn about the literacy practices that are essential in their own subject areas, especially in the senior levels of secondary school. The major focus of literacy professional development in New Zealand has been in primary schools, with some professional development in secondary schools that has predominantly focused on junior levels. Therefore it is not surprising that secondary teachers of senior classes may feel ill-prepared to meet the increasingly complex literacy demands in their subject area.

The IRA (2012) advocates ongoing professional learning and development for subject teachers in literacy and suggests that educators with expertise in literacy should collaborate and work with subject teachers in order to improve understanding of literacy demands and appropriate teaching responses. Moje (2008a), and Shanahan and Shanahan (2008) reiterate that educators need support to ensure that appropriate literacy instruction is implemented throughout the school day, and across the disciplines, in order to support literacy development in adolescence. Moje (2008b) argues for an approach to teacher professional learning that is not based around generic activities or literacy strategies that are applied across the curriculum. Rather, she argues for professional learning that stems from a sociocultural perspective, and is therefore situated in the context of each discipline. The strength of this kind of professional learning for teachers is that it acknowledges and responds to the different knowledge and ways of thinking, knowing and communicating in each subject area, and is likely to be engaging and relevant for secondary teachers.

For teacher professional learning in literacy in the senior secondary school to be effective, it also needs to be based on relevant research, and take account of the realities of everyday school life and teacher practice (Fernandez, 2002). Teachers need to see that any changes they are being asked to make are evidence-based, and relevant to their

subject area and daily instructional practice, and that by making a change to their practice they are likely to see results in student outcomes. Secondary teachers are particularly mindful of the curriculum demands in the senior school, and therefore are unlikely to be willing to make changes to their practice without good reason. Effective teacher professional learning therefore involves a combination of research and practice.

McDonald and Thornley et al. (2008) also assert that studies of teacher professional learning in adolescent literacy need to be informed by student learning data, including students' perceptions, and information about teachers' practices and beliefs to allow reflection on how teachers' theories, beliefs and values influence the various literacy practices they might use within a secondary school context. Attending to all of these components within a single study is complex, however by doing so, the study would reflect the complex environment of the classroom and align with a sociocultural perspective that learning is situated in context.

## **2.11 TEACHER-RESEARCHER PARTNERSHIPS**

One way in which professional learning may occur for secondary teachers is through the development of teacher-researcher partnerships. The literature in relation to partnerships between teachers and researchers suggests that whilst there are commonalities between teaching and researching, there are also tensions that may exist in the relationship. These tensions stem from the contexts in which each party operates, and may be a result of the differences in aims and objectives of each party (Berger, Boles & Troen 2005; Cole & Knowles, 1993). Partnerships are generally formed between researchers in academic institutions, and classroom practitioners, and these two parties may have different expectations of their engagement in a research project.

The teacher-researcher relationship is challenging in that it involves negotiating within the complex environment of secondary school teaching and learning. Teachers are under pressure to meet the learning needs of a wide range of students, and to deal with the myriad of administrative tasks that accompany that role, and therefore they want to

feel confident that their engagement with a researcher will be beneficial in terms of their time commitment and the outcomes for students.

The notion of collaboration is central to the teacher-researcher partnership. Collaborative research involves all parties working together to investigate and learn for a common purpose. A distinction is drawn between partnerships that are collaborative and those that are 'merely cooperative' (Goodnough, 2004). Co-operation is seen to focus on individual learning, and may be nothing more than teachers' co-operation with the researchers' agenda. To be truly collaborative, the teacher-researcher partnership involves an ongoing process of negotiating roles, responsibilities, commitment, status and available energies (Cole & Knowles, 1993; Goodnough, 2004; McDonald et al., 2008). Collaboration between a teacher and researcher therefore is an evolving process that centers on increasing levels of trust, and accords equal status to both parties.

The role of the academic researcher within a teacher-researcher partnership can be problematic in that status and power may be seen to reside with the academic researcher who has initiated and designed the research project (Cousins & Simon, 1996; Frankham & Howes, 2006). Experience in conducting previous research, and the expertise of the researcher in the field, can lead to teachers feeling as though there is an unequal partnership. However, if the partnership is viewed as truly collaborative, the academic researcher and teachers can negotiate an engagement that sees both parties as co-participants in the research. Frankham and Howes (2006) suggest in their study that by working in and through relationships the researchers began to play a part in professional learning within a school. They promoted an ethnographic-type of engagement by researchers so that over a period of time, teachers changed from seeing researchers as 'wanting something' from the school to viewing them as non-threatening colleagues, and consequently, researchers attained insider status at schools. A critical component of this study appears to be that the researchers developed a relationship of trust with the teachers over time, and that there were elements of reciprocity where both parties had something to gain from the engagement.

Van Kraayenoord, Honan and Moni (2011) examined the different kinds of knowledge that researchers and teachers brought to an effective collaborative partnership and how

they negotiated this during the process of undertaking action research. The interactions between teacher and researcher in their study were characterized by mutual sharing of experiences and knowledge, shared decision-making, trust and respect. Conversations recorded between the teacher and researcher indicated that both parties displayed expert knowledge at different times, and that they were open to ideas as they emerged. Over a period of time, the relationship evolved to become one of fellow learners and researchers, as members of the team developed common points of understanding. McDonald et al. (2008) also noted the change in relationship between teachers and researchers that occurred in their study, as they moved towards a more even balance of decision-making and responsibility between participants. Van Kraayenoord et al. (2011) argue that a negotiated and collaborative approach to research provides great opportunities for interactive knowledge-building work amongst research participants, and is conducive to supporting teachers' professional learning.

These studies offer insights into important components of effective teacher-researcher relationships, with particular critical pedagogical aspects such as power-sharing, collaborative decision-making, and reciprocity between parties at the fore. Critical theory therefore influences not only the ways in which the teacher-student relationship can be viewed, but also the ways in which the teacher-researcher partnership can be examined.

## **2.12 CHAPTER SUMMARY**

This chapter examined literature in relation to the field of adolescent literacy, as it has developed in recent years. The place of adolescent literacy research in secondary schools is described, as distinct from literacy-related research at primary schools, and the connections between in-school and out-of-school literacies are outlined.

Theoretical perspectives are outlined as they pertain to this study. Sociocultural theory informs this study by acknowledging that literacy learning cannot be separated from the learner, subject or context in which it occurs.

Critical pedagogy, stemming from Freire's work, explores the concepts of power-sharing, reciprocity, valuing the voice of the learner, and makes links to the concept of 'Ako' within Māori world view. Furthermore, critical literacy theory provides a framework for examining the construction of texts and discourses in a secondary school context. Understanding how knowledge is created and used allows learners to become powerful users and manipulators of that knowledge.

Within the New Zealand context, teachers work with students representing a wide range of literacy achievement, and one in which Māori and Pasifika students are over-represented in the lower levels of literacy achievement. This presents challenges for teachers as they work with students to develop the levels of understanding required to engage with curriculum content, especially in the senior secondary school.

Subject-specific literacy practice is described through relevant research and findings, as it relates to the increasingly complex and specific nature of texts and tasks that students encounter in secondary schools. Research indicates that the teaching instruction that is prevalent in secondary school settings may not at present be adequately responsive to the discipline-specific requirements that secondary students need to master, in order to gain successful academic outcomes.

Assessment in New Zealand secondary schools has moved to a broader understanding of assessment for learning, whereby relevant information is gathered and used effectively to inform teaching and learning. Central measures of students' literacy achievement fail to recognize the unique and actual literacy demands of subjects across the curriculum, and therefore an assessment that is more closely connected to subject-specific literacy is required. The Diagnostic Literacy Assessment (DLA) used in this study involved teachers in the design of a subject-specific literacy assessment task. NCEA data also provided both summative and formative information to inform instruction.

Whilst there have been a number of opportunities for teachers to engage in professional learning opportunities at the primary school level, very few secondary teachers have been afforded opportunities to develop their understanding of effective literacy practice and to learn from the findings of recent research in adolescent literacy. For teacher

professional learning in literacy to be successful, it must be relevant to the needs of participants by being connected to the daily teaching and learning contexts of secondary teachers within each subject area. Theory and practice need to be integrated, and meaningful responses developed that meet the needs of learners, and the requirements of the New Zealand curriculum.

Teacher-researcher partnerships are one way in which professional learning may occur for secondary teachers, however as noted in the research, the partnership needs to be truly collaborative, and afford equal status to the participants, if it is to be successful.



## **CHAPTER 3**

### **METHODOLOGY**

#### **3.1 INTRODUCTION**

The literature reviewed in the previous chapter provided a research basis and theoretical framework for this study. As evident in the literature, literacy learning cannot be separated from the learner, subject or context in which it occurs, suggesting that a close examination of the teaching and learning environment is warranted in order to identify the conditions that might support effective literacy practice, and result in improved academic outcomes for adolescents.

This chapter discusses the methodology used in this study, how the research questions were addressed, and describes the process for data collection and analysis. The research sample is described, as well as the professional learning intervention. Limitations, assumptions, and ethical considerations for the study are outlined.

An investigation of the teaching and learning environment lends itself to qualitative research techniques such as interviews, observation and discussions, in order to develop an understanding of the contextualized nature of learning. However, without the use of quantitative measures there would be no means of gauging the effects of the learning environment on students' academic outcomes. Therefore a mixed method design has been used in this study, combining qualitative and quantitative methods, as described in this chapter.

The aim of this study was to develop an understanding of the literacy learning environments that are most likely to lead to improved academic outcomes for students in the context of year 11 English, History and Science. The outcomes for Māori students were of particular interest in this study, and the ways in which literacy teaching and learning might be effective in influencing those outcomes.

The researcher investigated the context in which the learning occurred, and those factors that may have influenced the teaching and learning within each subject. The examination of the learning environment included the response made by the students to the kinds of literacy practices employed by the teacher in each classroom. The study investigated students' perceptions of the literacy learning environment and how they might use literacy practices effectively in order to improve subject knowledge.

The two measuring instruments used in this study were the Diagnostic Literacy Assessment tool (DLA) and data from the National Certificate of Educational Achievement (NCEA) level one. The reasons for using these tools are outlined in this chapter.

The researcher worked with teachers in this study to examine their own teaching practice and to modify and adapt literacy practices that might affect student outcomes. The relationship between the teacher and researcher was examined in terms of influencing classroom practice.

### **3.2 RESEARCH TITLE AND SIGNIFICANCE OF THE STUDY**

The title of the research is 'Infusing effective literacy practice within secondary school disciplines'.

The motivation to conduct this research arose from the national concern for the wide spread of literacy achievement in New Zealand secondary schools. Whilst New Zealand adolescents generally perform well by international literacy standards, there is a wide spread of achievement within the population, with some students performing at very low levels. Teachers in New Zealand secondary schools therefore encounter students with a wide range of literacy skills and knowledge, which in turn influences students' ability to access curriculum content. Of particular national concern is the extent to which Māori students are over-represented in the lower levels of literacy achievement.

This study investigated the extent to which teachers infuse effective literacy practices in English, History and Science in order to improve students' academic outcomes. The act

of ‘infusing’ effective literacy practice suggests that deliberate actions will be taken by teachers to combine both subject content and effective literacy practices within instructional experiences for their students, recognizing that understanding how knowledge is created and used allows learners to become powerful users and manipulators of that knowledge.

When students reach year 11 it is usually the first time they have encountered the National Certificate in Educational Achievement (NCEA). The literacy demands at year 11 are significantly greater than those at years 9 and 10, and students usually feel the pressure to perform well at this level. Teachers also feel pressure to enable students to achieve well in NCEA. However, the focus of most literacy professional development in New Zealand has been at the primary school level, or at the junior secondary level, with little to guide the literacy professional learning needs of teachers of senior classes. This study involved teachers in a professional learning inquiry into effective literacy practices at year 11 – the first year of senior secondary school.

The researcher in this study worked collaboratively with the teachers to inquire into literacy practices, to provide professional learning about adolescent literacy, and to develop the infusion of effective literacy practices in the context of each subject. The relationship between teacher and researcher is also important in this study. In order to gain a real understanding of the learning environment, the researcher spent time meeting with individual teachers, visiting their classrooms and discussing progress and outcomes for students.

### **3.3 RESEARCH DESIGN**

#### **3.3.1 Mixed Methods Research**

A mixed method research design was used in order to inquire into the complex and multi-layered context of the classroom. Mixed method research is the type of research that mixes or combines quantitative and qualitative research techniques, methods, approaches, concepts or language into a single study (Johnson & Onwuegbuzie, 2004).

Creswell (2009) purports that the central premise of mixed methods research is that the use of quantitative and qualitative approaches in combination provides a better understanding of research problems than either approach alone. By utilizing quantitative and qualitative techniques within the same framework, mixed method research can incorporate the strengths of both methodologies (Cohen, Manion & Morrison, 2007) and may offer the best chance of obtaining useful answers to research questions than via a single method (Johnson & Onwuegbuzie, 2004; Tashakkori & Teddlie, 2010). Exclusive reliance on one method may not give a true picture of the complex environment in which learning occurs in the classroom, and the researcher has greater confidence in the results of a study when different methods of data collection are used. For example, Stodolsky and Grossman's (2000) study of Mathematics and English teachers adaptation to changing cultural diversity demonstrated how qualitative data can be used alongside quantitative data to provide robust findings, by including in-depth cases studies to extend quantitative surveys.

The strength of qualitative research techniques within a mixed methods approach is that they offer the researcher the opportunity to observe and describe phenomena in detail as they are situated and embedded in context, whilst identifying and noting the contextual and setting features as they relate to the phenomena of interest. From a critical literacy framework, and underpinned by sociological perspectives, qualitative research tools within the mixed method design in this study supported the researcher to gain a deeper understanding of literacy and learning as it is situated in context, and embedded in relations of power.

Creswell, Shope, Plano Clark and Green (2006) suggest that qualitative approaches play an important role in explaining the social world within mixed methods research. In this study, year 11 classrooms provided a rich and complex setting in which to carry out observations of teacher practice and student responses. Qualitative methods provided a means of understanding and describing people's personal experiences of phenomena, by engaging teachers in ongoing dialogue through interviews and meetings, and interviewing students about their response to instruction.

Qualitative research methods provide the opportunity to study dynamic processes, and allow the researcher to respond to local situations and conditions (Bazeley, 2003; Johnson & Onwuegbuzie, 2004). In this study, the conversations, observations and interviews collected over the period of one year allowed the researcher to gather data over time, and to note any patterns or changes that occurred.

The knowledge produced from qualitative methods however, may not be generalisable to other people or other settings, as the findings may be unique to the group included in the study. Furthermore, it generally takes more time to collect qualitative data when compared to quantitative data collection. In this study, conducting teacher and student interviews was time consuming, however the data gathered provided a rich source of information from which to develop understandings. Analysis of qualitative data may also be time consuming within mixed methods research. In this study various types of qualitative data were collected, requiring recording, sorting, interpreting and analyzing, at various stages of the project. Whilst this was also time consuming, the ongoing processing and analyzing of data allowed the researcher to make connections across items of data and to identify common themes as they emerged.

Quantitative research methods allow data to be collected that is less time-consuming, and the data collected is relatively independent of the researcher, therefore reducing the effect of any researcher bias or individual interpretation. The data collected usually provides a numerical picture, as in this study where the DLA provided data about literacy achievement that allowed the teachers to easily identify the areas of strengths and needs of students. The disadvantages of quantitative research methods include that the knowledge produced may be too general for direct application to specific situations and contexts, and that quantitative data alone may fail to provide a sufficient understanding of complex research problems. A focus on quantitative methods alone may mean that the researcher misses out on phenomena occurring in context, because of the focus on empirical data.

A mixed methods approach was determined to be the most suitable design for this study, with the goal of drawing from the strengths of both quantitative and qualitative research within a single study. Mixed methods design allowed the researcher to examine the

instructional context for literacy learning, and to monitor the achievement outcomes for students within a single study, thus making vital connections between the instruction experienced by the students, and the resulting academic outcomes. There are challenges inherent in a mixed methods design that include the time consuming nature of data collection and analysis, and the need to be open to emerging findings from a variety of sources as data is collected and analysed. In utilizing a mixed methods design however, it was anticipated that the study would provide stronger evidence in relation to effective literacy practice in the senior school, than through the use of a single method.

### **3.3.2 Culturally Relevant Research Models**

The methodology utilized by Ladson-Billings (1995) towards developing a theory of culturally relevant pedagogy also informed the research design of this project. Ladson-Billings (1995) drawing on the work of Collins (1991) based her own study around four propositions: (1) concrete experiences as a criterion of meaning, (2) the use of dialogue in assessing knowledge claims, (3) the ethic of caring, and (4) the ethic of personal accountability. Those criteria have also informed the research design of this study.

#### *3.3.2.1 Concrete experiences as a criterion of meaning*

According to Collins (1991), and further developed by Ladson-Billings (1995), individuals who have lived through experiences are more believable and credible than those who have merely read and thought about such experiences. In this study, the teachers had from 10 to 25 years of teaching experience, and were engaged in daily teaching interactions with their senior students. Their reflections (gathered through interviews and discussions) about what was effective literacy practice in the context of their subject, and how it had an impact on student achievement was grounded in their everyday lived experiences. Similarly, the year 11 students' reflections were grounded in their everyday in-school and out-of-school experiences. Therefore the data gathered from teachers and students provided the study with more credibility than if it were gathered only through the researcher observations.

### *3.3.2.2 The use of dialogue in assessing knowledge claims*

This criterion suggests that knowledge emerges in dialectical relationships, and as within a critical literacy framework, meaning is understood to be constructed through reciprocal dialogue between individuals. The use of dialogue was important to this study because teacher and student interviews helped the researcher to construct meaning. Whilst classroom observations were used to gather information about literacy practices, and student achievement data were gathered, the teachers' and students' explanations and clarifications helped to construct meaning in regard to what might constitute effective literacy practice in the classroom. Throughout the study, teachers were engaged in ongoing dialogue with the researcher about their practice, thus allowing them the opportunity to re-examine their classroom practice and make sense of effective literacy practice.

### *3.3.2.3 The ethic of caring*

In a similar interpretation to Ladson-Billings (1995), this study incorporates an ethic of care from the point of view of care for the academic achievement of students situated within the classroom learning environment and subject context. The researcher and teachers closely examined the literacy achievement of their year 11 students through quantitative data from the Diagnostic Literacy Assessment results and determined the areas of strength and areas of need to support individual student progress. In student interviews, the researcher noted where students were aware of the individual care shown by the teacher for their progress and achievement.

### *3.3.2.4 The ethic of personal accountability*

In this criterion, Ladson-Billings (1995) and Collins (1991), assert that individual's commitments to beliefs and values are important in understanding knowledge claims. As outlined in the literature review, studying teachers' beliefs about literacy practice is an important component when examining effective literacy practices. In this study, teacher beliefs were surfaced through interviews and meetings, and then examined in terms of their influence on effective literacy practices in the classroom. The personal

accountability of a teacher is demonstrated in the kinds of pedagogical approaches taken by the teacher and their subsequent actions in the classroom.

### **3.4 RESEARCH QUESTIONS**

The aim of the research was to develop an understanding of the literacy learning environments that are most likely to lead to improved academic outcomes for students in the context of year 11 English, History and Science.

To achieve this aim, the following objectives were derived:

- To identify literacy strengths and needs of year 11 students included in the study
- To engage in a collaborative inquiry between the teacher and researcher that integrates theory and practice
- To identify the conditions that might support the infusion of effective literacy practice in senior subjects
- To track student achievement outcomes for all students in the study, and for Māori students
- To discuss the implications for teacher practice

The following research questions were developed in order to address the aim and objectives of the study.

#### *3.4.1 How effective is the infusion of literacy teaching and learning in improving academic outcomes for secondary school students at year 11?*

This question was addressed in part by gathering data from the DLA to provide diagnostic information and to track student achievement outcomes for the students in this study. Data from the DLA allowed for comparisons to be made at two time periods for the same group of students, thereby ascertaining any improvement in outcomes in connection with the teaching and learning programme, and as a result of engagement in literacy professional learning. In addition, NCEA data provided information relevant to the academic outcomes expected of students in year 11. The qualitative data gathered



from classroom observations, interviews and discussions provided a deeper understanding of the efficacy of infusing literacy teaching and learning at year 11 and the subsequent outcomes for students.

#### *3.4.2 How effective is the infusion of literacy teaching and learning in improving academic outcomes for Māori school students at year 11?*

In order to address this question, data from the DLA and NCEA data was disaggregated by ethnicity to show the specific outcomes for Māori students and to measure their progress over time. The qualitative data that was gathered included teachers' perceptions about effective literacy practice for Māori students, and Māori students were included in the interviews in order to develop further understanding about the effects of literacy teaching and learning in their year 11 classes.

#### *3.4.3 What are the conditions that support or inhibit the development of effective literacy practice in each subject?*

A range of data was used in order to address this question. Classroom observations were utilised in order to sample the kinds of teaching and learning practices that were typical in each classroom. Throughout the study, teacher interviews and discussions contributed towards an understanding of the conditions that might support effective literacy practice in the English, Science and History class, including teacher beliefs about literacy and learning in the context of their subject area. Furthermore, the students' response to instruction gathered through student interviews and classroom observations contributed towards addressing this question.

#### *3.4.4 How do students perceive the impact of literacy teaching in each subject?*

The data gathered through student interviews was the primary means by which the researcher was able to determine the students' perceptions of impact in regard to literacy learning, and to gain an understanding of some of the ways in which students' perceived the literacy demands of each subject area.

#### *3.4.5 How does the relationship with the researcher have an impact on teacher practice?*

The researcher was interested in this question because of the investigative approach taken in this study towards seeking a deeper understanding of literacy learning embedded in context. The researcher was seeking a more collaborative approach with the teachers, and therefore wanted to know if that approach had an impact on how teachers engaged in professional learning and the subsequent actions they took in terms of teaching instruction. The question was addressed through data from teacher interviews and discussions.

### **3.5 RESEARCH SAMPLE AND PROCESS**

The study was conducted in the context of two New Zealand secondary schools. These two schools were selected initially because they were both schools where the school leaders were interested in finding ways to improve academic outcomes for students. As described in Timperley et al. (2007) effective school leadership is a key element in promoting professional learning in ways that impact positively and substantively on student outcomes. In this study, the school leaders provided teachers with the opportunities to learn by releasing them from other duties during the year, and supported the gathering of research data.

In each school, connections were made to wider school goals related to improving literacy outcomes. According to Birman, Desimone, Porter et al., (2000) the coherence in professional learning with policies and other professional experiences is directly related to increased teacher learning and improved classroom practice. This study allowed teachers to investigate literacy learning from within the context of their own subject area whilst still being connected to the wider and broader aims of literacy professional learning within each school. School leaders were also able to see the relevance of the study and make connections to the overall strategic plan for professional learning.

Each school had engaged in some form of literacy professional development during the past five years, raising awareness of the literacy needs of their students. School A had been part of the Secondary Literacy Project – a two year professional learning project focused on years 9 and 10. School B had undertaken their own in-school literacy professional learning programme over several years. The study was therefore conducted in a context where some prior learning about literacy had occurred.

Both of the schools displayed typical patterns of literacy achievement found in New Zealand schools: each class of students represented a wide spread of literacy achievement. This enabled the research to be conducted in an environment that might therefore be similar to many other secondary school environments within New Zealand.

Year 11 students were chosen as the group of students to focus on for this study because there has, to date, been limited research to inform and address the achievement needs of students in senior secondary schools. In New Zealand, the work of the Secondary Literacy Project mainly focused on students in years 9 and 10. As students move through secondary school to year 11 and beyond, they need higher literacy levels in order to experience academic success across a range of curriculum areas. Students need to be proficient at locating, evaluating and extracting information from a wide range of sources and stimulus material across learning areas. They also need to bring together seemingly disparate pieces of information for explanation, justification, analysis and comparison, and know how to present their findings for assessment (McDonald & Thornley, 2005). These are complex skills to develop, and require teachers to engage students in literacy learning within the context of each subject area. This study examined the literacy practices that teachers employed in order to improve academic outcomes.

Within this study of year 11 students, the researcher examined the response to instruction and outcomes for Māori students. The overall literacy achievement of Māori students at a national level is below that of New Zealand European students. Whilst Pasifika student achievement in literacy is also of national concern, the number of Pasifika students within the two secondary schools in this study was not sufficient to provide meaningful data for analysis. However, some Pasifika students were included in interviews with the researcher and their response to instruction is included.

The selection of subjects for this study was based on the literacy demands inherent in English, Science and History at year 11. These three subjects require students to engage in significant amounts of oral, reading and writing activity in order to be successful, particularly in the senior secondary schools when students engage with NCEA (McDonald & Thornley, 2005). Thus, the study involved six teachers and their year 11 students, in two schools.

The researcher contacted and met with the principal of each secondary school in the year prior to the data collection to discuss the proposed research and determine interest in the study. Both school principals expressed an interest in the study based on the identified literacy needs of students in their school, and the importance they placed on literacy learning.

The subjects selected for the study, and the focus on year 11 students limited the pool of teachers who could be invited to participate. Further written information about the study was provided to each school. The principal or another senior manager invited teachers to participate, along with their year 11 classes. In most cases, one teacher from each subject area volunteered to be part of the study. In the case of two or more teachers volunteering, the principal or senior manager chose the teacher whom they considered to be the most suitable participant. The year 11 Science and History classes consisted of students with a wide range of achievement, typical of many New Zealand secondary school cohorts. The students in both English classes however consisted of students with lower than average patterns of achievement.

At the beginning of the study, the researcher negotiated with the principal a suitable period of release time for the teacher participants. The teachers were expected to participate in literacy professional learning facilitated by the researcher, meet with the researcher on several occasions, and gather data in relation to the study. The principals in both schools were willing to release teachers from other professional learning obligations in order to participate in this study.

In each school, the three subject teachers met with the researcher to discuss the scope of the research, their rights and responsibilities as participants, and to negotiate the process

for the collection of data. The researcher also outlined the process for gaining consent from students who would be involved in the study. Students were provided with written information about the study and had the opportunity to ask questions of the teacher and researcher. Students completed consent forms to participate in the study and also indicated if they were willing to be interviewed by the researcher. Where students were willing to be interviewed, permission was obtained from their parents to participate.

The researcher worked with the teachers over a period of one year to monitor student progress and outcomes and to modify and adapt teaching programmes to incorporate literacy practices. This involved observing classroom practice, meeting with individual teachers, interviewing teachers and students, and collecting student achievement data. These methods enabled the researcher to develop a rich picture of the learning environments in the study and to gain an understanding of the literacy practices in each discipline.

## **3.6 QUANTITATIVE DATA COLLECTION**

### **3.6.1 Diagnostic Literacy Assessments**

In order to ascertain the impact of any changes in literacy practice, Diagnostic Literacy Assessments (DLA) were used at two time intervals in each year 11 class. The DLA is an assessment tool that provides authentic information about the literacy skills and knowledge of students in each subject area, as developed by McDonald and Thornley (2005) in their work as national co-ordinators of secondary literacy professional learning and development in New Zealand. It is an authentic performance measure that reflects the kinds of instructional opportunities afforded in secondary classrooms, as well as providing information about the achievement of students.

The Diagnostic Literacy Assessments have been used in New Zealand schools in the Secondary Literacy Project and in other literacy projects alongside other forms of data, in order to inform teachers and school leaders about the literacy progress and achievement of students at a local and national level. McDonald and Thornley

continued to develop the instrument in their later work with the San Diego Striving Readers' Project (2009). It is an assessment tool that is valued by teachers because it is directly connected to subject content, and therefore teachers are able to see how students apply literacy skills and knowledge in context. The researcher is very familiar with the DLA, having worked as a literacy facilitator in projects that used the tool, and having received professional guidance from McDonald and Thornley in the use of the instrument to measure literacy achievement.

The DLA was constructed using texts from each subject area in the study. A piece of unseen text was selected by the researcher and subject teachers to be typical of the kind of material that students would encounter during year 11 and a series of questions related to the text was constructed.

Students were given a pre-test and post-test using the same question stems but with different texts, in order to analyse any changes that took place in the students' literacy learning over one year. Three categories are used within the DLA – Using Text Features, Reading for Deeper Meaning, and Vocabulary Knowledge. The questions related to Using Text Features required students to make predictions, cross-check and confirm information, draw inferences, identify authorial intent and/or demonstrate an understanding of how text form facilitates reading. In order to demonstrate Reading for Deeper Meaning, students were required to integrate information from various sources in a text, locate main points, develop understanding of main idea, and/or categorise and summarise information. Questions about Vocabulary Knowledge required students to make meaning of unfamiliar vocabulary using context and/or morphology. Appendix 1 contains a sample pre-test from History, and a sample scored result sheet.

Descriptors and exemplars have been developed that enable the researcher to score student responses and measure improvement. The questions in the diagnostic literacy test were divided into three categories. Each question was marked as correct (1 point) or incorrect (0 point), and then summarized for each category. For example, a student undertaking a History DLA consisting of a total of 12 questions might score 3/6 for Text Features, 2/4 for Deep Understanding, and 0/2 for Vocabulary Knowledge. The total score for each student was also recorded. The breakdown of scores for each category

allowed the researcher to analyse where students may have improved their literacy knowledge between tests. Table 3.1 shows sample questions from a History Diagnostic Literacy Assessment.

Table 3.1

*Sample Questions from Year 11 History Diagnostic Literacy Assessment*

<b>Using Text Features</b>	<b>Sample question</b>	<b>Sample responses</b>
Make predictions about readings from headings, sub-headings, tables, diagrams, illustrations, captions etc.	Scan the text. What might this passage called 'The Depression sets off aggressive forces, 1929-1934' be about?	The effects of the Depression, how governments failed to find solutions, the rise of unemployment and the deliberate acts of war that followed.
Use knowledge of text form to identify authorial intent	Why do you think the author has included Cartoon 11 (Doormat) on page 19?	To show that in 1933 Japan was 'walking all over' the League of Nations, treating it like a doormat. The League of Nations had lost credibility when no effective measures were taken to stop it invading China. The cartoon helps the reader to understand the situation.
<b>Reading for Deep Understanding</b> Develop understanding of main idea, locate main points	Reread the paragraph on page 17 that begins with "The great increase in credit..." What is the main idea?	In the USA people feared that debts might not be paid back and so they tried to get their money back, causing the stock market to collapse and businesses went bankrupt. The flow-on effect was that unemployment rose even more and the effects were felt in Europe.
<b>Vocabulary</b> Make meaning in unfamiliar vocabulary using morphology	What does 'rearmament' mean? (page 20, <i>First attempt at anschluss, 1934</i> , paragraph 2). How did you work out the meaning?	Re-equip for war, prepare for war, equip military

(Reference: Bowen, G. 2007. From Peace to War: The Origins of World War II 1919-1941. pp 17-20)

The baseline information obtained from the DLA pre-test assisted the researcher and subject teacher of each class to identify the specific literacy learning needs of the class and of individual students, and to make decisions about teaching instruction and professional learning. The information gathered was directly related to the texts that students would be required to use in their year 11 classes. The assessment was carried

out in each class at two time intervals in order to make comparisons. By using this instrument alongside other data, the researcher was able to gain insight into the effect of developing literacy practices for each year 11 class, and for Māori students in each class.

### **3.6.2 The National Certificate of Educational Achievement (NCEA)**

A sample of NCEA results were used in this study as a relevant measure of academic achievement for students in year 11. NCEA is registered on the New Zealand Qualifications Framework. This means that the New Zealand Qualifications Authority is satisfied that it meets standards for robustness of assessment processes, consistency of standards, rigour of reviews, and relevance to the needs of all sectors of New Zealand society. The NCEA is recognised by employers and used at higher levels as the benchmark for selection by universities and polytechnics.

Throughout the one year period of data collection, students engaged in internal NCEA standards-based assessments in each subject area, and then external assessments during November and December. The results from internal and external assessments provided information about student learning in each subject, as they pertained to this study. NCEA data was used as both formative and summative data, because information gained from the internally assessed standards provided teachers with information from which to adjust their instructional response for each student, and also provided a measure of academic performance. Results from the externally assessed NCEA standards provided a measure of academic performance as summative data only.

Each NCEA achievement standard is assessed against criteria and awarded either Excellence, Merit, Achieved or Not Achieved. In this study, each grade was assigned a number from 0-4 to enable a mean performance to be calculated across internal or external assessments, with 4 equating with Excellence. Therefore a mean score could be calculated, allowing for analysis of results across subjects, school, and mode of assessment.

NCEA allows each school considerable flexibility in the design of courses and standards selected for assessment, therefore it is often difficult to find similar NCEA courses and assessments occurring between schools. In this study, the only similarities occurred in



History, for both external and internal assessments, therefore comparisons have been made between schools for those standards.

The data were analysed alongside the DLA information and contributed to an understanding of the extent to which improved literacy learning practices might result in improved academic outcomes in year 11.

### **3.7 QUALITATIVE DATA COLLECTION**

#### **3.7.1 Classroom Observations**

The use of observation as a research tool has enabled the researcher to gather data directly from naturally occurring situations rather than from secondary sources (Johnson & Onwuegbuzie, 2004) whilst acknowledging that literacy learning cannot be separated from the learner, subject or context in which it occurs.

According to Cohen, Manion and Morrison (2007) the use of observations has the potential to yield more valid and authentic data than would otherwise be the case with inferential methods. Classroom observations enabled the researcher to see exactly what teachers were doing in relation to the use of literacy practices to support learning, which may in some instances differ from what they talked about in an interview situation.

In order to understand those conditions that might support or inhibit the development of effective literacy practices in each subject, the researcher needed to observe classroom practice. Observations were carried out at regular intervals during the year, and led to discussions with each teacher about the literacy practices being employed in each class. This meant that the researcher was able to develop a rich picture of the kinds of literacy issues that arose within each subject and how teachers attempted to resolve those issues.

A semi-structured observation schedule was used by the researcher (Appendix 2) to conduct each classroom observation. The observation schedule contained some indicators of effective literacy practice, but also allowed the researcher to be responsive to the classroom situation, noting down aspects of practice where a focus on specific

literacy learning within the subject context was evident. This type of observation allowed for situations to unfold rather than pre-determining the conditions for effective literacy practice and waiting for them to occur. The opportunity to study dynamic processes is an important component of qualitative methods within a mixed methods design (Johnson & Onwuegbuzie, 2004).

Classroom observations enabled the researcher to observe the response to instruction by students, and to make links between the engagement in professional learning by teachers, any changes in their instructional practice, and the outcomes for students.

### **3.7.2 Interviews**

The use of interviews in this study enabled the participants to discuss their interpretations of the literacy learning environment in which they participated – either as a teacher or as a student. Interviews with teachers and students were used in order to gain a deeper understanding of both the conditions that support or inhibit the development of effective literacy practices in each subject, and the effects of literacy teaching and learning in improving academic outcomes for students. The interviews were constructed rather than naturally occurring events, enabling the researcher to focus on specific questions, therefore interview schedules were developed (Appendix 3).

Semi-structured interviews were held between the researcher and each teacher in the study. A copy of the interview questions was given to each of the teacher participants prior to the interview, enabling them to give some thought to their responses. The interviews took place in a meeting or interview room in each school, allowing privacy to be maintained.

Interviews were also conducted with a sample of students from each year 11 class in order to ascertain their perceptions of the impact of literacy teaching in each subject. During the process of gaining consent to participate in the research, students were asked to indicate if they were also willing to participate in an individual interview with the researcher. From those students who indicated they were willing to participate, a sample of 3 to 4 students per class were interviewed. Māori and Pasifika students were

deliberately selected as part of the sample in order to gain insight into the impact of the literacy teaching and learning they had experienced.

Table 3.2

*Sample Questions from Interview Schedules*

<p><b>Teacher Interview</b></p>	<ul style="list-style-type: none"> <li>• <i>To what extent do you see literacy as part of your regular teaching practice?</i></li> <li>• <i>What do ‘experts’ in your subject area value in terms of using texts? i.e. what do they focus on when reading, what kind of thinking is valued, how do they write about subject content?</i></li> </ul>
<p><b>Student Interview</b></p>	<ul style="list-style-type: none"> <li>• <i>Have you noticed your teacher doing anything different this year to help you with reading and writing in this subject?</i></li> <li>• <i>What do you think is important for other students to know about reading and writing in this subject?</i></li> </ul>

Interviews were also held with the Literacy Leader in each school. The Literacy Leader contributes to literacy professional learning for teachers in each school, and often has the responsibility for the collection and distribution of literacy achievement data for students. The purpose of those interviews was to gain a wider understanding of the environment within each school in which the research took place, including the nature and extent of previous literacy professional learning experiences for teachers.

**3.7.3. Field Notes**

The researcher met with each teacher on an informal basis on several occasions during the year and made records of those interactions. The meetings were flexible and open in nature, allowing the teacher and researcher to discuss issues arising from data analysis, classroom observations, or the progress of individual students or of the class. For

example, a meeting with the History teacher in School 2 focused on the analysis of students' writing samples from a recent class writing task. The researcher and teacher identified the areas of strengths and weaknesses for individual students from the writing samples. This resulted in the teacher addressing the identified students' needs by providing specific feedback and guidance to individual students, or small groups of students, in relation to aspects such as paragraph structure, developing supporting evidence, and making links between ideas.

The meetings were organized to enable the researcher and teacher to build a relationship in which professional learning and collegiality could develop. They allowed the researcher to engage in individual professional learning for the teacher and to gain information in terms of the extent to which the relationship with the researcher had an impact on teacher practice.

### **3.8 PROFESSIONAL LEARNING INTERVENTION**

Over a period of one year, the teachers in this study engaged in professional learning with the researcher in a collaborative manner. The focus group of students for the study was their year 11 class, and teachers were seeking ways in which they could improve students' academic outcomes through the infusion of effective literacy practices in the context of their subject.

#### **3.8.1 Teacher-Researcher Partnership**

The researcher met with each teacher on a regular basis through semi-structured interviews, and informal meetings and discussions. The teacher-researcher partnership was developed through mutual problem-solving in relation to identified student needs, and through a specific focus on effective literacy practice in the context of a subject area.

Following the data analysis from the DLA pre-test, the researcher and teachers identified the specific strengths and needs of their students in year 11 and agreed on specific activities to help address students' literacy skills in context. For example, when a teacher

became aware of low scores in the use of Text Features when reading, the researcher discussed with the teacher how she approached reading in the context of her subject and what she considered to be effective in supporting students when reading. The teacher shared some effective strategies that she used in the classroom, and the researcher modelled some ways in which the teacher might support her students to identify and use text features to enhance meaning from texts through specific questioning and scaffolding students' responses. Teachers were further supported by the researcher to develop instructional responses that focused on identified student needs as they arose, and as they related to the kinds of literacy practices valued in the context of each subject area. This included making explicit connections between texts and tasks, developing independent note-making, making inferences from texts, critically analyzing texts, recognizing main ideas and vocabulary development. Throughout discussions, the researcher was mindful of collaborative problem-solving grounded in the context of each subject area, and developing instructional responses that matched subject learning and individual student needs, rather than suggesting a generic literacy activity.

Observations in classes provided further opportunities for discussion between the teachers and researcher and to engage in professional learning. Following each classroom observation, both parties engaged in discussions that clarified why instructional decisions were made and discussed the observed responses by students in relation to intended outcomes.

Samples of student writing were collected and analysed by the researcher and teachers for formative purposes midway through the year. Each subject area adjusted the writing indicators according to the writing task and requirements of the subject. A sample writing analysis sheet is included in Appendix 5. The data from the writing samples added to the teachers' understanding of their students' literacy needs and influenced their instructional practices accordingly. Throughout the year, the researcher and teacher engaged in discussions about student progress and achievement. As a result of observing in the classroom, and through interviewing some students, the researcher got to know the students, and was therefore able to discuss progress and achievement with the teacher with some knowledge of their individual learning needs.

Alongside the analysis of student achievement data, teachers were provided with relevant readings from research that promoted discussion. The readings generated teacher-researcher discussions in regard to their particular year 11 students, related to the kinds of disciplinary skills and knowledge that are valued within each learning area, and how students learn to value those aspects as they move into the senior school. The teachers responded positively to the readings, often choosing to share them more widely within their departments.

### **3.9 DATA PROCESSING AND ANALYSIS**

The analysis of data in mixed method research can be complex and difficult (Creswell, 2009) due to the range of data collected in different forms. The researcher was required to merge the sources of data in order to gain an understanding of the situation. In this study, data that were gathered through student and/or teacher perceptions were analysed alongside classroom observation data and student achievement data.

#### **3.9.1 Administration**

Following the agreement to take part in the study and the confirmation of consent to participate, a meeting was held with teachers in each school to outline the scope of the study and to negotiate the process for the collection of data.

The teachers met with the researcher to select a relevant text for the DLA and then co-constructed the assessment task. The researcher provided instruction and supporting notes regarding the administration of the test, and then the year 11 students participated in the test during a one hour teaching period, supervised by the classroom teacher. The DLA pre-test was carried out at the beginning of the school year, and the post-test was carried out at the end of year. All tests were marked by the researcher to provide consistency. Data was entered into a database, recording the student response to each item for both tests. Coding was added to identify students by ethnicity. The database was then ‘cleaned’ by removing students with incomplete data sets.

NCEA data is available through the New Zealand Qualification Authority (NZQA) website, with some information available to the public and other information only available to a school. In this study, the school provided permission for the researcher to access their school data, and the teachers provided specific NCEA data to the researcher in relation to their year 11 class. Data for the internally assessed achievement standards was accessed as it became available during the year, and externally assessed data was accessed in the following year after it had been marked through the NZQA marking process. NCEA data was then entered into the database of results.

Classroom observations were carried out at regular intervals over the period of a year. The observations usually occurred twice per school term for each teacher, with a total of eight observations over one year, although this did vary on occasion with additional observations if a teacher requested specific feedback about an aspect of teaching instruction at a particular time.

Interviews with teachers took place mid-way through the year, after there had been an opportunity for a collaborative relationship to be established. Less formal meetings and discussions with teachers occurred on a regular basis, and the researcher took notes of the discussions. Student interviews took place in term 3 of the school year, involving a total of 22 students across two schools.

### **3.9.2 Data Analysis**

The DLA scores were analysed using SPSS (Norusis, 1993) in order compare student results from pre-test to post-test for all participants, and for each subject area. The questions were collated in each category to provide a mean score for Use of Text Features, Reading for Deeper Meaning, and Vocabulary Knowledge. Standard deviation was calculated for pre- and post-tests, and significance of result was ascertained. The students' results in each subject from the pre-test to post-test on the DLA was indicative of shifts in literacy skills and knowledge over a period of one year. The results were also analysed in relation to any shifts from pre-test to post-test for Māori students in the study.

NCEA data was also analysed using SPSS (Norusis, 1993) in order to determine a mean score for internal and external assessments for each subject area. The data were analysed in order to determine any differences in student outcomes by school, and for each subject. NCEA data can also be analysed on the basis of comparing results for a school in a single achievement standard with the national results. This was possible in the subject of History in both schools, where there were no other year 11 classes taking History, and therefore the school results reflect the achievement of the class within the study.

Transcripts of interviews with teachers and students, and the researcher's field notes were analysed using NVivo 9 (QSR, 2010). This tool allowed the researcher to code the transcripts and then search for themes, categories and emerging topics from the data. The researcher then searched the records of classroom observations to add to the emerging picture of the literacy learning environment. The data were reviewed throughout the project, using a grounded theory approach (Charmaz, 2006; Johnson, McGowan & Turner, 2010) whereby the researcher compared newly acquired data with existing data to assist in building a rich picture of the literacy learning environment and to look for links between teacher beliefs, the professional learning intervention, the actions of the teachers, and the impact on students. Analysing the data in this manner allowed for themes to emerge from the context in which they were situated, and to respect and value the voice of the participants, aligned with the theoretical framework of this study.

### **3.10 LIMITATIONS**

Some of the disadvantages of this research design included the open-endedness and diversity of the situation studied, requiring the researcher to be tolerant and open to unpredictable outcomes. With mixed method research, inconsistent results may emerge from quantitative and qualitative sources requiring the researcher to collect additional data or to reconcile the differences. However, by constantly comparing new data with existing data, the researcher was able to build a robust response to the research questions that was based on multiple sources of data.



Naturalistic principles suggest that the complex educational context of a classroom may be unique and therefore the findings may not be generalisable to other contexts. This study worked to overcome this limitation by working in three different learning areas across two schools, enabling the researcher to look for comparisons and differences in a broader context than in a single classroom.

### **3.11 ASSUMPTIONS**

The following assumptions were made in the conduct of this study:

#### **3.11.1 Response to the Diagnostic Literacy Assessment**

Students were reminded before the commencement of the DLA that the assessment was not an NCEA assessment, that the responses given would help the teachers to improve literacy teaching and learning in the class, and that students may benefit from this in their academic outcomes. It was assumed that students would provide responses to the questions that were a true indication of their literacy knowledge and skills.

#### **3.11.2 Interview Responses**

Teachers and students who participated in interviews were given assurance that their responses were to be used for the purposes outlined in the research information only, thus it was assumed that they provided honest and accurate responses to interview questions.

### **3.12 ETHICAL CONSIDERATIONS**

In order to conduct this research, ethical approval was applied for and subsequently ethical clearance was granted by Curtin University Human Ethics Committee.

### **3.12.1 Researcher Presence**

The researcher in this study worked alongside teachers to investigate literacy learning practices. This was part of the researcher's normal role in terms of regularly leading professional learning about adolescent literacy, and so was not seen as an unusual engagement for teachers. The study necessitated the development of a relationship between the teachers and researcher to the extent that interviews, meetings and classroom observations could occur in a natural manner.

### **3.12.2 Classroom Observations**

The presence of the researcher in the classroom to conduct observations may have had an effect on the behaviour of the teacher and students. The issue of reactivity was addressed by the researcher being present in each school over a period of time in order to collect data that truly represented the typical teaching and learning situation, and by a careful representation of the role of the researcher to all participants. The ethical principle that intrusion and inconvenience should be minimized was adhered to by negotiating with each teacher the most convenient times for meetings and classroom observations without disruption to the usual teaching programme.

### **3.12.3 Participant Consent**

In all instances, participants were fully informed about the nature and intent of the research, their rights and responsibilities, and the involvement of the researcher. A copy of participant information is included in Appendix 4. Consent to participate in the study was obtained firstly from the principal in each school, allowing the researcher to work with individual teachers and to have permission to visit classrooms for observation. Consideration was given to the degree of disruption to the teaching and learning programme that teachers might experience, and this was kept to a minimum throughout the study. As the researcher was providing professional learning for the teachers involved, participation in the research was seen as a worthwhile and appropriate use of their time.

Teacher consent was obtained from the six voluntary participants in the study. Teachers and principals were assured that the data collected about students and teachers would remain confidential to the researcher. No individual school, teacher or student would be identified in any reported research or presentations from the study.

Achieving goodwill and cooperation from teachers was important in this study as it took place over a period of time and required a high degree of individual participation in meetings, observations and tracking of student achievement.

Consideration was given to the involvement of the students in this research. All students were provided with participant information and given the opportunity to ask questions of their teacher or the researcher. As Fine and Sandstrom (1988) discuss, even though there is a power differential between adults and adolescents they should be provided with as much information as possible in order to inform them of their rights. The students were given a legitimate opportunity to indicate if they did not want to participate in all or parts of the study. Where students indicated that they would like to participate in an interview with the researcher, written permission was obtained from their parents.

#### **3.12.4 Ethical Issues After Data Collection**

The ethical issues arising during data analysis include the ways in which the data were viewed in relation to the research questions. Whilst the data collected in this study could be used for many purposes, the researcher was mindful of using the data for the purposes outlined in the aims of the research. A focus on the research questions therefore determined the 'lens' through which the data were analysed.

### **3.13 CHAPTER SUMMARY**

The research design, methodology, data collection, analysis, intervention and ethical issues related to this study have been described in this chapter. The research questions form the basis from which the researcher investigated the literacy learning environments

of year 11 students in English, History and Science classes in two New Zealand secondary schools.

Within the complexities of the teaching and learning environment, the researcher sought to investigate literacy learning for students when teachers infuse effective literacy practices in the context of year 11 classes. The methodology outlined in this chapter aligns with the theoretical framework for this study, recognizing that learning is situated in context, and that studying the complex and dynamic environment of the classroom involves interactions between the learner, texts, teacher and subject. This investigation therefore required the use of multiple sources of data within a mixed method approach, in order to gain greater understanding of the literacy learning environment.

## CHAPTER 4

### TEACHER PRACTICE

#### 4.1 INTRODUCTION

This chapter describes the results in relation to teaching instruction, gathered through classroom observations, interviews and meetings with teachers as they relate to two research questions. In particular, the data gathered in relation to teacher practice contributes towards an understanding of the conditions that support or inhibit effective literacy practice in each subject, and how the relationship between the researcher and teacher might have an impact on teacher practice.

The literacy-related issues that teachers encounter with their year 11 students, and the instructional responses that they employ, are described in this chapter. Teacher beliefs and understandings about effective literacy practice are described, as well as the relationship between the researcher and teachers.

#### 4.2 TEACHING INSTRUCTION

##### 4.2.1 Classroom Observations

Throughout the project, classroom observations were conducted by the researcher in order to develop an understanding of the kinds of literacy practices that might lead to improved outcomes for students.

##### *4.2.1.1 Classroom observations: History*

In both of the research schools, there was evidence of History teachers using questioning in order to develop students' understanding of the texts they had read. At the beginning of the project, early in the school year, teacher questioning was directly related to locating information in a single text. As the year progressed, the teachers and researcher

discussed ways of developing students' skills to gather information from multiple sources of information, and to include supporting evidence when they were writing. The students were required to make links to a wide range of information, and also to make links to previous topics studied and texts they had read. This required a shift in teacher questioning in order to develop a deeper level of understanding across multiple sources of information.

As a result of the intervention, the History teachers began using questions in class such as '*How do you know this? What supports your thinking?*' The inclusion of these questions in class discussion reinforced for students the need to provide robust evidence when discussing and writing about history topics, and also acknowledged that students' prior knowledge and experiences were valued and could be brought to new learning contexts, demonstrating a critical literacy approach. Questioning students in this manner also served as a guide and model for other students who might be struggling to read, recall and locate relevant evidence when writing in History.

Another aspect of effective literacy instruction that developed as a result of the intervention was the extent to which History teachers highlighted the connections between text and task requirements. For example, in one class, students were given three investigative questions and then asked to form hypotheses prior to reading. During the reading process, the teacher supported students to make connections back to the task, to locate material relevant to the questions, and to disregard material that was not relevant to the questions. In this instance, students were developing critical literacy skills in that they were beginning to question the text, and were becoming more powerful users of text by determining the extent to which it matched their needs in relation to the task.

The History teachers engaged students in note-making from texts. They perceived note-making to be a skill that was valued in the subject area because it was a means by which students could think about subject content, summarise, and then refer back to notes when revising. Classroom observations, and discussions with teachers, showed that initially note-making was modeled by the teacher with little student independence, however following a period of intervention, observations showed that students were more

independent in their ability to make notes. History teachers were also observed reading to students in class, and allowed time for students to read independently in class time.

The following table summarises the literacy-related teacher practices observed at the start and completion of the project, and the observed responses of students in History after intervention.

Table 4.1

*Summary of Literacy-Related Classroom Observations: History*

	Start of Project	Completion of Project
Teacher Actions	<ul style="list-style-type: none"> <li>• Notes written on the board for students to copy</li> <li>• Asks questions directly related to single text read by students</li> <li>• Models note-making from a text</li> </ul>	<ul style="list-style-type: none"> <li>• Requires students to make predictions about texts</li> <li>• Questions students about location of evidence from text</li> <li>• Models structure of a written response</li> <li>• Poses questions that require deeper thinking beyond text read</li> <li>• Connects text to task requirements</li> <li>• Reviews note-making strategies for individual students</li> </ul>
Student Responses	<ul style="list-style-type: none"> <li>• Writing in response to questions from a text</li> <li>• Copying notes from the board</li> </ul>	<ul style="list-style-type: none"> <li>• Seeking further clarification about requirements of tasks</li> <li>• Identifying location of evidence from printed text</li> <li>• Group discussions focused on task requirements</li> <li>• Attempting independent note-making</li> </ul>

*4.2.1.2 Classroom observations: Science*

Over the period of the project, Science teachers paid attention to the important vocabulary that described the concepts that students were learning. In the latter stages of the project, following a period of intervention, teachers were making more explicit connections to the derivations of key words and how they might be linked to other known words. In one Science class the teacher was observed supporting students to

identify main ideas when reading, and making connections to vocabulary in the classroom. However, students did not experience many opportunities to use new vocabulary through reading or writing before they were introduced to more concepts.

At the beginning of the project, students were engaged in short responses in workbooks, or sentence completion. The teacher and researcher engaged in collaborative problem-solving to investigate the type of writing that was required in science, and how to support students through modelling and co-construction of writing. Later in the year, students were observed writing slightly more detailed paragraphs in order to explain their understanding of content. The instructions for writing these paragraphs were developed to some extent to include ‘description’ and ‘explanation’ as required by the curriculum, and the language that students would encounter in their year 11 external assessments.

Initially, the teachers provided the majority of the notes for the students, and did most of the writing that students then copied from the whiteboard. There was some shift over the year, following the intervention, in that teachers provided scaffolded templates and assisted students towards making their own notes by modeling the note-making process. By the end of the project, students were moving towards more independent note-making and demonstrated some independent writing. The majority of the lessons observed during the year were teacher-led. The following table summarises the literacy-related teacher practices observed at the start and completion of the project, and the observed responses of students in Science.



Table 4.2

*Summary of Literacy-Related Classroom Observations: Science*

Subject: SCIENCE	Start of Project	Completion of Project
Teacher Actions	<ul style="list-style-type: none"> <li>• Introduces key vocabulary at the start of the lesson</li> <li>• Incorporates key vocabulary when explaining practical task</li> <li>• Instructs students to complete worksheet</li> <li>• Notes written on board for students to copy</li> <li>• Instructs students to write a sentence incorporating new vocabulary</li> </ul>	<ul style="list-style-type: none"> <li>• Key vocabulary/concepts emphasized</li> <li>• Discusses morphemes of key words</li> <li>• Instructs students to write some paragraphs containing key words</li> <li>• Incorporates language of the curriculum - 'describe' and 'explain' into classroom tasks</li> <li>• Provides model for student note-making</li> </ul>
Student Responses	<ul style="list-style-type: none"> <li>• Copying notes from the board</li> <li>• Written responses on worksheets</li> <li>• Sentences constructed to explain key concepts</li> </ul>	<ul style="list-style-type: none"> <li>• Paragraph writing to incorporate key vocabulary to explain concepts</li> <li>• Some new vocabulary is reinforced through reading and writing - limited opportunity.</li> <li>• Students constructing own notes within a template</li> </ul>

*4.2.1.3 Classroom observations: English*

At the start of the project, students in both English classes were dependent on their teachers for most of their learning when studying literary texts. The teachers prepared notes for their classes about the texts studied, and the students copied these notes into their workbooks. When class discussions occurred, the teachers made notes for students to copy from the whiteboard. Students were observed to be responding to teacher instruction and asking questions to clarify their understanding of the literary text and of the tasks they were required to complete. The teachers and researcher engaged in collaborative problem-solving about how to develop students' independence, including a move towards more power-sharing in the classroom and acknowledgement of students' strengths and knowledge. This was a very gradual process, supporting students to

develop independent literacy skills through co-construction, support from peers, and independent reading and writing.

Observations undertaken later in the year showed that teachers were modeling tasks and then requiring students to work with greater independence. Students were observed undertaking their own planning for writing, using their own notes, and writing independently in class. There was less dependence on the teacher for some aspects of learning such as reviewing and critiquing written work.

The following table summarises the literacy-related teacher practices observed at the start and completion of the project, and the observed responses of students in English.

Table 4.3

*Summary of Literacy-Related Classroom Observations: English*

Subject: ENGLISH	Start of Project	Completion of Project
Teacher Actions	<ul style="list-style-type: none"> <li>• Provides notes for students about text studied</li> <li>• Instructs students to prepare for speech presentations</li> </ul>	<ul style="list-style-type: none"> <li>• Instructs students on how to use a planning sheet to construct an essay</li> <li>• Models writing an introduction to an essay</li> <li>• Models how to expand writing by adding detail</li> <li>• Questions students about their understanding of text studied</li> </ul>
Student Responses	<ul style="list-style-type: none"> <li>• Copying notes</li> <li>• Respond to direction from teacher</li> <li>• Direct questions to teacher</li> </ul>	<ul style="list-style-type: none"> <li>• Note-making by students supplements teacher-notes</li> <li>• Planning and writing introduction to an essay</li> <li>• Using own notes when writing</li> <li>• Working in pairs to review and critique work</li> </ul>

The observations across all three subject areas show that the year 11 classes began the year with a high level of teacher-led instruction, and that by the end of the year there were indications of greater student independence and power-sharing in the classroom. Whilst it is likely that the maturation of the year 11 students over the period of one year

is a key contributing factor, there were also changes observed in the ways that teachers provided instruction. In part, the changes occurred as teachers learned more about their students and the teacher-learner relationships developed. Furthermore, as teachers engaged in collaborative professional learning with the researcher they were supported to enhance the literacy learning components of instruction as they were situated in each subject context.

#### **4.2.2 Teacher Interviews**

In order to better understand the conditions that support or inhibit the development of effective literacy practices, teacher interviews were conducted. These interviews allowed the researcher to discuss instruction that had been observed in class, particularly in relation to the instructional decisions made by teachers in the context of each subject. Through these interviews, the following themes emerged.

##### *4.2.2.1 Understanding the language demands of the subject*

All of the teachers in this study identified that students encountered vocabulary that was specific to the subject, and that was sometimes challenging and unfamiliar. The teaching of new vocabulary was approached in various ways. One approach, in History, was to introduce the new vocabulary through a variety of activities at the start of a new topic and then create a glossary that students could refer to as the course progressed. In the past, the History teacher had assumed that students would be familiar with the language of the subject, but had realized more recently that she needed to spend more time on the explicit teaching of that vocabulary so that it became familiar to students.

Science teachers recognized that scientific vocabulary is more than just words and definitions. Students in year 11 encountered many new and unfamiliar words linked to their understanding of scientific concepts. In one Science class the teacher used a 'property dictionary' where students defined the new word, gave a written example and provided a visual example. Over the course of the project the Science teachers recognized that students needed multiple opportunities to engage with the vocabulary through oral and written work in order for it to become familiar. One of the Science

teachers made deliberate and regular attempts to extend the opportunities to read and write using scientific terms:

*I planned a series of activities defining the terms, comparing them, using them in a mathematical way as well as in extended pieces of writing and reading. (Science Teacher 1)*

Increasingly, teachers made links to students' prior knowledge when introducing new vocabulary by using morphology and linking to other words that students knew, or by using their understanding of other concepts to make links to new learning. Not surprisingly, the English teachers were most familiar with the teaching of new vocabulary, however Science was the subject area where students encountered most new vocabulary.

Teachers also recognized that students encountered challenges when reading the material that was required in year 11. In some instances the teachers said that they provided a high level of teacher support for reading, knowing that the students' current reading skills did not match the reading demands of the required texts. Texts included print and digital texts, oral texts and visual texts. The researcher worked collaboratively with teachers to develop an understanding of the specific reading demands in each subject area and then to identify ways in which the teachers could support students to independently access the content they required when faced with a challenging text. As the project progressed, the teachers paid attention to guiding students through challenging reading tasks, mostly in History and English classes. The guidance they provided included previewing the text in order to recognise text features such as layout, structure, graphics and fonts, and to make predictions about their reading. After the skills had been practised a number of times, teachers noticed that the students began to develop the ability to preview texts independently, as noted:

*If you give them a text now they will have a good look over it...they'll pick up how it works. There is a curiosity about what is to come. (History Teacher 1)*

Furthermore, demonstrating a critical literacy perspective, History and English teachers increasingly engaged students in discussions around the function and purpose of texts,

how texts were constructed, and the perspectives that were conveyed in texts. In the following example, the History teacher had provided students with a range of texts about black civil rights in the U.S.A.

*They are identifying bias...and getting a sense of audience. When they examine three different texts on the same issue, they can see how the perspective changes.*  
(History Teacher 2).

By engaging students in this type of discussion around texts, the History teacher was supporting students to move beyond a literal interpretation of information in texts and move towards an understanding of the social, political and economic perspectives from which they were written (Freire, 1970; Luke, 2004), and thereby becoming more active and powerful users of texts.

One of the science teachers however strongly believed that there was a store of content knowledge that students needed to know and understand before they could contribute in a meaningful way to the co-construction of new learning, and that the students in year 11 needed to learn that content knowledge in a teacher-led manner. Science teachers felt the pressure to cover a number of topics throughout the year, and perceived that the most efficient way to do that was through ‘showing and telling’ the students rather than engage in more time-consuming activities such as reading, discussing, and writing in any depth.

#### *4.2.2.2 Knowledge of students’ literacy skills*

At the start of the project all of the teachers were able to identify that some students were having difficulty with the literacy demands of the subject, but did not necessarily know the nature of those difficulties, or how they could assist the students. The use of the diagnostic literacy assessment in each class, as well as a critique of students’ writing, enabled the teachers to increase their understanding of the students’ literacy skills. The diagnostic literacy assessment provided teachers with an understanding of the students’ skills when reading unfamiliar texts. The critique of students’ writing samples, completed with the researcher’s assistance, enabled teachers to identify issues around writing for individuals or groups of students. Teachers also gained knowledge of

students' literacy skills by asking them about the kinds of literacy strategies they would use independently, and where they experienced success both in and out of school:

*I have spent more time finding out about where the students are at and what the gaps are in their literacy learning. I have changed my expectations for some students, and where they need to be by the end of the year. (English Teacher 2)*

This example demonstrates a willingness by the teacher to engage in relationship development with the students, and to respect the knowledge that students bring to the learning situation. As within a critical literacy framework, the voice of the student is being heard. The teacher's change in expectation for some students was a result of finding out about their previous academic successes and some of their out-of-school successes. Having a deeper understanding of the students and their learning strengths and needs enabled teachers to adjust their teaching practice accordingly.

#### *4.2.2.3 Developing critical literacy skills*

Teachers believed that developing the critical literacy skills of students is an essential component of teaching in each subject area, and approached the development of critical literacy in a variety of ways and to greater and lesser extents, according to subject area.

The History teachers believed that effective questioning by the teacher and by the students themselves was an important element in engaging with and understanding content, and developing critical literacy skills. The teachers questioned students about their reading and their understanding of ideas in class, and then supported the students to formulate their own questioning of a text. One teacher described how she engaged students in thinking about History topics:

*It's questioning about a topic...and getting the students to formulate questions about what might happen next. I'm trying to develop a curiosity about where the topic is going so that the students are thinking about the possible outcomes. (History Teacher 1)*

In the example outlined above, the teacher was supporting students to hypothesise, and was demonstrating an openness to the students' responses in that there may be several

possible outcomes that they could suggest. In so doing, she was sharing power in the classroom and allowing the student voice to be acknowledged.

As outlined previously in this chapter, another History teacher engaged students in thinking about authorial intent within texts. He chose a range of texts and asked students to examine the perspectives from which they were written, identifying authorial intent. Students were then able to compare the texts on the basis of perspectives, and they began to develop an appreciation of the ways in which texts are socially, politically and economically constructed (Freire, 1970). The teacher reported that this approach improved the students' abilities to critically view or read other texts such as cartoons, and that it enabled students to develop the skills needed for success at the higher levels of NCEA.

*Some students saw each text as discrete, but most were able to go to the final piece and say 'It must be different for this reason...It must be different because it has a different target audience' or 'This author is more on his side'. I want to do that again in the next topic. It opens up Merit and Excellence for year 11 students. I can say they have some historical skills.* (History Teacher 2)

In English, students are required to formulate a personal response to texts, infer meaning from texts, and make connections between texts. The English teachers provided students with many opportunities for group or class discussions. They believed that students were supported to develop critical literacy skills by hearing the thoughts and opinions of each other in order to develop their own thinking about the texts and topics studied in class.

The Science teachers in this study also used questioning techniques in order to develop understanding of scientific concepts. This was usually teacher-led questioning with the whole class and there were few opportunities for students for students to question or discuss concepts in smaller groups. Science students at year 11 are required to relate a practical task or observation to an abstract concept. The students needed to be able to visualize a process or concept and relate that to what they observed. The Science

teachers used diagrams and models to support students' thinking about abstract concepts.

*I think Science requires visualization – students need to recall the practicals and interpret diagrams and models. There's a lot of questioning about what is going on. (Science Teacher 2)*

In this example the Science teacher is referring to teacher-led questioning of the whole class, in order to interpret the teacher's diagram or model of an important concept. In other instances the students were required to interpret diagrams from texts, however they did not seem to be offered many opportunities to construct their own diagrams and models, or co-construct with other students, which would have acknowledged students' skills and may have contributed towards deeper understanding of concepts (Luke, 2004).

#### *4.2.2.4 Developing independence*

Teachers in this study spoke frequently of the desire to develop students' independence in areas such as reading, researching, note-making and writing. At times, students demonstrated independent literacy skills, and at other times teachers expressed a degree of frustration at the students' lack of independence. Most teachers recognized that they needed to make some deliberate instructional decisions about helping students to develop independent skills.

*I'd like to see these students going on to year 12 in which case they are going to have to know how to write essays independently – it's important that they start doing that by themselves and next time they won't have as much of my time and support. There will be groups of students who will need reminding of the basic structure... but some of them will take up the challenge of doing it by themselves. (English Teacher 1)*

At the start of the project, all teachers were providing notes for students about the topics studied. Students sometimes copied the notes from the whiteboard or from teacher-prepared worksheets. During interviews with the facilitator, some teachers expressed concern that if they did not provide the students with notes, then the students would not



have sufficient content to refer back to when studying. They also acknowledged however, that there was likely to be less understanding of the content when students copied notes made by the teacher, and that it was desirable to have students making their own notes:

*The thing I'm not very good at is getting them to make their own notes. They are too dependent on me to provide notes in class but what I try to do – which is better than it used to be – is have a lot more discussion and talk around those notes before they are given but that is one area I want to address. (History Teacher 1)*

During the project, the researcher and teachers discussed ways of developing students' independence in tasks such as reading, note-making, and writing through teacher-modelling, then co-constructing with students, and gradually moving towards student independence. Over the course of one year, teachers gradually reduced their level of teacher-led instruction, particularly in History and English. Towards the end of the year teachers noticed that a number of students were more independent, however they were not consistent in all areas – at times students were falling back into teacher dependence when reading, note-making or writing.

As observed in this study, the classroom instruction at the start of the year was dominated by teacher-led decision making, a lot of the resources were prepared by the teachers, and students were fairly passive learners in each context. Teachers believed that they needed to instruct in this way because they thought that the students did not have the independent skills to operate differently, and they felt that the students would be disadvantaged if they were not presented with the subject content. The teachers described this happening because they wanted to 'cover content' within a time constraint, or that they wanted to take control of the learning situation.

However, the teachers wanted the students to become more independent, and by taking a more critical and power-sharing approach to instruction from the start of the year, students may have demonstrated greater independence.

#### 4.2.2.5 Deepening connections with texts

During interviews with the researcher, teachers identified that their students were not always using written and visual texts to the extent that might provide them with a deep understanding of subject content. English and History teachers were concerned that their students were not confident in their ability to use evidence from a range of texts to support their ideas when writing:

*They can generally put the story down but providing supporting evidence and having sufficient information is an issue for some students. Adding detail and depth is what is required...they need to think more deeply about it and consider the implications. (History Teacher 1)*

In response to this identified need, the History teacher modelled for students how to locate relevant evidence from texts in response to an identified task, which involved recording specific pieces of information in a template. The teacher also modelled how to use the recorded pieces of information and develop them into a structured piece of writing. This was usually followed by requiring the students to undertake a similar task independently, although sometimes she also allowed time for students to work in groups to discuss the topic and to develop their writing cooperatively, thus sharing and respecting the expertise of other students in the class.

Another History teacher described deepening connections to texts as:

*...finding answers to questions about the past from a range of sources instead of just one ... You should be able to see that there is more than one answer.*

(History Teacher 2)

This teacher had identified an issue about students being able to gather information from multiple sources and to bring that information together by making connections and synthesizing across texts. The response to this issue was also to provide extensive modelling for the students from a range of texts, and to develop specific questions that prompted the students to explore the range of ways in which texts were constructed from social, political and economic perspectives (Freire, 1970).

Asking students to identify the location of supporting material in a text provided a model for other students in the class and deepen their connections with texts. In one English class for example, the teacher asked the more confident students to identify for the rest of the class where they had located supporting evidence:

*I do like the question 'And how do you know?' that I've been using this year*

(English Teacher 1)

In some cases, teachers provided multiple opportunities for students to engage in discussion, reading and writing about key ideas and important subject content. For example, in both English classes there was more time spent on the study of a novel than other topics, allowing students to engage in group and class discussions, short and longer pieces of writing, alongside the reading of the text. The students in these classes demonstrated more successful outcomes in external assessment of the novel than on other topics.

In one school, the outcome of spending more time on fewer topics has had an effect on the design of the course for future students and the time spent on developing a deeper understanding of topics, rather than trying to cover too many topics in one course. The teacher described herself as now being more strategic in terms of course design and instruction to actively engage students.

*I'm thinking more about going deeper into texts and being strategic about building students' literacy skills. I want to enable students to make connections across texts and develop skills using different media. These ideas have implications for what an English course will look like. (English Teacher 2)*

Science teachers expressed concern that students were not using the appropriate scientific terminology when writing and that they needed to make connections to their supporting texts. The Science teachers generally required students to read material related to the topic both inside and outside of class time, relate that reading to the classroom instruction, and then write about the topic. Both Science teachers used diagrams and models to explain ideas and to develop a deeper understanding of scientific concepts.

The following table summarises the literacy-related issues that emerged from the interviews and the instructional practices that teachers described, and/or were observed using, in response to those issues at year 11.

Table 4.4

*Literacy-Related Issues Identified by Teachers in History, Science and English, and Their Instructional Responses*

<b>Literacy-related issues</b>	<b>Instructional response</b>
<p><b>Understanding the language demands of the subject</b> Responding to the academic and subject-specific language demands that students encounter.</p>	<p><i>Vocabulary problem-solving</i> <i>Reading strategies</i></p>
<p><b>Knowledge of students literacy skills</b> Awareness of the literacy skills and knowledge of students in the context of each subject.</p>	<p><i>Talking with students about literacy strategies they use, using prior knowledge</i> <i>Critiquing writing samples</i> <i>Discussing construction of texts</i></p>
<p><b>Critical Literacy skills</b> Developing critical literacy skills that may include an understanding of authorial intent, perspectives, audience, purpose, connectivity to self and others, relationship with other concepts and topics.</p>	<p><i>Questioning Techniques</i> <i>Using Comparative texts</i> <i>Examining perspectives in texts</i></p>
<p><b>Developing Independence</b> Development of independent reading of a wide range of content-related texts; independent research skills including selective note-making according to purpose; independent writing in relation to content.</p>	<p><i>Modeling strategies for reading, researching and writing</i> <i>Scaffolding students towards independence</i> <i>Gradual withdrawal of teacher support</i></p>
<p><b>Deepening Connections with texts</b> Moving beyond a literal interpretation of texts towards a deeper understanding of the concepts involved. Developing skills of referring back to texts and using texts effectively to meet curriculum requirements.</p>	<p><i>Questioning techniques</i> <i>Modeling and scaffolding how to extract relevant information from texts</i> <i>Using multiple text sources</i> <i>Providing multiple opportunities to engage with key ideas – through discussions, reading and writing</i></p>

## **4.3 TEACHER BELIEFS AND UNDERSTANDINGS ABOUT LITERACY**

### **4.3.1 Disciplinary Literacy**

Throughout the project, the researcher sought to gain an insight into the teachers' beliefs and understandings about literacy in the context of each subject area. Whilst secondary school teaching is not strictly divided up into 'disciplines' there are connections from each subject to the wider context of a discipline. The ways in which teachers think about the subject, what knowledge is valued in the subject area, and the kinds of literacy practices associated with a subject area can be viewed as belonging to a particular discipline (Moje, 2008a), and when students learn how that knowledge is created in a subject area, they become more powerful users of that knowledge. Through teacher interviews and meetings, the researcher recorded teacher beliefs regarding the kinds of literacy practices that are valued and practised in each subject area.

#### *4.3.1.1 English teachers beliefs and understandings about literacy*

English teachers in this study valued the students' ability to respond personally to literature. Personal response included the students' interpretation of a text, the relevance of the text to themselves or to others, and their response to the ways in which the text had been written. The literacy skills and knowledge that English teachers regarded as important to developing a personal response were the use of comprehension strategies, recognizing and evaluating the author's purpose, recognizing and evaluating author's decisions about characters, plot and themes, and developing a vocabulary that enabled students to write about their personal response.

*The beauty of English is that it allows you to put your own stamp on it ...your own interpretation of a text. Having literacy skills in English allows you to read and communicate your ideas. (English Teacher 2)*

English teachers aligned with a critical literacy perspective by wanting their students to know that 'language has purpose'- that writers make deliberate choices about the language they use for specific purposes, and that texts have been crafted and constructed for a particular audience. In year 11, students build on their knowledge of text types and text forms, and the language choices that writers have made in the literary texts studied

throughout the year. Teachers described their students' understanding of this concept as 'tentative'. Students were often able to identify a language feature, for example, use of metaphor, but they often struggled to effectively describe why the writer had used that feature, or why a writer may have chosen a particular theme.

The writing conventions used in English have similarities to the writing conventions of other subjects, but there are also some distinct differences. The English teachers believed that the similarities included the students developing skills of writing logically and succinctly, and including evidence in support of their ideas. The teachers also believed that some year 11 students struggled to distinguish between the requirements for writing in different subject areas.

*A lot of our kids go from one subject to another and hold onto the ideas they have about reading and writing, and they try to use them in another context and that does not always work. They might try to write personal opinion in a Science report, and whilst English might encourage personal response, that's not what Science want. Or we might get an essay in English written with bullet points. That's not usually what we want in English. (English Teacher 1)*

English teachers valued developing students' ability to seek meaning from texts. They described using a number of different activities in order to develop their students' comprehension skills when reading. The teachers wanted their students to be able to recognize the main or important ideas in a text, be able to infer meaning, and to find connections between texts.

English teachers also valued the role they played in developing students' literacy skills in order to meet the daily reading, writing and speaking skills expected by society. The English teachers in both schools regularly monitored and discussed the progress of their year 11 students towards meeting the NCEA Level One literacy requirements, which at the time of this study was predominantly the domain of English teachers only. The English teachers provided extra support to those students at risk of not meeting the requirements. The literacy requirement is regarded as fundamental to ongoing learning and to meeting societal expectations.

Table 4.5

*Literacy-Related Understandings and Practices Valued by Teachers of English at Year 11*

Personal response to text	Readers have their own personal interpretation when reading text. Personal response is valued. Personal response influences the reader's understandings of the text.
Language has purpose	Writers make choices about language use for specific purposes.
Writing conventions	Writing in English has particular conventions that may be similar or may differ at times from other subjects.
Seeking meaning from text	Seeking meaning requires the development of comprehension skills, developing inference, analyzing and synthesizing texts, and making connections between texts.
Communication skills are fundamental living skills	Developing reading, writing and speaking skills underpins the ability to function successfully in society.

*4.3.1.2 History teachers beliefs and understandings about literacy*

History teachers in this study valued the development of a sense of inquiry by students. The teachers believed that developing this sense of inquiry was valued by historians, and was a motivating factor for students to want to know more about the topics studied. The literacy skills that students needed to develop included the ability to ask questions from what they had read, heard or viewed. The teachers recognized that year 11 students were at the very early stages of developing inquiry skills in History.

The teachers believed that historians valued being able to understand historical relationships. At year 11, the relationships were likely to include cause and effect – for example, understanding the sequence of events that led to a major event such as war between countries. Investigating the relationship between past and present might enable a historian to also see how events from the past shaped the present or might influence the future. History teachers also described the importance of understanding interpersonal relationships between people such as important leaders. As one teacher described:

*...you can't just say this happened, and then this happened. You need to know the links between the stories – the relationships between people... such as between Hitler and Chamberlain. (History Teacher 1)*

Understanding historical relationships requires the students to develop skills in recognizing the links between events, people, and actions through reading, viewing, and listening to historical information. The students then need to be able to explain the relationships orally, or in writing, using appropriate language. The teachers believed that their students found the most challenging aspect to be that of understanding the 'effects' of certain actions in History.

Research skills are valued by historians. The History teachers believed that most students entered year 11 with some research skills, and that it was a matter of developing those skills to a higher level. In year 11, the students were required to demonstrate their research skills in an internal assessment that involved identifying sources, selecting and organizing evidence, and making evaluative comments. At this year level, students were beginning to make links between sources of information.

The History teachers identified that the reading demands were significant for year 11 History students when compared to the reading requirements for other year 11 subjects. Students were required to read from a wide range of sources and to analyse, synthesize and evaluate information. In both schools, History teachers valued the ongoing development of reading skills. The teachers read to the students at various times, and provided class time for the students to read independently, and to discuss their reading.

Critical literacy skills were valued and identified as important when studying History. The History teachers identified that in year 11, students were required to analyse texts from different viewpoints, to detect bias, and to describe the various perspectives around an issue or event, thus beginning to question the social, political and economic construction of texts. The teachers believed that this was often a challenge for year 11 students, particularly when the students were required to analyse the viewpoints in cartoons, however they supported students to develop these skills over the year. One of



the History teachers described how he was approaching the development of critical literacy skills:

*For the next research topic the students will develop an idea, then make a field trip and see if their perspective changes, then they will look closely at a newspaper article and again check to see if perspective changes. This is getting the students to examine perspectives and think historically.’ (History Teacher 2)*

The following table summarises the literacy-related understandings and practices valued by teachers of History:

Table 4.6

*Literacy-Related Understandings and Practices Valued by Teachers of History at Year 11*

A sense of inquiry	Asking questions, developing a curiosity about the past
Understanding historical relationships	Identifying and explaining cause and effect, past and present links, interpersonal relationships
Research skills	Conducting historical research and communicating findings
Reading Skills	Identifying main ideas, analyzing and synthesizing information from a range of sources.
Critical Literacy	Recognising different viewpoints, recognizing bias, question the construction of texts.

#### *4.3.1.3 Science teachers beliefs and understandings about literacy*

Science teachers in this study valued the development of inquiry by students that included questioning, describing and problem-solving. They identified that students needed to make connections between their prior knowledge, observations and practical experiments, and that they needed to describe processes and events and ask questions in order to deepen their understanding of scientific ideas. It is interesting to note however,

that in the year 11 science classes most of the instruction that was observed was teacher-led, with few opportunities for students to engage in activities that would support questioning and problem-solving such as discussion and collaboration with peers. One of the Science teachers strongly believed that there was a store of content knowledge that students needed to know and understand before they could contribute in a meaningful way to the co-construction of new learning, and that the students in year 11 needed to learn that content knowledge in a teacher-led manner.

*There's pressure to cover the topics during the year...I can't give them a lot of time on reading in class or we'd never get through it all. There's a lot of content that's new to them...and they need to know it, so I have to present it.*  
(Science teacher 1).

The most frequently discussed topic during interviews and meetings with the Science teachers was the students' ability to explain scientific processes and concepts using the appropriate scientific vocabulary, as described by this teacher:

*I'd be looking for them being able to explain things they should be able to pick up the Science idea that is being talked about and then elaborate.* (Science Teacher 2)

The teachers believed that writing scientific explanations was a challenge for a number of students who tended to use 'everyday language' rather than the correct scientific terms. The teachers also identified the confusion that students experienced when they brought their understanding of key vocabulary in everyday usage into the science classroom. For example, students often did not make connections to the scientific definitions of 'mass' and 'weight', but rather associated these terms with their common usage. In response to the identified challenges that students face when writing explanations, the Science teachers began using the language of explanation in short writing tasks to build students' skills, with some improvements shown in students' subsequent writing tasks.

The Science teachers believed that the ability to visualize assisted the students in being able to make sense of scientific concepts, and therefore assisted the students when they

were required to explain concepts in writing. The teachers assisted students to visualize by creating graphic representations of concepts for students to copy. Students were also required to understand and explain diagrams that they were presented within textbooks, workbooks, and in exam situations, however in some cases the teachers felt that students struggled to make connections between visual representations and writing.

*I think there needs to be a lot more work done in years 9 and 10 about connecting ideas from multiple sources of information. In year 11, I still have students experiencing difficulty relating text and graphics.* (Science Teacher 1)

Science teachers valued the students' ability to write in a factual and accurate manner, supporting their ideas with relevant evidence and explanation. Features of scientific writing at this level included the use of clear statements, accurate use of scientific vocabulary, an explanation of the concept or process, and the use of supporting evidence. Students were not required to write longer essays in most cases; their writing was required to be succinct and relevant. As students moved through to the senior levels of secondary school, their writing was expected to be more convincing, using relevant evidence. The following table summarises the literacy-related understandings and practices valued by teachers of Science.

Table 4.7

*Literacy-Related Understandings and Practices Valued by Teachers of Science at Year 11*

Developing scientific inquiry	Includes questioning, problem-solving, describing
Explaining Scientific concepts	Understanding and explaining scientific concepts using appropriate vocabulary.
Visualizing abstract concepts	Creating mental images of scientific concepts, visualizing what is happening.
Interpreting diagrams	Understanding and explaining diagrams.
Using facts and evidence when writing	Writing is accurate and supported with relevant explanation and evidence.
Structuring writing	Writing is organized, structured and logical.

#### 4.4 LITERACY AND MĀORI LEARNERS

Teachers were asked to describe the learning conditions in their classes where they believed Māori students' literacy achievements were supported and developed. Three themes emerged:

- Making connections to the students' prior knowledge and experiences
- The relationship between the teacher and students
- The opportunities in class for interaction between students

A consistent theme that emerged from the teacher interviews, meetings and discussions was the belief that by making connections to students' prior knowledge and experiences the students were more engaged in learning and more likely to develop their literacy skills and knowledge. The benefits of making connections to students' prior knowledge are well documented in research (Anderson, Spiro & Montague 1984; Moje, 2002; Fisher, Grant & Frey, 2009). Whilst there are benefits to all students, the teachers in this study believed that connecting to the knowledge and real life experiences of Māori students was important to their engagement and learning in class. Although teachers talked about working on making connections to students' prior knowledge during the year, there were no occasions when this was observed by the researcher. One teacher did describe how she offered the opportunity:

*When I give a task or we have a new topic, the students need to be able to relate it to their own world, so if you allow them to do that they are more willing to give it a go just because they know about it, they are familiar with it and feel like they have some expertise on it. (English Teacher 1)*

The example above outlines some degree of critical pedagogy in that the teacher has recognized the need to value the expertise that students bring to the learning situation from their own experiences. However, the teacher could move towards greater power-sharing through student choice and ownership of tasks and topics.

As identified by Bishop and Berryman et al. (2003), and Macfarlane (2004), the relationship between the teacher and students is a key factor to improving outcomes for

Māori students. The Te Kotahitanga project findings (Hynds et.al, 2011) emphasized the importance of holding high expectations for Māori learners and that effective relationships between the teacher and Māori students involved the teacher caring about the students' academic outcomes. When teachers in this study talked about their relationship with Māori students, they talked about a 'desirable' relationship as one they were working towards but that it did not always eventuate with every student.

The nature of the relationship that teachers believed desirable is one where students felt comfortable in approaching the teacher for assistance, and where the students were willing to ask questions when they did not understand. This definition suggests some elements of 'care for learning' in attempting to create a classroom climate whereby students could comfortably seek assistance when needed, however it also suggests that teachers have placed the onus more on the student, than on developing a reciprocal relationship.

Bishop and Berryman (2010) argue that a necessary condition for improving Māori students' engagement and achievement is through teachers' rejection of deficit theorizing. In this study, teachers did not attribute low achievement of Māori to any particular 'deficit', or use deficit language when speaking about Māori students, however, neither were they highly 'agentic' in their approach to improving outcomes for Māori. In most classes, there were few opportunities afforded to Māori students that recognized and affirmed Māori perspectives, knowledge and language, and whilst the teachers displayed a genuine care for the progress and achievement of their Māori students, this was mostly towards helping Māori students to 'fit into' the existing dominant school culture. The challenge remains of developing truly reciprocal teacher-student relationships and power-sharing in the classroom.

In terms of developing student-student relationships, some teachers believed that providing opportunities for students to work in groups was preferred by Māori students and that working in groups resulted in improved literacy outcomes for students. This belief was not always supported by the Māori students themselves, or actually evident in the teachers' practice observed in class. Some teachers commented on the difficulty they felt in managing group work in class and that they could not be sure that learning was

happening when they did use groups. Other teachers were more confident in using group work for learning and operated a structured learning environment where students operated in groups and could discuss their learning.

This study shows that whilst there were some tentative understandings by the teachers about what might constitute effective learning and literacy practice for Māori students, these understandings had not yet transferred into regular classroom practice.

#### **4.5 TEACHER-RESEARCHER RELATIONSHIP**

This study examined the relationship between the teachers and the researcher in order to determine factors that might have an impact on teacher practice. Teacher interviews, meetings and the researcher's field notes indicated that the following factors were influential in the decisions that teachers made regarding their classroom literacy practices:

- Voluntary participation
- Previous contact with the researcher
- Subject-specific relevance of the project
- Exploratory focus
- Opportunity for reflection
- Match to teachers' professional learning needs
- Impact on student achievement

Teachers volunteered to be part of this study and were therefore willing to participate. Their participation included a willingness to share the achievement data for their students, to reflect on their teaching practice, and to co-construct and trial literacy practices in their classrooms. Volunteering to be part of the study coincided with a desire to improve the literacy outcomes for students, and therefore had an impact on the teaching decisions they made.

The researcher had worked in both of these schools on previous occasions and was known to all of the participants. As a result of previous interactions, the researcher was

able to establish a working relationship with the participants at an early stage of the project. The researcher and teachers were then able to work collaboratively on a problem-solving approach to the literacy issues emerging in each classroom, in an environment of mutual trust.

The subject-specific literacy context of the project appealed to the teachers in this study as they could see the relevance of the professional learning to their everyday teaching practice in Science, History and English. Both of the schools had previously participated in cross-curricular literacy professional learning, however the teachers commented that taking an approach that focused on literacy from *within* the subject was more relevant to their needs and more likely to result in them changing their teaching practice.

*One of the reasons I came on board with the research was because it was subject specific. People (in the faculty) are asking what we are doing...I would like to share with them what I have learned.* (Science Teacher 2)

The approach taken by the researcher was one of collaborative inquiry into effective literacy practice in the classroom. The emphasis on inquiry and investigation allowed the researcher to observe and question teachers about their practice without a predetermined set of expectations about literacy practice in context. The teachers in this study were generally supportive of the approach taken by the researcher, although on occasions they sought a ‘magic bullet’ answer from the researcher to the identified literacy issues in their classes.

The teachers reported that they appreciated the opportunity to meet with the researcher to reflect on their practice and to discuss the progress of their students. In a busy teaching programme there were very few opportunities for teachers to spend time reviewing their teaching approaches on an individual basis. Meetings with the researcher often resulted in the teacher deciding to take some action for individual students, groups of students or for the whole class. In some instances, the teacher-researcher discussions led to the sharing of ideas with colleagues in the same department or for whom the teacher was directly responsible.

The teachers also commented on the relevance of the professional learning to their own needs. Several teachers in the study commented that they had a general background in adolescent literacy but that they were unsure how to meet students' literacy needs specifically in the context of their subject area. Their literacy professional learning needs were grounded in the daily challenges that students bring, and therefore they acknowledged the need for developing practical classroom strategies based on the analysis of students' literacy needs.

*I've been working on developing deep understanding from texts. Note-making has been differentiated as some students needed more or less support. Some students need questions supplied to prompt their thinking, others can make notes independently.* (History Teacher 2)

The relationship between the teachers and the researcher was also enhanced when the teachers could see early results from their interactions with the researcher. For example, the collaborative analysis of students' writing samples resulted in some teachers making changes to their practice such as revisiting aspects of students writing with the whole class, or working with groups of students to address specific issues. These actions resulted in improvements in students' writing on their next task, which encouraged further participation by the teachers in the project. In the following quote, the teacher had worked on using the language of assessment in shorter classroom tasks to develop more appropriate written responses from students:

*The difference it has made to their writing...I don't know whether or not to get carried away but at the moment I am, honestly I am.* (Science Teacher 2)

Whilst at times the teachers looked to the researcher for the 'solutions' to identified student literacy needs, they did engage in the teacher-researcher partnership because they could see it as an equal partnership. The teachers brought subject expertise into the collaboration, and they recognized the mutual benefits of the partnership alongside the researcher. As a result of the collaboration, teachers have developed their understanding of adolescent literacy and have changed some of their classroom practices in order to effect student outcomes.



## **4.6 CHAPTER SUMMARY**

This chapter has described the results of classroom observations, interviews and meetings with teachers in relation to the conditions that may lead to improving literacy practice in the context of three year 11 subject areas. The classroom observations indicate shifts in teacher practice over a period of one year. Teachers have identified literacy-related issues in the context of each subject area and described their instructional responses.

Meetings and interviews with the teachers in this study have enabled the researcher to describe the teachers' beliefs about literacy practices that enable students to engage with and develop an understanding of subject content. Their beliefs and understandings about literacy shape the kinds of instruction that occurs in each class. The teachers' beliefs about effective literacy learning for Māori students have been described, and linked to the findings from the Te Kotahitanga project. The relationship between the teachers and the researcher and the effect that this may have had on teachers' instructional decisions is described.

## **CHAPTER 5**

### **STUDENT RESPONSE**

#### **5.1 INTRODUCTION**

During this project, semi-structured individual interviews were conducted by the researcher with 3 or 4 students from each class. The purpose of the interview was to gather information about how the students might use literacy practices effectively to improve their subject knowledge at year 11, and to understand the students' perceptions of the impact of literacy teaching in each subject. This chapter summarizes the students' descriptions of how they use literacy practices in the context of their learning areas, the students' perceptions of the literacy demands in year 11, and the teacher actions that the students believe have supported them to learn effectively.

The data from this chapter contributes specifically towards addressing the research question: '*How do students perceive the impact of literacy teaching in each subject?*' and contributes to an understanding of the conditions that support or inhibit the development of effective literacy practice in each subject.

#### **5.2 STUDENT USE OF LITERACY PRACTICES IN CONTEXT**

##### **5.2.1 Reading**

The students who participated in interviews recognized that reading text in year 11 required more effort and concentration than in previous years, and explained to the researcher that written text at this level was sometimes challenging to understand. The effort and concentration applied when reading a text was mediated by the extent to which the students understood the purpose for reading. Knowing why they were reading a text helped the students to focus on the reading task, to concentrate on parts of the text

that were relevant to the task, and to pay less attention to parts of the text that were not relevant to the purpose for reading. Students also felt reassured that they were correctly following the teachers' instructions when they were clear about the purpose for reading.

*I need to know why I am reading...otherwise I can drift off and get lost when there is a lot to read. (Student 1, History)*

*It's hard to work out what the main bits are when you have all of that in front of you and you're not sure what you need to look for. (Student 2, History)*

Students who felt less confident about their reading ability sought further guidance from the teacher, beyond knowing the purpose for reading. For example, sometimes teachers provided a set of guiding questions for students to follow when reading a text and this practice supported the students to read texts that they found challenging.

*Sometimes she gives us questions we have to answer... that's good. I know what to do then. I can only answer the easy questions though. (Student 3, English)*

In some instances, students identified that the subjects they studied had different literacy and cognitive demands and they were able to adjust their response to texts accordingly. In the following example, the student recognizes that the reading material he encounters in Science is often densely written, containing a lot of detail about scientific concepts, and therefore he has to concentrate on the precise reading of each sentence. In English however, he is able to read (fiction) in a seemingly more relaxed manner.

*When I read in Science it's like memorizing, because each sentence is just full of information...reading in English is like reading for pleasure and you are just going with the story. (Student 12, Science)*

### **5.2.2 Vocabulary**

The students were asked to describe what they would do if they encountered unfamiliar vocabulary when reading. Most students described a high degree of dependence on the teacher and on other students when dealing with unfamiliar text. During the interviews, very few students were able to describe independent strategies for dealing with unknown

words. In most instances, the student's response was to ask another student, ask the teacher to define the new vocabulary, or ignore the unknown word(s). Two students described using context clues in order to solve new vocabulary, one student referred to using a dictionary or glossary if there was one; none of the students described using morphemic knowledge.

*I ask the person next to me...or just ask the teacher. (Student 4, English)*

*If I'm not sure what it means I usually go by what is in the context – I carry on reading and if I still don't get it I'll come back to it. I'll have a meaning of it in my head – whether it's right or wrong, and go with that. (Student 5, Science).*

Science students frequently encounter vocabulary that is new to them in the context of Science instruction. They may have an understanding of some words in 'everyday' language, however those words may be defined in a particular way in Science. In year 11, Science students may encounter several new concepts with associated new vocabulary in the context of one lesson. One student noted the importance of teachers spending time on key concepts and linking the concept to tasks and practical activities. She described the connection in this way:

*I find it easier if the teacher explains something to us and then we do something about it straight away before we move onto the next word, rather than just definition after definition. (Student 7, Science)*

### **5.2.3 Classroom Texts**

Teachers used a wide range of texts for classroom instruction that included textbooks, magazines, articles, newspaper clippings and texts from digital media. Students appreciated having a wide variety of materials to read in the context of their year 11 subject. The students described their use of the texts, and noted that having variety was more interesting than using only printed text.

*It's good...it's not just 'Here's a book, now read it'...it's using a lot more resources and I get a better understanding of what I am doing. (Student 1, History)*

#### **5.2.4 Multiple Sources of Information Within or Across Texts**

Year 11 students are required to engage with multiple sources of information, in various forms, within a single text or across multiple texts. Students perceived that having information presented in different forms within and across texts assisted them in the understanding of key concepts. Graphs, tables and diagrams were generally perceived to be helpful to students when they were reading texts, however the links between diagrams and written text were not always obvious to them. The following student describes the features of text that support him when reading:

*When they make sure you know what the key words are, like having them in bold, it really helps. If they refer the words to the diagram, rather than just having the diagram there, it helps. (Student 5, Science)*

Text structure was also identified as a way in which students were supported to read. In History in particular, students identified that texts laid out in chronological order of events assisted them in understanding historical events and to some extent aided their understanding of the reasons why particular actions in History were taken, because they could see how one event led to another.

#### **5.2.5 Wide Reading**

Students who perceived themselves as confident readers indicated that they read widely both within and outside of school time. The range of materials that the confident students read included both fiction and non-fiction, and these students were often aware of how their additional reading supported their ongoing academic progress.

*For me it's just to get an understanding of the world...I use it to widen my horizons really. (Student 6, Science)*

In another example, the student believed that the fictional reading she chose to engage in was enhancing her skills in learning History. She was able to make the links between her in-school and out-of-school reading experiences.

*I like mystery and crime books. I like to see people figuring it out. Looking for the clues and the reasons why something happened is a bit like studying History.*  
(Student 8, History)

### **5.2.6 Processing Information**

Students were often required to read from a variety of texts and to engage in a processing activity such as note-making. In some instances, especially at the start of the year, teachers provided notes for students to copy. As the year progressed, students were required to carry out more independent note-making. Students responded to note-making in various ways.

Some students demonstrated, and talked about, independent note-making skills that they used in class and when they were studying at home. The note-making skills of these students included the ability to understand the purpose of the notes, to search texts for relevant information, and to select and modify text according to their purpose. The notes made by these students were meaningful to them, and could be used to revise content or for the purpose of writing. The students used various abbreviations, codes, lists and structures that suited their purpose for note-making and were familiar to the student because they had used them on several occasions in different contexts. Students demonstrating a high level of independence in note-making talked about selectively note-making from the notes provided by the teacher. These students were making decisions about the importance or relevance of the teacher-provided notes to suit their own learning needs.

*I don't copy down everything the teacher writes up. Some of them are just little examples and I don't feel I need it. I choose what I need.* (Student 9, History)

Students demonstrating independent note-making skills also talked about making their own notes beyond the task requirements or instruction from the teacher. In these instances, students chose to make notes for their own purposes such as having an interest in the topic, or recognizing the relevance to their learning needs of what they have read or heard in class.

*If something catches my eye...or ear...I'll write that down as well. Not just the stuff that I'm told to write down. (Student 10, Science)*

*I think it is better when you make your own notes because you're not just copying, you are processing. (Student 11, History)*

For some students, making notes is a challenging task that they perceive as being quite overwhelming. In some instances, the students believed that note-making was about reducing longer pieces of text into a few words (as in the following example), rather than connecting note-making to a purpose, such as finding the main ideas in a text.

*I can normally only write in long sentences... I can't keep it simple. It's hard for me to make notes for myself – putting long sentences into just a few words. It's easier for me to have the whole sentence. (Student 12, History).*

Students were asked to identify useful ways in which they had received assistance to develop note-making skills. The students who perceived note-making as challenging, identified that it was useful to see the teacher modeling the note-making process with them in class, and they especially liked when the teacher co-constructed notes with the involvement of the students. The teacher in that instance was valuing the knowledge that students' could contribute to the note-making task, demonstrating a critical perspective.

### **5.2.7 Writing**

The student response to a writing task was mediated by the requirements of the task. Understanding what was required in a writing task was often a significant barrier to student writing, especially when students were in an external assessment and they were required to write independently. In most instances, the students scanned the task instructions for key words that they recognized and tried to connect those words with prior learning.

*I go over it in my mind; just try and actually make sense of it. I try to recall what it's about and usually I just haul out the key words and just work it from that. (Student 13, History)*

Students used a variety of planning strategies before writing a longer response such as an essay. The most common strategy was to brainstorm all of their ideas about a topic before writing. Some students then went on to decide a structure for writing from their initial planning. There were also some students interviewed who did not use written planning strategies prior to writing. These students went straight into writing their response to a task. In some instances, the students had thought about a plan for writing and kept that in mind when writing, and in other instances the writing they produced was spontaneous.

*Once I start writing I get this kind of flow going and I just keep writing. Everything just keeps coming and coming. My plan is in my head. (Student 14, English)*

*It just flows. The (words) kind of spew out onto the paper and just end up there. (Student 15, Science)*

When students were asked their most preferred type of writing, the majority of students chose creative writing rather than formal. The students felt greater confidence when writing creatively as they felt there was less chance of ‘getting it wrong’, in contrast to more formal writing such as essays and reports that they felt required a higher degree of accuracy. English is usually the only subject where students have the opportunity to write creatively, however in some English classes there was a greater focus on formal writing than creative writing and so the students’ opportunities for creative writing were limited.

*Creative (writing) is my forte. I’m pretty sure it’s because it’s like a form of expression. It’s like painting or art or anything like that. It kind of just gets your ideas out. (Student 15, Science)*

Students generally perceived that they wrote differently for different subjects. This perception was based on the different tasks they were required to complete, the choice of vocabulary when writing and the requirement for a factual or personal response to a task. In Science, students were often challenged by the need to use correct scientific terminology and to write accurately to describe phenomena.



*In English it's more creative, and there is no sort of right or wrong in your writing, but in Science if you write something wrong it is completely wrong – it's more like there is only one right answer. (Student 16, Science)*

However, other students preferred the precision that was required when writing in Science – they were reassured to know that they could provide a right answer. For these students, writing in English that was more open to personal response, was perceived to be a more difficult task.

*Science makes sense – there are ways of doing it and you know what to write, but English is a bit harder for me...there can be lots of different ways to respond. (Student 19, English)*

The extent to which students felt confident in their ability to structure their writing varied between subjects. In English, where there is a greater emphasis on teaching the writing process, students felt more confident about how to structure a piece of writing such as an essay. The students did not necessarily transfer that confidence to writing tasks in History or Science. Students who felt less confident about their writing spoke about having to write slowly in order to write with accuracy. The students believed that this resulted in less detail in their writing.

In some instances, students used particular structures for writing paragraphs that were quick and easy to remember when writing, for example a Statement/Explanation/Example pattern.

*Now that I know about it I'm trying to use it (paragraph structure) more - to make my writing longer and to explain things. (Student 20, Science)*

### **5.3 STUDENT PERCEPTIONS OF THE DEMANDS IN YEAR 11**

Most students found the demands of year 11 academic learning to be as they expected. They recognized that year 11 was more demanding than year 10 and they expected to be working harder. The pressure of being assessed against standards in order to achieve

NCEA created a sense of urgency and importance for students towards their year 11 programme of learning. They generally felt the need to respond with an increase in their attention towards achieving NCEA. As the year progressed, students became more concerned with their accumulation of credits towards NCEA, and in some instances students reported a greater focus in class and on their homework in an effort to meet the academic requirements.

In terms of the literacy demands across the curriculum, students studying History believed that the literacy demands were higher in that subject than in any of their other subjects. The History students were expected to read a wide variety of texts and engage regularly in extended pieces of writing to demonstrate their understanding of key historical ideas, using sufficient evidence and detail. They perceived that this demand was greater than the literacy requirements of English or Science at year 11. If students were not studying History, then they perceived the literacy demand of English to be high. The students who were interviewed generally equated literacy demand with the amount of reading and writing they were required to do in each subject.

#### **5.4 STUDENT PERCEPTIONS OF TEACHER ACTIONS THAT HAVE SUPPORTED THEM TO LEARN**

Students perceived that their teachers were helping them more in year 11 than in previous. The most commonly identified action identified by students as being helpful was when teachers spent time ‘explaining’ in class. Students described this as the extent to which teachers spent time on concepts, ideas, or aspects of knowledge that they did not understand. Students appreciated when teachers were prepared to ‘go back over stuff’ that they did not understand, and also noted that not all teachers were prepared to do this.

*Well, she gets around the class. She’s good at explaining things and then helping individuals. If you don’t understand then she will explain it really well. (Student 17, English)*

*They make sure they explain all the technical words – they use them a lot but they explain them really, really well in terms that we understand. (Student 5, Science)*

During the collaborative intervention, the teachers and researcher had examined subject-specific data and identified the literacy learning needs of their students, and as the year progressed, they developed their ability to respond to identified literacy needs of individual students.

For students who felt less confident in their academic ability, class time was perceived to be extremely valuable because the students knew that attempting work independently, outside of class, was much more of a challenge. These students also indicated a degree of frustration when class time was perceived to be wasted on dealing with issues of student behavior.

*I'm a person who needs extra help at understanding things. So that's why I like the class time. (Student 18, Science)*

Students also valued occasions when teachers were able to provide examples of tasks, especially exemplars of student work from previous years. NCEA exemplars are available for teachers to use in year 11 so that students can see an example of an assessed task. Teachers have also retained samples of student work from previous years to share with new students. When that occurred, students were able to clearly see what was required from the task and the standard that was required.

*We had to write a journal article for a magazine and I was struggling with it, and then (the teacher) let me look at some of the exemplars from last year and I got some ideas about what I had to do to get the standard. (Student 11, History)*

Some students also recognized teacher actions that were supporting them to become independent learners. For example, several students noted the difference between classes where they were given teacher-prepared notes and classes where the teachers worked with the students to develop independent note-making skills. The students recognized the value in developing their own notes and processing information, and that

teachers were supporting them to develop the literacy skills they required in the senior school.

#### *5.4.1 Māori students' perceptions of teacher actions that have supported them to learn*

The Māori students who were interviewed believed that they were supported to learn when their teachers were clear about the purpose for their learning. The students most often described this as 'needing to know what to do'. In some instances, teachers provided additional support by cueing the students to pay attention to particular vocabulary or key concepts. For example, when one of the History teachers read material to the whole class he asked the students to listen for particular key words to try to get an understanding of the meaning of the words in context.

Māori students who were interviewed identified the need for teachers to explain subject content and task instructions in detail. The students believed that they were supported when the teacher and students were working together to understand content, in a collaborative manner.

*Some teachers help us with steps that help us to work through things... explaining in detail so that we know how to do something properly. (Student 21, History)*

Peer support was also seen as a source of support for learning by the Māori students who were interviewed. Students indicated that in some classes, and in some situations, they were able to draw on the support of their peers more readily than in other classes. One Māori student who identified that she struggled with the literacy demands in year 11, also identified that she valued the support of her peers in class.

*My class mates help. I see what they have done...I just ask someone what it means. (Student 12, History)*

This student's response highlights the need for teachers to provide opportunities for students to interact with each other to support their learning. When teachers insist on quiet independent work all of the time, they deny students this chance to develop their skills and knowledge. Listening to other students, and discussing key ideas, gives

students the opportunity to use the academic language of that subject and to develop their understanding of content. As identified in the Te Kotahitanga project (Bishop & Berryman, 2010) positive student-student interactions in the classroom are conducive to learning.

Opportunities to develop and practice skills were ways in which Māori students felt supported by their teachers to meet the literacy demands in year 11. Students recognized that there were increased requirements for reading and writing at year 11, and that they needed opportunities to practice and improve their skills. In particular, the essay writing requirements in History and English required students to practice and review their skills, in order for them to reach the required standard, and they valued having many opportunities to practice those skills.

During an interview one of the Māori students described how her teacher often used personal experiences to develop understanding of key concepts. The student felt that this personal connection created an interest in the topic for her and supported her learning.

*He is brilliant because he has all these stories that he talks about...like, to explain weathering he talks about rock climbing and then asks 'So how does this rock get to the bottom of the cliff? How did it get there?' (Student 5, Science)*

The willingness of this teacher to bring his own personal experiences into the classroom has helped to enhance the teacher-student relationship in this instance, and the student is engaged in the learning.

#### *5.4.2 Pasifika students' perceptions of teacher actions that have supported them to learn*

Pasifika students who were interviewed also recognized the importance of teachers explaining clearly what is required during instruction, and spending time on supporting students to develop and understanding of key subject content.

*I like it if I know what it is I have to write about. I like it when you ask questions and the teacher explains it even more. (Student 22, English)*

The Pasifika students interviewed also valued the opportunities afforded them in class to process information. These students felt supported when they had time to read, discuss, brainstorm, and plan before they were required to produce a response such as a written essay or report.

*She's really big on note-making. We've done a lot of practice around that. It's one thing I like and she pushes us to finish it off for homework and says it will really help. She lets us brainstorm. If we are writing essays she will have a period dedicated to brainstorming because she wants us to get it right. (Student 23, History)*

This student was aware that her teacher cared about her academic performance, and felt positively about engaging in the tasks that her teacher set.

Students perceived that teachers do make instructional decisions that are designed to improve their literacy, and identified throughout their responses that when teachers engage in critical literacy pedagogy they respond positively. The co-construction of learning, recognition of students' knowledge and experiences, care for academic progress, and the ability to provide clear explanations were key indicators of the impact teachers were having on student learning.

## **5.5 CHAPTER SUMMARY**

This chapter described the results of interviews with a sample of year 11 students from English, Science and History classes in two schools. The ways in which students respond to the teacher instruction have been described, particularly in relation to reading, vocabulary, processing information and writing. Students' perceptions of the literacy demand across the three subjects, and their perceptions of the teacher actions that have supported their literacy learning are outlined.

Students have identified the importance of understanding the purpose of their learning both in relation to subject content and task requirements. Students need to know why

they are engaging in a task, what they are seeking to discover and learn, and what the desired outcome would be in terms of the task.

Students also identified that teachers support their literacy learning when they clearly explain both key concepts and task requirements, and are prepared to review students' understanding of these. Māori students described the importance of collaboration, having a personal connection to the teacher and of providing opportunities to work with other students to review and practice literacy skills. Pasifika students also valued when teachers spent time explaining, and when they had opportunities to work through and process key concepts. The results for students of an increased focus on literacy learning by their teachers are outlined in Chapter Six.

## **CHAPTER 6**

### **STUDENT RESULTS**

#### **6.1 INTRODUCTION**

This chapter presents student results in order to ascertain how effective the infusion of literacy teaching and learning was in improving academic outcomes for secondary school students at year 11, and for Māori students in particular. Student achievement outcomes in this study were measured using the Diagnostic Literacy Assessment (DLA) and through NCEA internal and external assessments.

The DLA results are reported according to outcomes in History, Science and English. The NCEA results are reported according to subject and internal or external assessment mode, and then comparisons are made between the two schools in the study. NCEA History results are reported for selected achievement standards and compared to the national results for those standards.

In the final section, results from the DLA and NCEA for Māori students are presented.

#### **6.2 DIAGNOSTIC LITERACY ASSESSMENT RESULTS**

This section presents the results of data collected through the Diagnostic Literacy Assessment (DLA) in History, Science and English. The results show changes in students' reading achievement according to their use of text features, vocabulary knowledge and ability to read for deeper meaning, over a period of one year. In this study, the information gained through the pre-test allowed the teachers to determine specific areas of reading development that needed to occur in each class as the student encountered new texts and tasks. The researcher provided professional development



support to each teacher, in order to focus on specific areas of literacy teaching and learning, and to improve the subsequent outcomes for students.

### 6.2.1 History

Table 6.1 shows changes in students' reading achievement over one year in History, as measured on the Diagnostic Literacy Assessment by their Use of Text Features (6 questions) Vocabulary Knowledge (2 questions) and ability to Read for Deeper Meaning (4 questions). The total number of questions = 12.

Table 6.1

*Student Achievement in Year 11 History from the Diagnostic Literacy Assessment at Beginning (Pre-test) and End of Year (Post-test)*

Scale	Mean		Standard Deviation		Difference	t Value	Level of Significance
	Pre	Post	Pre	Post			
Use of Text Features	4.29	5.10	1.16	0.87	0.81	3.32	0.002
Reading for Deeper Meaning	3.00	3.58	0.96	0.67	0.58	3.15	0.004
Vocabulary Knowledge	1.26	1.45	0.77	0.62	0.19	1.13	0.264
Total Reading Score	8.55	10.13	2.07	1.33	1.58	4.78	0.000

n=31

Table 6.1 shows that the means for all scales are greater at the end of the year, indicating improvement in reading achievement in History over one year. A significant increase is shown in students' Use of Text Features, and Reading for Deeper Meaning, with a small improvement over the year in Vocabulary Knowledge. History students' total reading score increased significantly over the period of one year. The History teachers engaged

in collaborative inquiry and problem-solving with the researcher in order to address the identified literacy needs of students, and to make changes or develop existing classroom instruction. In both History classes, the students were engaged in developing their reading skills as they encountered new texts and tasks. History teachers increased their focus on the use of text features, and development of comprehension skills to support students' understanding when reading. Most of the texts, both print and digital, that student encounter at year 11, include a range of different sources of information that students need to combine in order to deepen their knowledge of a topic. Sources may include political cartoons, articles, photographs, letters diary entries, newspaper reports etc. By paying attention to surface features such as headings, sub-headings, text organization, dates, bold and italicized words, students were supported in accessing a range of materials that they needed to bring together for synthesis and analysis. Teachers were supported by the researcher to develop their own questioning skills, prompting students to seek evidence from texts that supported discussion, and when they were writing about History topics. Over the period of intervention, teachers developed students' critical literacy skills in terms of examining texts from different perspectives, questioning the construction of texts, and seeking material from texts specifically relevant to tasks. The note-making skills of the students were refined and developed, enabling the students to become more powerful users of texts for their own purposes.

The results from the DLA show that there was a significant increase in History students' Use of Text Features and Reading for Deeper Meaning over the period of one year, indicating that the infusion of effective literacy practice in the context of History may have had an effect on student outcomes.

### **6.2.2 Science**

Table 6.2 below shows changes in students' reading achievement over one year in Science, as measured by their Use of Text Features (6 questions), Vocabulary Knowledge (2 questions) and ability to Read for Deeper Meaning (3 questions). The total number of questions = 11.

Table 6.2

*Student Achievement in Year 11 Science from the Diagnostic Literacy Assessment at Beginning (Pre-test) and End of Year (Post-test)*

Scale	Mean		Standard Deviation		Difference	t Value	Level of Significance
	Pre	Post	Pre	Post			
Use of Text Features	2.55	4.34	1.08	1.39	1.79	6.90	0.000
Reading for Deeper Meaning	2.31	2.45	0.93	0.91	0.14	0.59	0.556
Vocabulary Knowledge	1.34	1.34	0.67	0.76	0.00	0.00	1.000
Total Reading Score	6.17	8.28	1.51	2.18	2.11	5.91	0.000

n=29

Table 6.2 shows a significant increase in Science students' total reading score over the period of one year. The mean for Use of Text Features and the mean for Reading for Deeper Meaning increased over the year, with the Use of Text Features showing significant improvement. There was no change in the Vocabulary Knowledge score over one year. The Science teachers engaged in collaborative inquiry and problem-solving with the researcher in order to address the identified literacy needs of students, and to make changes or develop existing classroom instruction. As a result of the pre-test results, the Science teachers increased their focus on the use of text features and developing meaning when reading, by teacher modelling and then co-construction of meaning from texts. The teachers modelled how they would read a text, specifically paying attention to diagrams and how they added to the information in print. Students were encouraged and supported to visualize processes and concepts, create their own diagrams and representations of meaning, and to interpret other diagrams in texts in order to develop understanding of key scientific concepts. The Science teachers also focused on more explicit use of the language of the curriculum during their instruction,

so that students became familiar with phrases such as ‘Explain the importance of...’, ‘Explain factors that affect...’and ‘Investigate the relationship between...’. The use of this instructional language assisted the students to be more focused when engaging with texts, and in responding to the tasks that they were assigned.

Generally it would be expected that students would improve their vocabulary knowledge over that period of time. A possible explanation for this is that in Science, students constantly encounter new and challenging vocabulary, and that their vocabulary problem-solving skills have remained at the same level throughout the year.

The results from the DLA show that there was a significant increase in Science students’ Use of Text Features and Reading for Deeper Meaning over the period of one year, indicating that the infusion of effective literacy practice in the context of Science may have had an effect on student outcomes.

### **6.2.3 English**

Table 6.3 shows changes in students’ reading achievement over one year in English, as measured by their Use of Text Features (3 questions) Vocabulary Knowledge (1 question) and ability to Read for Deeper Meaning (4 questions).

Table 6.3

*Student Achievement in Year 11 English from the Diagnostic Literacy Assessment at Beginning (Pre-test) and End of Year (Post-test)*

Scale	Mean		Standard Deviation		Difference	t Value	Level of Significance
	Pre	Post	Pre	Post			
Use of Text Features	1.04	2.63	0.70	0.62	1.59	8.89	0.000
Reading for Deeper Meaning	1.74	3.52	1.22	0.58	1.78	7.57	0.000
Vocabulary Knowledge	0.48	0.93	0.50	0.26	0.45	4.56	0.000
Total Reading Score	3.26	7.04	1.91	1.05	3.78	10.75	0.000

n=27

Table 6.3 shows a significant increase in the total reading score for English students. The means for all scales are greater in post-testing at the end of the year, indicating significant improvement in reading achievement in English over one year. Generally it would be expected that students in year 11 English would be increasing their reading skills, as those skills are closely connected to expected curriculum outcomes in English and English teachers would be expected to know how to improve students' reading. However, the English teachers in this study valued the opportunity to assess students' reading ability using a text specifically from their course programme that was not yet seen by the students. In both schools, English teachers had not analysed their students' reading ability in such a manner previously. The results from the pre-test, and collaborative problem-solving with the researcher, led the teachers to develop greater independence in students' use of text features to support reading, to develop meaning from texts using a range of comprehension strategies, and to develop independent writing. The English teachers modelled these approaches regularly, and during the year,

moved towards more co-construction with students, recognizing the developing skills of their students and acknowledging their contribution in development of knowledge.

There was a significant increase in the Reading for Deeper Meaning scale. Gaining a deeper understanding of text was a priority for both English teachers in this study. English teachers developed their questioning skills over the period of the year in order to support students to make connections between texts and tasks, and to locate and use supporting evidence when they were discussing and writing about different texts. In addition, the English teachers provided multiple opportunities for students to engage in discussion, reading and writing about key ideas, which may have been related to a single text. In English classes, students had many opportunities to engage in pair, group or class discussions to clarify their understanding, as well as frequent opportunities to write. The infusion of a range of effective literacy practices may therefore have had an effect on improving student outcomes, as evidenced in the DLA results.

### **6.3 NCEA RESULTS**

One measure of student achievement in each subject at Year 11 is through their results in NCEA. Within each subject, students take part in internal and external assessments of Achievement Standards, where they may be awarded an Excellence, Merit, Achieved or Not Achieved result. NCEA results can be difficult to compare across schools, classes and students, as not all students enter the same standards for each subject. In some classes, students may only complete the internal assessments.

In both of the secondary schools in this study, historical achievement patterns in NCEA indicated that students generally performed below the national average for year 11 students. The historical pattern of achievement highlighted a challenge for the teachers in this study, as they attempted to prepare all year 11 students for NCEA assessments at the same level of the curriculum.

The NCEA results provided information that was used for both formative and summative purposes. Information gained throughout the year from internal assessments

was used by teachers to guide further instruction and to monitor student progress. The external assessment data provided a relevant summative measure of student performance for students in their first year of NCEA, at year 11.

In this study, analysis of NCEA results was carried out to determine if there were differences in student outcomes between schools, subjects, internal or external assessment, and by ethnicity.

### 6.3.1 Comparison in Student Outcomes by Subject and Internal/External Assessment

In this study, the mean was determined after attributing grades of 0-4 to the NCEA results of Not Achieved, Achieved, Merit or Excellence for each student. Results for each subject are presented according to the mode of assessment.

Table 6.4

*All Students' Results in Internally and Externally Assessed Achievement Standards in Year 11 History, Science and English*

Subject/Assessment mode	Number	Mean	Standard Deviation
History Internal	42	2.15	0.80
History External	40	1.73	0.64
Science Internal	50	1.61	0.90
Science External	17	0.90	0.53
English Internal	44	1.45	0.59
English External	20	1.30	0.49

n=213

Table 6.4 shows the results from NCEA for all participants. In all three subjects, student achievement was higher in internally assessed achievement standards than in externally assessed standards, which is in line with national patterns of achievement. Students generally receive ongoing support from their teachers throughout an internally assessed

piece of work, and they usually have more time to complete an assessment task. The highest mean in this study was from internally assessed History standards. The lowest mean was from externally assessed Science standards, where results were more likely to be Achieved or Not Achieved.

### 6.3.2 Comparison in Student Outcomes by School and Subject

In order to ascertain any differences in student outcomes by school, a comparison was made according to subject and mode of assessment.

Table 6.5

*Student Achievement from NCEA Level One Results in Science, History and English within Each School*

Subject	School	Number	Mean	Standard Deviation
History Internal	A	20	2.42	0.90
	B	22	1.90	0.61
History External	A	20	1.81	0.73
	B	20	1.65	0.53
Science Internal	A	30	1.22	0.63
	B	20	2.20	0.95
Science External	A	0*		
	B	17	0.90	0.53
English Internal	A	22	1.43	0.61
	B	22	1.46	0.58
English External	A	0*		
	B	20	1.30	0.49

\*Participants entered in internal assessments only



Table 6.5 shows the breakdown of NCEA results for each school and subject. There are slight variations between the two schools in this study. The History results for School A show a higher mean than School B in both internally assessed and externally assessed Achievement Standards. The Science internally assessed results are higher in School B than in School A. Whilst there were slight variations in results in some subjects, there were no significant differences between schools, as shown in the table below.

Table 6.6

*School Differences in NCEA Achievement*

<b>Subject</b>	<b>Significance</b> (Levene's test for equality of Variances)
History Internal	0.241
History External	0.412
Science Internal	0.347
English Internal	0.666
History	0.231
Science	0.658
English	0.310

### **6.3.3 Comparison of History Achievement Standards from Two Schools with the National Results**

In this study, it was possible to compare NCEA results in Year 11 History through the following internally assessed and externally assessed Achievement Standards because they were common across both schools. Comparison with the national results for these standards has also been included.

Table 6.7

*NCEA Externally Assessed Achievement Standards Results at Year 11 in History for Two Schools Compared with National Results*

<b>Achievement Title</b>	<b>Standard</b>	<b>School/National</b>	<b>Not Achieved</b>	<b>Achieved</b>	<b>Merit</b>	<b>Excellence</b>
<b>Interpret Historical Sources</b>	National		13.8%	41.6%	32.0%	12.7%
	A		10.5%	63.2%	26.3%	0
	B		29.7%	59.5%	10.8%	0
<b>Describe the perspectives and related actions of people in an historical setting</b>	National		19.1%	26.0%	41.4%	13.5%
	A		16.7%	50.0%	33.3%	0%
	B		28.6%	34.3%	34.3%	2.9%
<b>Describe an historical development in an essay</b>	National		28.1%	42.6%	20.1%	9.1%
	A		31.3%	56.3%	12.5%	0%
	B		44.1%	52.9%	2.9%	0%

Table 6.7 shows that in both schools, students' results at the Achieved level in externally assessed History standards were above the national average. The NCEA externally assessed Achievement Standard 'Interpret Historical Sources' assesses students' ability to use critical literacy skills in a History context. Students are required to read source material and identify facts and opinions, cite evidence, make inferences, identify cause and effect, and evaluate the usefulness and reliability of the sources of information. The results for this standard show that in School A, 89.5% of the year 11 students gained this standard and in School B, 70.3% of students gained the standard. These results were higher than the results for this standard in three previous years in both schools, which may suggest that changes in teacher practice had some impact on student outcomes.

However, in both schools the results indicate that fewer students reached Merit or Excellence levels in these standards, when compared to the national average. School B History results also show that there were more students at Not Achieved than the national average. Whilst these results indicated improvement from previous years, there is still progress to be made in both schools towards supporting more students to develop advanced critical literacy skills and reach Merit and Excellence levels in these external assessments.

Table 6.8

*NCEA Internally Assessed Achievement Standards at Year 11 in History for Two Schools Compared with National Results*

<b>Achievement Standard</b>	<b>School/National</b>	<b>Not Achieved</b>	<b>Achieved</b>	<b>Merit</b>	<b>Excellence</b>
<b>Carry out an historical investigation</b>	National	15.3%	26.3%	29.9%	28.5%
	A	0%	27.8%	55.6%	16.7%
	B	33.3%	33.3%	31.3%	2.1%
<b>Communicate historical ideas</b>	National	20.7%	29.4%	26.7%	23.2%
	A	10.5%	42.1%	42.1%	5.3
	B	44.4%	53.3%	2.2%	0%

Table 6.8 shows the results of two internally assessed achievement standards. Students' results are higher overall when compared to external assessments, with more results at the Merit and Excellence levels. School A results are higher overall than School B. All students in School A gained the standard 'Carry out an historical investigation', with 33.3% of students gaining Achieved, 55.6% of students gaining Merit and 16.7% of students gaining Excellence – results well above the national standard. Similar results are achieved by School A in relation to the standard 'Communicate Historical Ideas' with the majority of students gaining the standard, and the results for that school are above the national standard. Whilst School B's results are lower than those of School A,

they do show an overall improvement from previous years' results. The History teachers recognized the high literacy demands inherent in their subject area, as did the students, and teachers engaged in developing effective literacy practices throughout the year.

The NCEA results indicate some variation across subjects, with higher achievement levels overall for History, than for English or Science. Considering the results alongside the teacher perceptions about literacy and their engagement with effective literacy practices, suggests that there may be an association between the extent to which effective literacy practice is infused in subject teaching, and the potential outcomes for student achievement. History teachers recognized the high literacy demands in their subject area and throughout this study, continued to enhance their skills in relation to effective literacy practice. English teachers also recognized and valued the development of students' literacy skills and afforded students many opportunities to develop their skills. In Science, where the NCEA achievement results were not as high as History or English, the students did not experience the same level of literacy–infused practice.

#### **6.4 RESULTS FOR MĀORI STUDENTS**

The results for Māori students on the DLA are reported in Table 6.9, compared to results for New Zealand European students.

Table 6.9

*Student Achievement from the Diagnostic Literacy Assessment Scales at Beginning (Pre-test) and End of Year (Post-test) for Māori Students and New Zealand European Students*

Scale	Ethnicity	Mean		Std Deviation		Difference
		Pre	Post	Pre	Post	
<b>Use of Text</b>	NZ Euro	2.97	4.24	1.79	1.29	1.27
<b>Features</b>	Māori	2.50	3.95	1.41	1.53	1.78
<b>Reading for</b>	NZ Euro	2.50	3.20	1.02	0.92	0.70
<b>Deeper Meaning</b>	Māori	2.17	3.07	1.11	0.98	0.90
<b>Vocabulary</b>	NZ Euro	1.08	1.40	0.74	0.62	0.32
<b>Knowledge</b>	Māori	0.93	1.07	0.74	0.62	0.14

NZ European n=52 Māori n=21

Table 6.9 shows that both groups of students improved their results from pre- test to post-test on all three scales, however the results for New Zealand European students are above those of Māori students in the pre-test and continued to be above in the post-test result. The results from the DLA do show that Māori students made greater progress than NZ European students from the pre-test to post-test in the areas of Use of Text Features and Reading for Deeper Meaning. This outcome reflects the pattern of achievement in New Zealand schools, where progress is being made for Māori students, but the achievement gap between the groups remains, indicating that there is a need to keep accelerating the rate of progress for Māori students in order to close the gap. It is promising to see that the focus on effective literacy practice has had an effect on some outcomes for Māori students in these subject areas. With an increased emphasis on effective literacy practice in all subject areas, it may be possible therefore to effect the achievement outcomes for Māori students more widely.

The results for Māori students in NCEA results are reported below.

Table 6.10

*Student Achievement from NCEA Level One Results in Science, History and English for Māori and New Zealand European Students*

<b>Subject</b>	<b>Ethnicity</b>	<b>Number</b>	<b>Mean</b>	<b>Std Deviation</b>
History Int	NZ Euro	29	2.31	0.77
	Māori	10	1.90	0.77
History Ext	NZ Euro	27	1.79	0.60
	Māori	10	1.70	0.59
Science Int	NZ Euro	34	1.58	0.96
	Māori	11	1.74	0.90
Science Ext	NZ Euro	17	1.00	0.60
	Māori	6	0.50	0.14
English Int	NZ Euro	23	1.54	0.54
	Māori	16	1.39	0.70
English Ext	NZ Euro	14	1.75	0.50
	Māori	12	1.20	0.33

Table 6.10 shows that Māori students in this study achieved at levels below those of New Zealand European students. In one subject and mode - Science internally assessed standards, Māori students performed at a level above New Zealand European students.

Whilst the teachers in this study demonstrated care for the progress and achievement of their Māori students, the results indicate that there remains a gap in achievement between Māori students and New Zealand European students. There were very few occasions observed in classes or discussed by teachers that recognized and affirmed Māori perspectives, knowledge and language. The focused attempts by teachers to assist Māori students to 'fit into' the existing dominant school culture may well be missing opportunities for enhanced Māori student achievement through a more reciprocal teacher-student relationship that brings Māori students' knowledge, experience and perspectives into the classroom learning experience, as outlined in the Te Kotahitanga

project in Chapter 2. The focus on improving literacy practice across subjects has made a difference to Māori student outcomes as evidenced in the DLA, and this combined with a more culturally relevant pedagogy in the classroom may affect Māori student outcomes even further.

## **6.5 SUMMARY**

The results presented in this chapter show changes in student achievement over the period of one year. The DLA results indicate that students in year 11 History, Science and English classes improved their reading skills during the year. There were minor improvements, or no change, in students' Vocabulary Knowledge across History, Science and English. Students were successful in improving their Use of Text Features and in Reading for Deeper Meaning across the period of one year.

The NCEA results indicate that students were more successful with internal assessment than with external assessment, a pattern that is reflected in the national results for NCEA. The NCEA results also indicate that there were some differences in student outcomes across subjects. Students' results in internally assessed History Achievement Standards are higher overall than for the other two subjects in this study. The lowest results overall were from externally assessed Science Achievement Standards. These results will be discussed further, alongside the qualitative data from teachers and students in Chapter 7.

An analysis of specific Achievement Standards in History shows a range of results across both schools according to the standard and mode of assessment. Overall, students have gained higher results in internally assessed Achievement Standards than in externally assessed standards. Whilst a number of students have reached the Achieved level for the standards, there are very few results at the Merit or Excellence levels.

The DLA results for Māori students indicate that improvement in reading was made over the period of one year, but that Māori students generally achieved at a lower level than New Zealand European students on both the DLA and in NCEA. These results indicate

the need for accelerated rates of progress for Māori, in order to close the achievement gap between these groups in New Zealand. A focus on improved literacy practice has made a difference for Māori students, and this combined with a more culturally relevant pedagogy, may affect Māori student outcomes even further.

The student achievement results are discussed in the following chapter, in conjunction with students' perceptions of the teaching instruction, and linked to teachers' beliefs and their instructional practice.



## **CHAPTER 7**

### **DISCUSSION**

#### **7.1 INTRODUCTION**

This chapter discusses the results presented in the previous chapters as they relate to the research questions. Links are made between the findings in this study and existing research, and possible explanations for the findings are presented.

The first section provides an overview of the research, followed by a discussion of the findings related to student achievement in reading, as measured by the Diagnostic Literacy Assessment (DLA). The next section discusses the student achievement results from the National Certificate in Educational Achievement (NCEA) and makes links to teaching practice in History, English and Science.

The achievement of Māori students is discussed in the next section, followed by a discussion of the overall student response to instruction. The next section discusses the conditions surrounding effective literacy practice. Finally the teacher-researcher relationship is discussed and a chapter summary is provided.

#### **7.2 OVERVIEW**

This study sought to investigate the conditions that support or inhibit the development of effective literacy practices in English, History and Science at year 11. The researcher investigated the context in which the learning occurred, and those factors that may have influenced the teaching and learning within each subject.

By investigating the responses made by the students to the kinds of literacy practices employed by the teacher in each classroom, the researcher sought to understand the

nature of instruction that might be effective in producing improved outcomes for students in the context of Science, History and English.

The researcher worked with teachers in this study to examine student achievement data, examine classroom practice, engage in professional reading and to modify and adapt literacy practices that might affect student outcomes.

Whilst secondary teachers may agree in theory that the infusion of literacy practices across the curriculum is worthwhile, a tension exists between theory and actual classroom practice. Secondary teachers often struggle to see the connections between their traditional approach to teaching subject content and the infusion of effective literacy practice. In this study, the researcher sought to gain an understanding of the extent to which teachers' beliefs about literacy translated into classroom practice, within the context of each subject.

Changing teacher practice to incorporate literacy instruction may be viewed as desirable, but it is a complex process. As part of this study, the researcher was involved in a collaborative approach to professional learning in order to develop teachers' skills and knowledge of effective literacy practice, and to enable the researcher to gain a deeper understanding of the ways in which the infusion of effective literacy practices might affect student achievement. The relationship between the teacher and researcher was examined in order to gain an understanding of the impact of the researcher on any changes in teacher practice.

## **7.3 THE INFUSION OF LITERACY PRACTICES AND STUDENT ACHIEVEMENT**

### **7.3.1 Reading Year 11 Texts**

The extent to which the infusion of effective literacy practice may have affected student achievement was examined through students' reading of year 11 texts. As students progressed through Year 11, engaging with the New Zealand Curriculum in English, Science and History, the reading demands that they faced continued to increase. The

texts that students encountered became increasingly complex in terms of content and structure, and the students were required to read across multiple sources of both print and digital media. The teachers worked with the researcher to gain a deeper understanding of their students' reading strengths and needs, and to develop appropriate instructional responses.

### **7.3.2 Use of Text Features**

In the first instance, information from the Diagnostic Literacy Assessments (DLA) pre-test provided teachers with an understanding of specific group and individual reading strengths and needs. The initial results in all three subject areas showed that students had minimal understanding of text features when reading. Alongside the researcher, the teachers developed an understanding of the use of text features to support the reading process in the context of each subject area, and then increasingly incorporated explicit instruction for students when they encountered new texts to read in class. By teachers paying explicit attention to the features of texts such as layout, structure, use of supporting visual information, headings and sub-headings, use of bold words etc., the students began to develop an understanding of how these features could be used to support their reading of complex texts. Student interviews indicated that students were noticing the features of texts as the year progressed, for example, referring to the ways in which graphs, tables and diagrams supported their understanding of concepts in Science, and how the structure of some texts provided support in terms of reading comprehension in History. The post-test results of the DLA showed that students' understanding and use of text features had increased in all three subject areas over one year.

The teachers in this study said that they assumed their students would be aware of the features of texts by year 11, and that they did not usually pay attention to this aspect when introducing new texts to the class. They were willing to engage in more explicit instruction about text features, because they wanted their students to improve, and as a result, they were able to see improvements in their students' navigation and comprehension of year 11 texts. Furthermore, the infusion of this literacy practice into subject context was not seen as an additional burden by the teachers, but rather as a practice that was specific and relevant to the learning. From a critical literacy

perspective, teaching students how to access and navigate texts through effective use of text features enables the students to become more powerful and active users of knowledge from texts (Luke, 2004).

As the texts become increasingly subject-specific in the senior school, students were guided by their teachers to pay attention to different text features specific to each learning area. For example, when the History students were required to analyse and discuss the reasons for a particular historical leader's decision, they used the chronological structure of events in texts to guide their understanding, and used a cause and effect model to write their analysis. Each discipline advocates strategies that mirror the kinds of thinking and analytic practice common to their discipline, and in this case, the students were supported to respond to the task with strategies that were appropriate to that learning area.

Throughout the year, teachers paid increasing attention to previewing texts prior to reading. The previewing of texts incorporated the identification of significant text features, as well as making a prediction about the likely content of the text. Whilst the previewing of a text was likely to be a skill that proficient readers already had, there were a number of students in the year 11 classes who were struggling with reading and who did not necessarily preview texts prior to reading. Following a period of explicit instruction and modeling by teachers, they observed their students were developing greater independence in their ability to preview texts, especially in History, where students encountered a range of texts for each topic. As students encountered multiple texts from a range of different sources, the ability to preview a text and make a decision about the purpose and relevance of that text in relation to task requirements, became increasingly important.

Teachers supported students by making explicit connections – both orally and in writing, between instructional tasks and the reading that was required by students. In some instances, teachers developed templates for recording notes that were specifically focused on connecting the text and task. Students responded positively when teachers made explicit connections between text and task, however when this did not occur, the students experienced frustration, as they felt overwhelmed by the amount and

complexity of a text, and did not know where to focus their attention when reading. Interviews with students highlighted the importance of students' knowing the purpose for reading a text. When students were clear about the purpose they were able to focus their attention on the relevant aspects of a text or multiple texts, and pay less attention to other parts of the texts that were not relevant to their purpose for reading, significantly enhancing their ability to manipulate and use the text.

### **7.3.3 Deepening Understanding of Content**

Results from the DLA show that there was an increase in Reading for Deeper Meaning over the year, across all three subject areas. At the start of the project, teachers identified that their students were not always engaging with written and visual texts in any depth, and they believed the students had a surface understanding of the subject content. The initial DLA results indicated that a number of students had difficulty finding the main idea in a text, making inferences, and integrating information from text features with the written text.

In response to the initial findings, and through collaborative problem-solving with the researcher, the teachers made some changes and refinements to their instructional practice in order to develop students' understanding of content through a deeper engagement with texts. Over the period of a year, the nature of teacher questioning in History, English and Science classes changed. In the first instance, teachers developed explicit questions relating to the location of evidence in texts. Increasingly, teachers asked the students questions such as: *'How do you know this?'* and *'What supports your thinking?'* in order to refer the students back to using evidence from their texts, and to acknowledge and value the knowledge that students already had. The evidence that students used came from a variety of sources – from texts, discussion with peers, and prior learning experiences. In this way, students began to substantiate their claims, both orally and in writing, and to develop some of the deeper understanding that teachers were seeking. Furthermore, the teachers' acknowledgement of students' prior learning helped to strengthen the teacher-student relationship in the classroom by shifting some of the power held by the teacher and texts, towards legitimate student knowledge (Freire, 1970; Luke, 2004; Peterson, 2003).

Another change to classroom instruction included spending more time on important parts of the course programme to ensure that students had an understanding of key concepts. In one example, the English teacher decided to allocate more time to the study of a particular text and provided more opportunities for the students to engage in group and class discussion and to practise writing, alongside the reading of the text. This was a difficult decision to make, as less time was subsequently available for other parts of the programme, however the teacher realized that students needed more time to understand the key concepts and develop their literacy skills, rather than move on quickly to a new topic. Secondary teachers do feel the pressure to ‘cover’ a programme of work at the NCEA level, however this approach does not always lead to the depth of understanding that students need to develop in the senior secondary school.

In collaboration with the researcher, the teachers engaged in deepening their own understanding of the types of skills and knowledge valued in the subject area, through professional readings and discussions. Because of their own course of study, interests, skills, and knowledge, teachers understood and to some extent, could identify what was important to them in their learning area, however they had not necessarily considered the literacy skills and knowledge associated with valued content and processes in a particular subject, or how students were supported to develop them. By sharpening the focus on the disciplinary literacy skills specific to each learning area, teachers began to develop their understanding of the kinds of literacy practices that supported students’ learning in context. Literacy practices could therefore be seen as essential and integrated components of teaching instruction, specific to the learning area (Moje, 2008b), supporting the deep understanding of content knowledge.

#### **7.3.4 Increasing Vocabulary Knowledge and Use**

According to the DLA results, students’ vocabulary knowledge showed some increase in English and History over one year, with no increase shown in Science. The vocabulary demands within texts and tasks at year 11 continue to increase, and therefore students need to continue to develop their vocabulary knowledge and skills. In English, History and Science classes, the teachers focused attention on new and challenging vocabulary in various ways when they were introducing new subject content to the class. For

example, students were sometimes shown the derivations of words, links were made to other known vocabulary, definitions were provided by the teacher, or definitions were co-constructed by the teacher and students.

The students' opportunities to engage with the new vocabulary varied between classes. In History and English classes, the students were observed to have more opportunities to encounter new and challenging vocabulary through reading, discussion and writing, than in Science classes. At the beginning of the year in Science, new vocabulary was likely to be introduced by the teacher at the start of the lesson and linked to a practical activity, however students did not always have further opportunities to read texts that use the new vocabulary, or use the vocabulary during discussion, or in writing. Towards the end of the year, Science teachers were incorporating more explicit vocabulary teaching about the derivations of words and making links to other known words, although the opportunities to encounter new vocabulary in reading, discussion and writing had not increased. The DLA post-test shows that Science students vocabulary knowledge score did not increase, and this may have been because the students were not provided with sufficient and regular opportunities to use new vocabulary in discussion, through reading, and in writing.

Students across the three learning areas did not always describe or demonstrate the use of independent vocabulary strategies when reading. During interviews, few students were able to describe independent strategies for dealing with new vocabulary; in most cases the students asked another student or asked the teacher to define new or challenging words. Otherwise, they would ignore the unknown word. It may have been that students were choosing an easier option by asking others, or that they did not have independent strategies for vocabulary problem-solving.

### **7.3.5 Student Achievement in NCEA**

The extent to which the infusion of effective literacy practice may have affected student achievement was also measured through students' NCEA results. As with national patterns of achievement in NCEA, the students in this study were more successful overall through internal assessment than through external assessment.

### 7.3.5.1 History

The results from History NCEA Achievement Standards were higher overall than for the other two subjects in this study, with some results in School A well above the national standard. The History teachers in both schools recognized and understood the literacy demands inherent in their subject area and therefore the challenges that students encountered when engaging with History texts and tasks. They acknowledged that the reading and writing demands in History were significant for year 11 students, and they placed high value on developing these skills with their students. As outlined by Gilbertson (2012), critical literacy skills are necessary for success in History. Students must engage with texts both for comprehension and to gain an understanding of the purpose and viewpoint of the text, in order to develop historical interpretations in their written responses.

Throughout the year, and following the analysis of students' reading behaviours in the DLA, History teachers focused on reading for deeper meaning and developed their students' ability to comprehend previously unseen text. The History teachers were observed reading to their students, and they provided class time for students to read independently and to discuss their reading with other students. Teachers also supported students by modeling how to locate relevant evidence from texts and by questioning students during the reading process. Classroom observations indicated that the literacy demands in History were recognized, and that teachers were infusing literacy practices into their regular teaching of subject content.

Critical literacy skills are particularly relevant to learning in History, where students engage in understanding the social, political and economic construction of texts for different purposes. In School B, the History teacher engaged students in thinking about authorial intent by choosing a range of texts about a prominent historical figure and examining the language and content of each text. Students were then able to compare each text on the basis of perspectives from which they were constructed. The teacher perceived that this kind of exploration around texts '*opened up Merit and Excellence for year 11 students...*' (History Teacher 2), suggesting that without those kinds of critical literacy skills, students would not be successful in higher levels of achievement. On



another occasion he extended students' critical thinking across multiple texts and experiences. After students had formulated a research topic, they made a field trip in relation to the topic, and then read a variety of texts including newspaper articles and textbooks. At various points within the research process the students reflected on whether or not their own perspective had changed, as a result of the information with which they were engaging, and thus became more aware of how different sources of information can influence and manipulate their response.

Outcomes for students in relation to critical literacy in History can be measured through the NCEA Achievement Standard titled 'Describe the perspectives and related actions of people in an historical setting'. In School B, 34.3% of students gained Achieved, 34.3% of students gained Merit, and 2.9% gained Excellence (an overall increase in results from previous years). The History teacher attributed these results to his increased focus on developing deeper meaning when reading texts, and developing students' critical literacy skills to become more aware of how texts are constructed.

During the project the two History teachers also worked alongside the researcher to analyse samples of students' writing in order to diagnose where errors were occurring, and then provided additional instruction for individual students or groups of students to address the identified needs. In both schools, the students engaged in regular writing tasks throughout the year for various purposes.

The aspects of the subject that History teachers valued were closely connected to the literacy skills and knowledge that students required in order to be successful. These values included developing a sense of inquiry, understanding historical relationships, research skills, and understanding perspectives. Inherent in these values are critical literacy skills such as the students' ability to ask questions from materials that they read, and to make links between events, people and actions through reading, writing, discussing, viewing and listening.

The History teachers' developing understanding of the literacy skills and knowledge required in the subject influenced the instruction that occurred in the classroom. By the end of the year, the instruction included a greater focus on connecting texts to task

requirements, so that students understood the purpose for reading texts and could seek information relevant to the task requirements. Students were asked to make predictions about texts, to develop questions from reading, and to make connections across multiple texts. Shanahan and Shanahan (2008) suggest that the higher level literacy skills that students need in order to be successful in secondary schools are rarely taught, however as this example shows, when teachers do pay attention to explicit literacy instruction in senior classes, students can experience successful academic outcomes.

#### 7.3.5.2 *English*

The year 11 English results show that most students gained NCEA internally assessed standards at the Achieved level, rather than at Merit or Excellence. However, given that the two English classes in this study were comprised of students who have in the past struggled to be successful in English, the results were above the expectations of both English teachers.

The literacy instruction provided by English teachers was closely connected to what they valued within English as a discipline. The English teachers valued the students' ability to respond personally to literature, and they focused their attention on developing comprehension skills, recognising and evaluating the deliberate construction of texts, and developing the students' abilities to see the relevance of a text to themselves or others. Developing a personal response to literature acknowledges that students bring their own experiences and prior knowledge to the learning situation, and that the voice of the student in response to texts is, to some extent, acknowledged, within the English context. The 'personal response' to texts, is also shaped by the ways in which the discipline of English values text analysis, and students learn that various features of texts ought to be discussed in their response to texts such as character development, setting, themes and plot development.

The student response to instruction in English varied. Some students welcomed the opportunity to write a personal response to texts and include their own views e.g. *'In English it's more creative, and there is no sort of right or wrong in your writing...'* (Student 16), whilst other students found the open nature of writing in English to be

more daunting, ‘...*English can be a bit harder for me...there can be lots of different ways to respond.*’ (Student 19).

As the year progressed, the teachers worked towards developing greater independence in their students’ abilities to respond to tasks. At the beginning of the year the teachers believed that their students needed a great deal of teacher guidance and support in order to complete tasks in English. The students were provided with teacher-made notes and direct instruction. Later in the year the students were engaged in constructing their own notes and writing with greater independence. From interviews, students believed that one of the important factors in developing independence was when the teachers provided students with exemplars of work or models of expected outcomes, and then explained in detail what was required of the students.

#### *7.3.5.3 Science*

The NCEA results in Science show that students mostly received an Achieved or Not Achieved result. These results were below the expectations of the teacher. Whilst the Science teachers in this study identified and valued literacy practices that included reading and writing, the infusion of these practices into regular classroom practice appears to have been more of a challenge for Science teachers than it was for teachers of English or History, and may be related to student outcomes in NCEA. Science students were afforded fewer opportunities than students in other subject areas to engage in the kinds of literacy practices that might support the development of subject knowledge, and increase their ability to respond in an external assessment. Most of the instruction observed in Science classes was teacher-led, and there were few opportunities for students to read, write and talk about science concepts in order to develop their understanding and acknowledge and respect student voice (Bishop & Berryman et al.; 2003 Elish-Piper & Tatum, 2006).

The student response to instruction in Science also suggests the need for teachers to spend time on key concepts and the language associated with those concepts, rather than moving on quickly to introduce new content. The science students wanted to spend more time on discussing, reading and writing about key concepts until they fully

understood concepts, rather than moving on to new material, whilst the teachers felt they needed to move through more topics and at a faster pace. One science student described her need to *'do something about it straight away before we move onto the next word'* (Student 7), suggesting that the pace of introducing new vocabulary was such that she did not grasp an understanding of a concept before having to move on.

Students also recognized the importance of developing subject-specific language in connection with the practical tasks in the science programme, and that it was often difficult for them to make connections to the scientific concepts that were demonstrated in the practicals. The science teachers were observed to use diagrams and other visual representations of practical tasks in order to support students understanding of concepts, however this was not always followed by opportunities for the students to discuss the key ideas, or to write about them, which may have supported their understanding of the concept.

There was less evidence of a critical literacy approach (Luke, 2004) in Science than in the other two subject areas – students were afforded less opportunity to bring their own knowledge and experiences to the learning situation, or to engage in meaningful co-construction of knowledge. In part, this may be related to the science teachers' beliefs about learning in science at this year level and the students' previous learning experiences in science. One of the science teachers strongly believed that there was a store of content knowledge that students needed to know and understand before they could contribute in a meaningful way to the co-construction of new learning, and that the students in year 11 needed to learn that content knowledge in a teacher-led manner. Teachers felt the pressure to cover a number of science topics throughout the year, and perceived that the most efficient way to do that was through 'showing and telling' the students rather than engage in more time-consuming activities such as reading, discussing, and writing in any depth. By making these instructional decisions however, they may be denying students the opportunity to develop deep understanding of content which may be in respect to fewer topics, but may lead them towards more successful outcomes.

## 7.4 MĀORI STUDENT OUTCOMES

The extent to which the infusion of effective literacy practice may have affected Māori student achievement was examined through students' reading of year 11 texts. The Diagnostic Literacy Assessment results showed that Māori students improved their Use of Text Features, Reading for Deeper Meaning and Vocabulary Knowledge over the period of one year, although this progress was not sufficient to close the gap between the results for Māori and New Zealand European students.

It is interesting to note that Māori students made greater improvement than New Zealand European students in their use of Text Features and Reading for Deeper Understanding, which may have been a result of their response to the focus on these literacy practices by their teachers. The results suggest that a more explicit focus on the use of Text Features to support reading, as well as continued instruction to enhance deeper understanding from reading in the context of each subject may assist in closing the achievement gap in literacy between Māori and non-Māori students in New Zealand.

NCEA results also show that across the three subject areas and modes of assessment, New Zealand European students performed at higher levels than Māori students. In one instance – internally assessed Science achievement standards – Māori students performed at a level above New Zealand European students. The results indicate that there is still a need to accelerate the rate of progress for Māori students in order to experience the same outcomes as non-Māori.

The Māori and Pasifika students who took part in interviews with the researcher identified the need for teachers to explain clearly the subject content and task instructions. The students needed to know what to do in class, and this was not always clear to them. Whilst the need for clear instruction and explanation is required for *all* students, it was an aspect of teaching practice that arose more frequently in the interviews with Māori and Pasifika students than with other students. This suggests that teachers need to be explicit in their instructional practice by supporting students to both understand new ideas and information, and know how to use that information to construct knowledge. In their research with Pasifika students, Singh and Dooley (2001)

highlighted the need for teachers to be explicit in their delivery of content -the meanings the students are required to put together, as well as the process -how those meanings are to be constructed.

In some instances, the Māori and Pasifika students who were interviewed believed that they were supported in their learning by peers, although this did not always mean that they always preferred working in groups – a generalization made by some of their teachers.

It appears from the results that the infusion of literacy practices has had some effect in improving outcomes for Māori students, however, in reference to the literature (Bishop & Berryman, 2010; Ladson-Billings, 1995; Macfarlane, 2004) and in relation to this study, there is potential for a much greater improvement in Māori student outcomes if effective literacy practice occurs in conjunction with culturally relevant pedagogy. The teachers in this study did not engage in deficit theorizing about their Māori students, as has been recorded in other studies (Bishop & Berryman et al., 2003; Castagno & Brayboy, 2008), however there was potential for greater utilization of Māori students' language, identity and culture as a resource for learning. Whilst teachers talked about the importance of making connections to prior learning for Māori students, there were few opportunities where this appeared to happen. Powerful learning contexts can be created that respect what learners bring to the learning situation and where reciprocal teaching and learning interactions (Ako) take place (Freire, 1970; Glynn, Berryman et al., 2005).

## **7.5 STUDENT RESPONSE TO INSTRUCTION**

Students recognized that the literacy demands had increased in all subjects in year 11. History students perceived that the literacy demands in History were greater than in other subjects. The History students responded positively to the explicit literacy instruction provided by their teachers – the students were faced with challenging content, but they were also well-supported to meet that challenge.

Students generally responded positively to using a wide range of texts in their year 11 programmes. They appreciated the variety of sources of information available to them, however, it was vitally important that they understood the purpose for engaging with the texts otherwise they felt overwhelmed and unable to select the relevant parts of texts according to any task requirements.

Students in year 11 are required to have written notes at various times as part of their instruction and for revision purposes. The extent to which those notes were independently constructed varied between students, and the time of year. At the start of the project, teachers were providing most of the notes that students required, as a model for note-making, and because they were concerned that students would not otherwise have a record of useful information from which to revise. To some degree, teachers moved students towards a greater independence in note-making throughout the year, although at times they still provided notes. Some students demonstrated high levels of independence in their use of note-making by being selective according to the purpose for reading, or by making notes beyond the immediate requirements of a task. Other students struggled to identify the main ideas or key concepts in a text in order to create notes. These actions seemed to typify the instruction and student response in year 11 – there was a desire by both teachers and students to move towards greater student independence, and yet at times there was a perceived need for high levels of teacher guidance.

Most students had developed an awareness of the different types of writing that they were required to do in each subject, and confident writers could modify their writing according to subject and task requirements. Students who struggled with the writing demands in year 11 said that they valued the occasions when teachers provided exemplars of the written responses that were required, and co-constructed writing tasks with the class.

On several occasions, students identified the value of interacting with others in order to develop their skills and knowledge. The students said they enjoyed working alongside their peers and learned a lot from discussing and sharing ideas. For students who found the year 11 academic requirements challenging, working with others was perceived to be

a valuable source of support. The students' also noted that their relationship with the teacher was an important component in their learning, as highlighted in the Te Kotahitanga project (Bishop & Berryman, 2010). When teachers created personal connections with students, such as sharing some of their own life experiences, students felt more willing to engage in learning.

## **7.6 CONDITIONS THAT SUPPORT OR INHIBIT EFFECTIVE LITERACY PRACTICE**

The conditions identified in this study that support or inhibit effective literacy practice have been drawn from a range of data and analysed using a grounded theory approach (Charmaz, 2006; Johnson, McGowan & Turner, 2010), allowing themes to emerge as sets of data were added. By comparing newly acquired data with existing data, and searching for links between teacher beliefs, classroom observations, students' responses and student outcomes, the following themes emerged:

### **7.6.1 Understanding the Role of Literacy Within a Subject**

The researcher and teachers in this study sought to gain a deeper understanding of the role of literacy within each subject at year 11. As Moje (2008a) outlines, secondary teachers need to understand what kinds of information are important in their subject area and how knowledge is constructed, in order to support students to learn within that subject. Throughout this study, the teachers examined the kinds of practices that they valued in each subject area, the pedagogy that they consider to be important in their classroom practice, and how literacy practices support that pedagogy. Professional readings from relevant literature contributed towards teachers' deeper understanding of the role of literacy within a subject context, and the literacy issues faced by adolescent learners, and these were discussed in meetings with the researcher. From a critical literacy perspective, developing a deeper understanding of what is valued and how knowledge is created within a subject, and the literacy practices that support knowledge development, enabled teachers and students to become more active and powerful users of that knowledge.



Engaging in this study enabled the teachers to focus their attention on their teaching practice and to gain a deeper understanding of the role that literacy plays in their instruction. For some teachers it was a confirmation of why they do the things they do in the classroom. For others, this study contributed to their decision to make changes to their teaching practice and incorporate effective literacy practices in their year 11 programmes. Locating the study in the context of each subject area contributed towards teachers seeing the relevance of literacy practices that enhance student learning.

### **7.6.2 Analysing and Using Subject-Specific Literacy Data**

New Zealand secondary school teachers usually have access to literacy data about their students in years 9 and 10 through standardized assessments. As students move into year 11, there is less information available about the literacy achievement of students, especially within a particular subject area. Within this study, gathering and using subject-specific literacy data is considered to be an important factor in supporting effective literacy practice. The initial DLA enabled reading to be assessed using contextual materials at the appropriate level. The information gained from this diagnostic assessment was helpful to teachers in determining the specific aspects of reading development that they needed to focus on for particular students or groups of students.

For example, in History, the teachers focused attention on guiding students through challenging reading tasks and included a focus on using text features to support reading and developing deeper understanding of texts within a critical literacy framework - identifying main ideas, gathering information from multiple sources to gain meaning, synthesizing across a text, and examining texts according to their social, political and economic perspectives. The History teachers used the information from the DLA to shape the ways in which they approached new texts in the classroom, and to determine where instruction needed to be differentiated to meet students reading needs. The DLA post-test results show that students improved their performance on all three reading scales. The analysis of writing samples in History also enabled the teachers to respond to identified student needs in the areas of structuring writing, matching the response to

the requirements of the task, developing evidence to support ideas and extending the range of vocabulary used in writing.

In Science, students improved their performance on two of the three DLA reading scales in post-testing. The information gained from the initial DLA led to teachers paying greater attention to the integration of written text and supporting visual information so that students could gain a deeper understanding of scientific concepts, as well as supporting students to identify main ideas when reading. The analysis of writing samples in Science focused teachers' attention on aspects such as the language of explanation, and supporting students to structure paragraph writing.

In English, the DLA analysis resulted in teachers addressing areas in teaching practice such as making predictions, identifying main ideas, making inferences and synthesizing across texts and examining the construction of texts from within a critical literacy framework. The students improved their overall performance on all three DLA reading scales in post-testing. The analysis of writing samples led to a range of teaching responses according to student needs in the areas of structuring writing, language use, connection between text and task, and writing accuracy.

### **7.6.3 Motivation to Engage**

The teachers in this study had volunteered to take part, and therefore they had some existing motivation to explore the topic of literacy at year 11. Their engagement and motivation appears to have been sustained over the period of the study by the specific focus on their everyday classroom practice in the context of each subject area. As outlined by Timperley et al. (2007), outcomes for students are most effective when professional learning is closely aligned with the specific needs of the teacher, and the teachers can see a clear link between their actions and the outcomes for students. The collaborative relationship between the teacher and researcher contributed towards sustaining the focus on enhancing literacy practices in context. Teachers were engaged in problem-solving about identified literacy issues, and supported with professional readings and guidance, and there were treated as equal partners in the relationship.

#### **7.6.4 Willingness to Adjust the Pace of Learning**

As clearly illustrated by the responses from year 11 students, the willingness of the teachers to adjust the pace of learning in the classroom to the literacy needs of the students is an important factor. Students appreciated and responded positively to instruction that allowed for review, repetition and revision of ideas and information whenever it was required. For this to occur, teachers needed to have a good understanding of how their students were progressing and the nature of their specific literacy needs in the context of their subject area. The quality of the teacher-student relationship and a genuine care for learning and achievement of students supports the willingness to make changes to the pace of learning.

The teachers also needed to have a flexible approach to programme planning and allow time for deep learning supported by effective literacy practices. This is not easy to accomplish, as pressure exists within schools to complete a certain amount of content learning within a programme, often with assessment deadlines to meet, and teachers may therefore resort to content-driven and teacher-led instruction at the expense of deep learning.

#### **7.6.5 Focus on Developing Independent Learners**

Teachers of year 11 students in this study identified early in the project their desire to increase students' independence in areas such as reading, researching, note-making and writing. Classroom observations and interviews with students showed that in year 11 most students demonstrated independent literacy behavior, although this was not consistent, and there were also signs of a high level of teacher dependence at various times. Throughout the year, the teachers gradually moved towards an expectation of more independence from students, although it is feasible that this expectation could exist from the start of the year. With a move towards a more co-constructed and power-sharing approach within a critical pedagogy framework, teachers could raise the expectation of their students to be independent learners.

### **7.6.6 Developing Deeper Connections with Texts**

At the start of the project, the teachers expressed concern about their students' lack of connection to texts. In all three subjects, students were required to use information from written and visual texts as evidence to support their responses made in writing, however this was not happening consistently, and students' scores on the DLA in Reading for Deep Understanding highlighted areas in which students were underperforming, for example, gathering inferred information from multiple sources, and identifying main ideas.

As previously outlined, the development of teacher questioning around texts in History and English may have contributed to improvements in reading by supporting students to make connections between texts and task, and to seek relevant evidence to support their claims. Focusing on skills within a critical literacy framework such as examining the construction of texts from different perspectives and determining authorial intent, particularly in History and English, enabled students to develop deeper connections with texts.

Science students are frequently required to integrate visual, symbolic and written information in order to make sense of what they read (Lemke, 1998) however student interviews showed that the links are not always obvious to students. The Science teachers consistently used diagrams to explain concepts in class and to deepen understanding of written texts. As the results from the DLA show, by the end of the project the students had increased their performance on Reading for Deep Understanding across all three subject areas.

### **7.6.7 Providing Opportunities to Practice**

Year 11 students need frequent opportunities to develop the oral, reading and writing skills that are necessary in order to achieve successful academic outcomes. Students who struggle with writing identified that they frequently did not understand what was required in a task, and that their written responses often lacked detail and accuracy. The academic language that is associated with new concepts in each learning area needs to be practised orally and in writing in order to become familiar to students. Students

identified that collaborating with peers and co-constructing knowledge enhanced their learning and understanding of subject content, and they valued the opportunities they had to practice what they were learning.

## **7.7 THE TEACHER-RESEARCHER RELATIONSHIP**

In this study, the researcher worked in collaboration with the teachers to investigate the literacy learning needs of year 11 students in order to improve their academic outcomes. The approach taken by the researcher was one of reciprocity, in which both parties seek to learn from each other, and equal status is accorded to both. It was important to the researcher to move away from traditional model of professional learning and development for secondary teachers where the external provider is seen as the expert in the field, and where the teachers cooperate within a programme of professional learning. As outlined by Frankham and Howes (2006), and McDonald et al. (2008), differences in power and stature between researchers and teachers may lead to teachers feeling defensive, suspicious and unresponsive to the aims of the intended project.

In the introductory phase of the project, the researcher emphasized the investigative nature of the work, hoping to establish equal roles and responsibilities between the teacher and researcher. This was achieved to some extent, although because the researcher provided ongoing advice and guidance throughout the project, there were times when the teachers looked to the researcher to provide ‘the answers’.

The researcher was known to the teachers prior to this project as a result of previous professional learning experiences, however they had never engaged in any projects together. Having had a partial relationship with the teachers prior to the project is likely to have made a smoother introduction to this study as there was some shared prior knowledge. Voluntary participation in the project also supported the development of a positive working relationship between the two parties.

Of particular importance to the teachers, was the subject-specific focus of the project. It is likely that their willingness to engage with the project and to maintain that connection over the period of a year was partially the result of the focus on literacy within each

subject area, rather than a generic approach similar to those that they had experienced in previous professional learning opportunities. The subject-specific focus required the researcher to take on a much more investigative approach to the project as well, not presuming that particular conditions would be present in a classroom or that the same responses to literacy challenges would be appropriate for each learning area. In an environment of reciprocity, the researcher had a lot to learn from the ways in which teachers carried out instruction in each class, and the value they placed on literacy in each context. The teachers made valuable contributions to the study and also had something to gain from the relationship as they learned more about literacy learning in context.

The relationship between the teachers and researcher was enhanced when there were early improvements in student results as a result of the project. After analyzing students' writing samples and making some changes to instruction for individuals and groups of students, the teachers could see an impact of their changed practice, and were therefore willing to sustain their involvement in the project. The critical factor was that the teachers could see the relevance of the professional learning to their daily teaching practice, which is consistent with the findings of Timperley et al. (2007).

The presence of the researcher in the school over a period of time enabled the relationship to evolve as both parties developed common points of understanding. The teachers appreciated the chance to focus their attention on one class for professional learning purposes, and to discuss the progress of individual students. Given the points outlined above, it is likely that the collaborative nature of the relationship between the teachers and researcher had an impact on teacher practice.

## **7.8 CHAPTER SUMMARY**

This chapter provided a discussion of the results presented in Chapters 4, 5 and 6.

The teachers involved in the study have examined the literacy demands inherent in year 11 Science, English and History, and they have used subject-specific diagnostic information to inform and adjust their teaching instruction accordingly. By focusing on

the explicit use of text features, building vocabulary knowledge and developing strategies to deepen students understanding when reading, teachers have supported students' overall improvement in reading.

Māori students in this study have made progress in reading, suggesting that a more explicit focus on the use of Text Features to support reading, as well as continued instruction to enhance deeper understanding from subject-specific reading in the context of culturally relevant pedagogy may contribute towards closing the achievement gap in literacy between Māori and non-Māori students in New Zealand.

Students in year 11 varied in their independent use of literacy knowledge and skills, and this was reflected in the teaching instruction. At times students displayed independence, and at other times they were highly dependent on teacher-led instruction. This year of transition between the junior secondary school and the beginning of senior secondary school is one in which teachers gradually support students towards greater levels of independence. With a move towards a more co-constructed and power-sharing approach within a critical pedagogy framework, teachers could raise the expectation of their students to be independent learners from the start of year 11.

The conditions that appear to support effective literacy practice have been outlined, as they have emerged from this study. These conditions include understanding the role of literacy within a subject area, using subject-specific literacy data, engaging in professional learning, teacher willingness to adjust the pace of learning, developing independent learners, deepening connections to text and providing opportunities to practice.

The teacher-researcher relationship in this study has been described as a collaborative approach that included making connections between theory and practice whereby teachers could see the impact of their changed actions through improved student outcomes. The relationship was one of reciprocity whereby the both the teacher and researcher contributed and gained from the collaboration, resulting in some impact on teacher practice.

## **CHAPTER 8**

### **CONCLUSION**

#### **8.1 INTRODUCTION**

This chapter presents the overall conclusions of the study. The limitations of the study are outlined in the first section, followed by an overall summary of the research. The next section in this chapter provides a response to each of the research questions as outlined in Chapter One. The implications of the research are outlined, and suggestions are made for future research. The chapter concludes with some final comments.

#### **8.2 LIMITATIONS OF THE STUDY**

The mixed method approach used in the design of this study meant that data from both quantitative and qualitative sources were collated and analysed in order to seek answers to the research questions. This approach required a tolerance for the complexity of data that were gathered from a range of sources. The researcher looked for connections across different types of data in order to gain a deeper understanding of the complexity that exists in teaching and learning environments. When connections were found between data, the results were strengthened. For example, initial data from diagnostic testing were linked to teachers' discussion about changes in their practice, further linked to observations in the classrooms of changed practice, and then to improved outcomes for students. Using multiple sources of data allowed the researcher to have more confidence in suggesting that the changes in teacher practice were likely to be linked to the changes in student achievement.

The sample size in this study may mean that the findings may not be generalisable to a wider context. In order to gain an understanding of the response to some of the literacy



demands that students experience in year 11, this study focused on three subject areas identified from previous studies (McDonald & Thornley, 2005) as having high literacy requirements. This means that the findings may not necessarily be transferred to learning environments of other subjects at year 11, because students in other subject areas may experience different literacy demands.

Participants consisted of two year 11 classes of students for each subject, and their teachers. Whilst the researcher endeavoured to select schools representative of the range of achievement typically found in New Zealand schools, the sample selected may mean that the findings are not necessarily generalisable to all New Zealand secondary schools.

The low number of Pasifika students in the two schools meant that conclusions could not be reliably drawn about the overall academic impact of effective literacy practice of the achievement of these students. However, in order to gain an understanding of the Pasifika students' responses to literacy instruction, the researcher included Pasifika students in the focused interviews. This allowed some information to be gained about Pasifika students' perceptions of effective literacy practice in the two schools.

The presence of the researcher in year 11 classes may have had an effect on the teaching instruction that was observed, and the responses made by students. In order to overcome this limitation, the researcher visited the classes several times over the period of a year and held regular meetings with each teacher. Developing and maintaining a relationship with the teachers over time meant that the researcher was likely to gain an overall understanding of the typical instructional responses made by each teacher.

### **8.3 SUMMARY OF THE RESEARCH**

From a sociocultural perspective, learning in secondary schools cannot be separated from the learner, the subject or the environment in which it occurs. This study examined literacy learning in the context of three senior subject areas and used a critical literacy perspective to examine the dynamic relationship between learners, texts and the classroom environment. From this perspective, the teaching and learning environments

in six year 11 classes across three subjects in New Zealand secondary schools were examined, in order to gain an understanding of the literacy-related practices and learning conditions that might lead to successful academic outcomes for students.

This study involved the development of a collaborative partnership between the teachers and researcher whereby information about student achievement was closely examined, teaching practice was observed, professional learning occurred for teachers, and the responses to instruction were discussed with students and reviewed with teachers. The examination of student achievement data, engagement in professional reading, and regular meetings between the teachers and researcher led to a closer understanding of the literacy demands inherent in each subject at year 11, the ways in which teachers responded to those demands, and the subsequent responses to instruction made by the students.

The skills and knowledge that teachers value within a particular subject area shapes the kinds of literacy practices that they use in the classroom and therefore what they consider to be important in terms of classroom instruction. During this study, the teachers engaged in a close examination of what they valued in their subject area, gained a deeper understanding of their students' literacy knowledge and skills at year 11, and added to their understanding about adolescent literacy. The teachers modified their teaching instruction according to students' needs, knowing where the students needed to progress to, in order to develop the subject-specific literacy skills required in the senior secondary school.

The interaction between teachers, students and texts was examined from a critical literacy perspective, enabling the researcher to investigate the teacher-student relationships, the extent to which students' knowledge and experiences were valued in the classroom, and the ways in which meaning was constructed from texts.

Students improved their reading skills over the period of one year. The analysis of subject-specific reading assessments early in the year identified the areas of weakness for individuals and groups of students and led to teachers making instructional decisions that allowed students opportunities to practise and refine their reading skills with

increasingly complex texts. It is likely that teachers engaged with the reading data because the reading assessment was constructed using a year 11 text that students would encounter during the year, and therefore the subject-specific data were more meaningful to them than a more generic reading assessment. The teachers provided explicit literacy instruction to students, including using text features effectively to support understanding when reading, and making connections between texts and tasks, so that students clearly understood the purpose for reading a text. Reading for deeper meaning was developed by explicit instruction in the identification of main ideas and authorial intent, locating supporting evidence, making links between visual and written text, and developing inferential skills. These elements contributed to the improvements that students made in their overall reading achievement throughout the year.

Māori students improved their reading skills over the year, making greater improvement than New Zealand European students in their Use of Text Features and Reading for Deeper Understanding. Whilst this was not enough progress to close the gap between the overall scores for Māori and non-Māori students, the Māori students' response to instruction and their improved achievement is an indication that in this study the infusion of effective literacy practices approaches has had some impact. An examination of the context in which learning occurred for Māori students shows that whilst there was an expressed desire by teachers to form positive relationships with students and to acknowledge, value and respect their students' identity and culture, there were few real opportunities for that to be realized in the classroom.

## **8.4 RESPONSES TO RESEARCH QUESTIONS**

### **8.4.1 How Effective is the Infusion of Literacy Teaching and Learning in Improving Outcomes for Secondary School Students at Year 11?**

The teachers in this study worked towards a deeper understanding of effective literacy practice in the context of each year 11 subject, supported through a collaborative partnership with the researcher. They identified the literacy demands within their subject area, and the kinds of literacy skills and knowledge that students would need in

order to be successful. At the same time, they examined their students' literacy strengths and needs through a subject-specific reading assessment and an analysis of writing samples. This led to the design of teaching and learning experiences for students that included the development of literacy skills in relevant contexts.

Students improved their reading skills over the period of one year across all three subject areas, indicating that whilst they were encountering a range of increasingly complex texts, the students were continuing to develop the literacy skills they required in order to access relevant content from those texts. The development of reading and writing skills over the year supported students with class work and NCEA assessments, and in some NCEA achievement standard assessments, students' results were higher than the results for that standard in previous years.

There was variation between subjects regarding the extent to which the infusion of literacy teaching and learning occurred. History teachers recognized the high literacy demands that students encountered in year 11 History, and regularly provided opportunities for students to practice and develop their skills. Over the period of this study, the History teachers increasingly developed instruction to meet the needs of particular students or groups of students, based on an analysis of their literacy strengths and needs. Examining what was valued and important in the subject area contributed to adaptations that teachers made in order to develop students' History skills and knowledge in the senior school. A critical literacy approach (Luke, 2004; Peterson, 2003) was evident in the ways that History teachers engaged students in examining the construction of texts from different perspectives and how that influenced their perceptions of people, places and issues.

The infusion of literacy teaching and learning in English was closely connected to what was valued by the English teachers. From a critical literacy perspective, students in year 11 were engaged in examining the construction of texts, the deliberate decisions made by writers, and how that influences the messages conveyed in texts. English students were afforded many opportunities to discuss their learning with peers and to contribute their views. Whilst there was some development in students' independent literacy skills,

there were a number of occasions when students were dependent on the teacher for a high level of literacy support.

Students in year 11 Science improved their overall reading achievement during the year in the Use of Text Features and Reading for Deeper Meaning. The Science teachers identified literacy demands in their subject area and focused on aspects of literacy teaching and learning throughout the year, however the Science students had fewer opportunities to engage in discussing, reading and writing about key concepts than in History or English classes. One of the Science teachers identified a tension between introducing students to a body of content knowledge, and spending more time on developing deeper understanding of content through effective literacy practices, suggesting that he saw the two as separate, rather than as literacy infused in the context of the subject. Whilst there was some shift in the teacher's practice throughout the year, the instruction in this classroom was predominantly teacher-led, with few opportunities for students to discuss with peers, or develop understanding through regular reading and writing about topics, before moving on to the next one. The NCEA results from this class were below the expected outcomes, which may have been linked to the limited literacy practice offered to these students.

#### **8.4.2 How Effective is the Infusion of Literacy Teaching and Learning in Improving Outcomes for Māori Students at Year 11?**

Māori students made greater improvement than New Zealand European students on two aspects of the DLA – Use of Text Features and Reading for Deeper Understanding. Whilst this improvement was not enough to close the gap between the results for Māori and non-Māori, it does indicate that an explicit focus on literacy teaching and learning can lead to improved outcomes for Māori. In relation to previous studies (Bishop & Berryman, 2010; Hynds et al., 2011) there is potential for a much greater improvement in Māori student outcomes if effective literacy practice occurs within a context of culturally relevant pedagogy, allowing powerful learning contexts to be created that respect what Māori learners bring to the learning context and where Ako (reciprocal teaching and learning) can occur.

### **8.4.3 What are the Conditions that Support or Inhibit the Development of Effective Literacy Practices in Each Subject?**

The conditions that appear to support or inhibit effective literacy practice in each subject emerged from the findings of this study.

The location of the study within each subject area whereby learning is embedded in social contexts, (Vygotsky, 1978) enabled teachers to see the relevance of effective literacy practices to the desired subject learning outcomes, and led to a deeper understanding by teachers of the role of literacy in their everyday instruction. Effective literacy practice is supported by the degree to which teachers understand the role that literacy plays in supporting students to achieve specific subject outcomes. From a critical literacy perspective, developing a deeper understanding of how knowledge is created in a subject enabled teachers and students to become more active and powerful users of that knowledge.

The use of subject-specific literacy data at year 11 supported the development of effective literacy practice. Using the texts that students would encounter in their year 11 programme to construct diagnostic reading assessments meant that teachers were provided with information that was derived from relevant content, and used the structure and features of texts specific to that subject area. Instruction was then targeted to meet the specific needs of students in the context of the subject.

The motivation of the individual teacher contributed to the development of effective literacy practice. In part, teacher motivation was derived from an awareness of the literacy needs of their year 11 students and a desire to support them to succeed, and was sustained to some extent when teachers were able to see changes in student achievement as a result of their actions. The collaborative relationship between the teacher and researcher also supported and sustained teachers' motivation. As outlined above, locating the literacy focus within the context of each subject and focusing on the specific professional learning needs of the teacher in that context, contributed to the development of effective literacy practice.

Student responses clearly indicated that adjusting the pace of learning according to students' needs is an important factor in effective literacy practice. Students may need more opportunities to read, discuss and write about important subject content if they are faced with challenging material, rather than moving on to new topics. In order to achieve successful academic outcomes, students do need frequent opportunities to practise oral, reading and writing skills, using the academic and subject-specific language that is associated with new knowledge. The quality of the teacher-student relationship is associated with care for student learning, and the teacher's willingness to adjust the pace of learning.

Developing the independent literacy skills of students is an important focus in year 11. Students in this study varied in their demonstration of independent literacy skills, with some highly teacher-dependent behaviours shown at times. Most students in year 11 will encounter assessment situations that require them to demonstrate independent literacy knowledge and skills. Effective literacy practice includes a focus on developing greater independence in areas such as reading, researching, and writing, whereby the teacher is cognisant of moving from instruction that involves demonstration and modeling, towards co-construction and student independence. A move towards a more co-constructed and power-sharing approach within a critical pedagogical framework could support students to become more independent learners.

In addition, effective literacy practice is enhanced by developing deeper connections with the texts that are used in each subject area. The types of texts and ways in which knowledge is created and used will vary between subjects, and when students understand this they are more powerful users of knowledge. Students need to see the connection between tasks that they are required to undertake and the texts that they are required to use. They may, for example, need to gather information from multiple sources, develop inferential skills, synthesise and analyse material, identify authorial intent, integrate symbolic, written and visual information and evaluate ideas and information. Developing these deep connections with texts enables students to engage with important subject knowledge and to use that knowledge as evidence when they are required to produce their own responses.

#### **8.4.4 How Do Students Perceive the Impact of Literacy Teaching in Each Subject?**

Year 11 students are required to engage with information that is presented in a variety of different ways, using a variety of texts. Generally, the students find the range of materials interesting, however engaging with multiple texts can be challenging, as students need to make links between written, visual and oral information for a range of purposes. Of most importance to the students, was that they understood the purpose and relevance of tasks that they were given, especially those requiring independent reading, otherwise they felt overwhelmed and did not know how to proceed with the task.

Students at this year level had some understanding of subject-specific literacy demands. Some students recognized that there were differences in the ways they approached reading between subjects, adjusting their response according to the ways in which material was presented. Throughout the year the teachers provided more explicit instruction in the use of text features to support reading, and in reading for deeper meaning, and students improved these aspects of their reading by the end of the year.

Students perceived that they wrote differently according to subject-specific demands. They identified that writing in Science required accuracy and the use of correct scientific terminology, whilst creative writing in English was more open to personal interpretation. Students were aware of some of the structures that were required when writing in English, History and Science, however they did not always plan their written responses, or write according to a particular structure. Students valued those occasions when teachers were able to provide exemplars of tasks, especially samples of work from previous students, enabling them to see the structure and content of the work required in year 11.

The students recognized teacher actions that were supporting them to become independent learners, and where they were developing positive teacher-student relationships. Students responded positively when teachers were prepared to explain new concepts thoroughly, and when they made time to review knowledge and skills that were challenging and difficult. The students were also aware when teachers



acknowledged and respected their existing skills and knowledge, and engaged in co-construction of learning.

Year 11 students sometimes found the pace of learning too fast, moving on to a new topic before fully understanding the current one. Managing the pace of learning for individual students is certainly a challenge in any classroom, however students at this year level experience a faster pace than previous years as they encounter increased academic demands. The amount of new content knowledge needs to be balanced with sufficient opportunities to read, think, discuss and write about existing learning so that it is fully understood.

#### **8.4.5 How Does the Relationship With the Researcher Have an Impact on Teacher Practice?**

The relationship between the researcher and teachers in this study was built around a collaborative approach. The researcher attempted to move away from traditional teacher professional learning models that involve an external ‘expert’ to one where both parties had equal status and sought to gain deeper understanding of literacy learning in year 11 contexts. Overall, this approach appeared to build a positive relationship between the researcher and teachers that developed over time. The teachers were willing to discuss and share issues that arose in the classroom and engaged in a problem-solving approach to professional learning, although at times they did seek definitive answers from the researcher. The collaborative approach allowed the teachers the opportunity to try things out in the classroom, without any predetermined notions of what effective literacy practice should look like in their year 11 classes.

Teachers were prepared to make changes to their practice because the focus on literacy within their subject area was relevant, and connected to their everyday classroom practice. The relationship between the researcher and teachers was therefore enhanced because of the mutual benefits of engaging in the study.

Teachers also responded positively to the individualized professional learning that accompanied the study. Generally, teachers experience professional learning within a group or whole staff environment, however this study offered teachers the opportunity to

reflect on their practice individually, to engage in professional reading, to discuss the progress of individual students, and to determine strategies focused on improving literacy practice in their year 11 class. Few teachers have the opportunity to experience professional learning in this manner.

Early improvements in students' results enhanced the relationship between the researcher and teacher, and encouraged teachers to sustain their involvement in the project over time. The improvements were an outcome of analysing data about students' literacy skills, and then focusing teaching instruction on areas of need. When teachers could see the impact of their changed practice, their participation in the study was affirmed.

## **8.5 IMPLICATIONS OF THE STUDY**

This research adds to the body of knowledge related to adolescent literacy in New Zealand. The study focused on literacy learning and teaching in the senior secondary school, an area in which there had been few previous studies in New Zealand schools. As shown through this study, effective literacy practice is an important component of teaching and learning at year 11 and can contribute towards improved academic outcomes for senior students.

This study has implications for secondary teachers and educators by highlighting the significance of literacy practice embedded within the context of senior subjects. Secondary teachers may consider gathering and using data that provide them with subject-specific information about their students' literacy strengths and needs in the senior school, and then consider the ways in which effective literacy practice can strengthen the content knowledge and skills that students require.

The progress in reading made by Māori students in this study suggests that when teachers focus on developing senior students' literacy skills in the context of culturally relevant pedagogy they may contribute towards closing the literacy achievement gap that exists between Māori students and non-Māori students. The identification and use of

text features, vocabulary development, and the development of deeper reading skills relevant to each subject area contributed to overall reading progress made by Māori students.

The identification of conditions that support or inhibit effective literacy practice may have implications for secondary teachers and the decisions they make around instruction. Teachers could consider the extent to which they provide students with regular opportunities to engage in literacy practices that support their understanding of content, the extent to which they adjust the pace of learning according to students' needs, the cultural relevance of their instruction, the ways in which they develop students' independent literacy skills, and how their understanding of subject-specific literacy transfers into teaching instruction. Literacy leaders, senior managers in secondary schools, and providers of professional learning and development may also find the identification of conditions for effective literacy practice useful when designing literacy professional learning and development in secondary schools.

The description and analysis of the teacher-researcher relationship throughout this study contributes to the body of knowledge around such partnerships, and may have implications for future investigations. There are benefits to be gained by both parties, and potential benefits for students in improving academic outcomes. Teachers may consider the notion of working within a teacher-researcher partnership in order to integrate theory and practice in a particular field of interest. Researchers may consider the teacher-researcher relationship as offering a rich source of data from an authentic context.

## **8.6 FUTURE RESEARCH**

As this study has focused on three subject areas only in the senior secondary school, it would be worth considering research within subjects other than English, History and Science to investigate how effective literacy practices might be infused in order to raise student achievement. Teachers, educators and researchers could develop a deeper understanding of the place and value of effective literacy practice in the context of a

wider range of senior secondary school subjects, and how teaching instruction might be enhanced.

This study focused on teaching and learning in year 11, as the initial year in senior secondary school. Further research could investigate literacy practice within years 12 and 13, as students continue to engage with increasingly complex texts across a range of learning situations. Each step up in the senior secondary school poses new literacy challenges for students. Future research might investigate the ways in which teaching instruction responds to those literacy challenges and investigate the outcomes for students.

Researchers may wish to investigate effective literacy teaching practices that develop within departments in a secondary school. This study has focused on individual teachers, their understandings and their instructional decisions. Future research may broaden the participants to include groups of teachers within departments, and how they develop a shared understanding of effective literacy practice in the context of a particular subject area.

Continued research is needed into effective teaching and learning for Māori students, working towards improving achievement outcomes for Māori. The results in this study suggest that changes can be made to literacy practices that affect outcomes for Māori. Further research is needed in order for teachers and other educators to work towards ongoing improvement.

## **8.7 FINAL COMMENTS**

Effective literacy practice is an important component of teaching and learning in the senior secondary school. This study has contributed towards an understanding of effective literacy practice by investigating the literacy teaching and learning that occurred within the context of year 11 English, Science and History classes for all students and for Māori. Locating the research within the context of each subject, and working from a collaborative teacher-researcher partnership, provided insights into

teachers' use of literacy data, the instructional decisions they made, the response from students and the academic outcomes that were achieved.

Literacy teaching and learning must continue throughout secondary school, as students continue to encounter increasingly complex literacy demands across multiple texts and learning situations. Developing an understanding of the subject-specific ways in which literacy practices can be infused in order to enhance content knowledge and skills is an important component of effective teaching practice in senior secondary school.

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## APPENDICES

1. Sample History Diagnostic Literacy Assessment, Response and Summary
2. Literacy Practice Observation Checklist
3. Interview Schedules
4. Participant Information Sheet
5. Sample Writing Analysis

## Appendix 1: Sample Year 11 History Literacy Diagnostic Assessment

Name: \_\_\_\_\_ Date: \_\_\_\_\_ Class: \_\_\_\_\_

1. What might this passage called “The Montgomery Bus Boycott, 1955” be about?

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2. How were black people treated on public transport in Montgomery City in 1955?

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3. What is the main point of the paragraph beginning with the sentence: “The bus boycott was significant because...” (page 23)?

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4. This text is called an ‘explanation’. How is it different from a short story?

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5. How does knowing this information help you as a reader? (Knowing that it is an explanation)

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6. Why do you think the author has included the photo on page 22?

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7. Why was the action taken by Rosa Parks important?

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8. What methods were used to fight against racial discrimination in this civil rights action?

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9. What was achieved from the bus boycott of 1955?

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10. What can you find out from this passage about black civil rights leaders?

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11. What does 'segregation' mean?

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12. What does 'formation' mean? Is there any part of the word that can help you to work it out?

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Reference: Black Civil Rights in the USA, 2<sup>nd</sup> Edition, Rosanowski, J., O'Connell, P. & Murdoch, T. pp 22-23

**Year 11 Diagnostic Literacy Assessment: History - Sample Responses**

Reference: Black Civil Rights in the USA, 2<sup>nd</sup> Edition, Rosanowski,J., O’Connell, P. & Murdoch, T. pp 22-23

<b>Using Text Features</b>		
Make predictions about readings from headings, sub-headings, tables, diagrams, illustrations, captions etc.	What might this passage called “The Montgomery Bus Boycott, 1955’ be about? <b>Civil rights actions taken by black people in Montgomery to stop using the buses.</b>	Correct: Incorrect:
Make inferences, cross-check and confirm using text features	How were black people treated on public transport in Montgomery City in 1955? <b>They were separated. They had to give up their seats for white people</b>	Correct: Incorrect:
Make predictions about reading using knowledge of sentence and paragraph structure	What is the main point of the paragraph beginning with the sentence: “The bus boycott was significant because...” (page 23) ? <b>Non-violent protest was led by Martin Luther King who told his followers not to retaliate.</b>	Correct: Incorrect:
Make predictions about reading using text forms	This text is called an ‘explanation’. How is it different from a short story? <b>In this answer look for comparison, in text features, deeper features and text form.</b>	Correct: Incorrect:
Demonstrate an understanding of how knowing text form facilitates reading.	How does knowing this information help you as a reader? <b>An explanation means that I want the text to explain things clearly, not tell a story. It is non-fiction. An explanation clarifies my understanding.</b>	Correct: Incorrect:
Use knowledge of text form to identify authorial intent	Why do you think the author has included the photo on page 22? <b>To show that this is about real people, in a real situation.</b>	Correct: Incorrect:
<b>Reading for Deeper Meaning</b>		
Integrate information from text features with running text (poster/headings/text)	Why was the action taken by Rosa Parks important? <b>Gave an opportunity to take action against discrimination. It started direct action about civil rights. It started a bus boycott that was used to protest against discrimination.</b>	Correct: Incorrect:
Develop understanding of main idea, locate main points	What methods were used to fight against racial discrimination in this case? <b>Direct action – the bus boycott Non-violent protest Court action by the NAACP to change the laws</b>	Correct: Incorrect:
Gather literal and inferred information from multiple sources	What was achieved from the bus boycott of 1955? <b>States could no longer segregate passengers on public transport. Black people could sit anywhere on buses. New leaders emerged - especially Martin Luther King. Non-violence was shown to be a powerful weapon. The fight against racial discrimination continued.</b>	Correct: Incorrect:
Categorise, Summarise	What can you find out from this passage about black civil rights leaders? <b>Martin Luther King led followers in non-violent protests.</b>	Correct: Incorrect:

	<b>The leaders fought against discrimination. They had to face attacks on their home and families.</b>	
<b>Vocabulary Knowledge</b>		
Make meaning in unfamiliar vocabulary using context	What does segregation mean? <b>To keep apart</b> <b>To separate groups</b>	Correct: Incorrect:
Make meaning in unfamiliar vocabulary using morphology	What does formation mean? (page 23 1 <sup>st</sup> paragraph) Is there any part of the word that can help you to work it out? <b>Formation: structure, design, arrangement, organization of</b> <b>Form: shape, arrangement</b>	Correct: Incorrect:

### Sample History Diagnostic Literacy Assessment Summary

#### Using Text Features

1. Make predictions about readings from headings, sub-headings, tables, diagrams, illustrations, captions etc.
2. Make inferences, cross-check and confirm using text features
3. Make predictions about reading using knowledge of sentence and paragraph structure
4. Make predictions about reading using text forms
5. Demonstrate an understanding of how knowing text form facilitates reading.
6. Use knowledge of text form to identify authorial intent

Using Text Features	Student A	Student B	Student C	Student D	Student E	Student F	Student G	Student H	Student I	Student J	Student K	Student L	Student M	TOTAL
1.	1	1	1	1	1	1	0	1	1	1	1	1	0	1=11 0=2
2.	1	1	1	0	1	1	1	1	1	1	1	1	0	1=11 0=2
3.	1	0	0	1	0	1	0	1	0	1	1	0	0	1=6 0=7
4.	1	1	1	0	1	0	0	0	0	0	1	0	0	1=5 0=8
5.	0	0	0	0	0	1	0	1	0	0	1	1	0	1=4 0=9
6.	1	1	1	1	1	1	1	1	1	1	1	1	0	1=12 0=1

### Reading for Deeper Meaning

7. Integrate information from text features with running text
8. Develop understanding of main idea, locate main points
9. Gather literal and inferred information from multiple sources
10. Categorise, Summarise

Reading for Deeper Meaning	Student A	Student B	Student C	Student D	Student E	Student F	Student G	Student H	Student I	Student J	Student K	Student L	Student M	TOTAL
7.	1	1	1	1	1	1	0	1	0	1	1	0	0	1=9 0=4
8.	1	0	1	0	1	1	1	1	0	1	1	0	1	1=9 0=4
9.	1	0	1	1	1	0	0	1	0	1	1	1	0	1=8 0=5
10.	1	1	1	0	1	1	0	1	0	1	1	1	0	1=9 0=4

### Vocabulary Knowledge

11. Make meaning in unfamiliar vocabulary using context
12. Make meaning in unfamiliar vocabulary using morphology

Vocabulary Knowledge	Student A	Student B	Student C	Student D	Student E	Student F	Student G	Student H	Student I	Student J	Student K	Student L	Student M	TOTAL
11.	1	1	1	1	0	1	1	0	0	1	1	1	0	1=9 0=4
12.	1	1	1	1	1	1	1	0	0	1	1	0	0	1=9 0=4
<b>TOTAL /12</b>	11	8	10	7	9	10	5	9	3	10	12	7	1	

## Appendix 2: Literacy Practice Observation Checklist

Subject:	Class Observed:	Date:
<b>Strategies</b>	<b>Observed / Comments</b>	
<p><b>Sharing the learning goals</b></p> <ul style="list-style-type: none"> <li>• Sharing the learning goals/intention with the students. (orally / displayed)</li> <li>• Links are made to previous / next lesson</li> <li>• Criteria required to reach the goal/intention is discussed with students</li> <li>• Purpose of literacy/teaching strategy made explicit to students.</li> <li>• Literacy/teaching strategy selected appropriate for learners and task.</li> </ul>		
<p><b>Introducing and using text</b></p> <ul style="list-style-type: none"> <li>• Students prior knowledge of content/skills explored</li> <li>• Reading approaches selected to unpack the content:</li> <li>• Vocabulary introduced/defined in context</li> <li>• Students make predictions about text,</li> <li>• Made aware of text structure/features</li> <li>• Cross checking of information for understanding</li> <li>• Students engage in text beyond literal level</li> </ul>		
<p><b>Monitoring students' understanding</b></p> <ul style="list-style-type: none"> <li>• Teacher questioning – whole class</li> <li>• Teacher questioning – individual students</li> <li>• Students respond to teachers' questions</li> <li>• Students generate useful questions</li> </ul>		
<p><b>Scaffolding the learner towards independence e.g.</b></p> <ul style="list-style-type: none"> <li>• Brainstorming of ideas around the topic</li> <li>• Teacher introduces and models task</li> <li>• Learning tasks are scaffolded for students.</li> <li>• Students reflect on learning</li> </ul>		
<p><b>Writing/processing</b></p> <ul style="list-style-type: none"> <li>• Task directions clarified</li> <li>• Criteria for writing explained</li> <li>• Modelling of writing</li> <li>• Co-construction</li> <li>• Review and edit</li> </ul>		
<p><b>Engagement of students</b></p> <ul style="list-style-type: none"> <li>• Students are engaged in classroom learning activities</li> <li>• Teaching approaches reflect the diverse needs of students</li> </ul>		

## **Appendix 3: Interview Schedules**

### **Teacher Interview Schedule**

The following questions were used to guide discussion in semi-structured interviews with teachers in two secondary schools.

#### **How do you define**

- literacy?
- achievement?
- collaboration?
- research within this project?

#### **Partnership/Collaboration between teacher and researcher**

- How would you describe the partnership that you are involved in?
- How do you see the partnership/professional learning group operating?
- Could you describe your role within the partnership?
- What responsibilities have you had?
- What things do you see as being important to the partnership functioning effectively?
- What do you think you/other teachers need to know or understand to be research partners?

#### **Professional Learning**

- Could you describe the professional learning component of the partnership?
- What professional learning approaches have been useful? In what ways?
- Have your ideas about literacy changed in any way?
- Have you made any changes to the way in which you teach as a result of the professional learning? If so, what effect(s) do you think the changes have had?
- Do you think you will sustain these changes? Why/Why not?
- Are there aspects of literacy professional development that you would like to investigate that have not been covered in the professional learning?

#### **Effective literacy practice**

- What do you understand by the term 'effective literacy practice'?
- To what extent do you see literacy as part of your regular teaching practice?



- What supports or inhibits your ability to infuse literacy into your regular teaching practice?
- What effects do you think the infusion of literacy has had on student learning?
- What effects do you think literacy teaching and learning has had on outcomes for Māori students in your class?

### **Literacy in context**

- What do 'experts' in your subject area value in terms of using texts? i.e. what do they focus on when reading, what kind of thinking is valued, how do they write about subject content?
- What do you think is important for secondary students in your subject to know about reading and writing in your subject area?
- How do you teach them this knowledge?
- How do (all/Māori) students respond?

### **Wider School Impact**

- How has the school supported your involvement in this project?
- Do you discuss your work on this project with other teachers?
- Will you share your findings with the wider staff?
- How do you see the research as impacting on the school?

## **Student Interview Schedule**

The following questions were used to guide discussion in semi-structured interviews with year 11 students (15-16 years old) in two New Zealand secondary schools.

### **How do you define**

- Literacy?
- Achievement?

### **Literacy in Context**

- What sort of reading and writing do you do in this subject?
- What do you think it is important for other students to know about reading and writing in this subject?

### **Literacy and Learning**

- What sort of reading do you do outside of school?
- Do you think you read things differently out of school to the ways you read things in school?
- Has the amount of reading you have to do for school changed this year?
- Has the work that you do for assessment /NCEA made any difference to your reading and writing?
- Where does most of your in-school reading come from? (Text books, handouts, whiteboard?)
- Are there differences between subjects?
- Do you think you read differently between subjects?
- Do you think you understand most of what you read?
- When reading gets tough, what do you do?
- Are there different ways to read fiction and non-fiction texts?
- In thinking about non-fiction, do you ever think about what you might already know about a topic to help you understand new work?
- Do you ever think about the way that a piece of text is structured or laid out to help make sense of what you read?
- How do you use tables, graphs, diagrams, text boxes in your reading?
- Have you found that you have had to learn a lot of new vocabulary in different subjects this year?
- How do you go about making sense of new words?
- Do you generally copy notes or are there subjects where you are expected to make your own notes?
- How do you do this (make own notes)?
- How did you learn to do this?

- How do you go about gathering information for research assignments?
  - How do you know whether a piece of information is important or useful or not?
  - How do you go about organizing information for writing assignments?
  - Do you do any writing out of school?
- 
- Are there differences between the ways you write in different subjects? For example do you write differently in science to the way you write in English?
  - What writing do you feel most confident about doing? What things are you good at that help you to feel more confident in your writing?

### **Impact of study**

- Have you noticed your teacher doing anything different this year to help you with reading and writing in this subject?
- Has it been useful for you?
- Have you tried anything for yourself to make reading and writing easier in this subject or other subjects?

## Appendix 4: Participant Information

### INFORMATION SHEET FOR PRINCIPALS AND TEACHERS

**Research Title:** Infusing effective literacy practice within secondary school disciplines

**Principal Investigator:** Professor Darrell Fisher, Curtin University of Technology, Western Australia. Phone: 61 8 9266 3110 [d.fisher@curtin.edu.au](mailto:d.fisher@curtin.edu.au)

**Co-investigator:** Denise Hitchcock Phone 64 04 9388448. [denise@itm.org.nz](mailto:denise@itm.org.nz)

I am writing to ask you to consider participating in a research study of year 11 students and their literacy teaching and learning that will be conducted by PhD candidate Denise Hitchcock through Curtin University of Technology.

The study aims to investigate how student achievement outcomes can be improved in year 11 classes through effective literacy teaching and learning within the context of three learning areas.

Within New Zealand schools there is a wide range of literacy achievement. Of national concern is the extent to which both Māori and Pasifika students are over-represented in the lower levels of literacy achievement. Students who perform at low levels of literacy achievement are less likely to be successful across subject areas when they encounter the demands of the National Certificate of Educational Achievement (NCEA). The purpose of this study is to investigate ways in which teachers may be able to improve the outcomes for all students by infusing effective literacy practices into their regular teaching practice and monitoring the effects on student learning. Particular attention will be paid to the outcomes for Māori students within the study.

Those teachers who give their consent to participate in the study will be involved in a programme of literacy professional development delivered by the researcher over a period of one year. The time made available for teachers to participate in this study will be negotiated between the researcher and the principal of each school. The programme of professional development will involve workshops, classroom observations, interviews with the researcher, and collaborative monitoring of student progress. The researcher will collaborate with the teacher participants to plan and reflect on progress during the professional development.

The teachers and principal have the right to withdraw from the study at any time.

In order to inform the study, data will be collected about teachers and students. The data to be collected about students may include subject specific assessment results, samples of student work, and sample student interviews. Data about teachers will include classroom observations, interviews and may include samples of teachers' planning.

All students in the participant teachers' year 11 classes will be asked to complete a consent form, and permission will be gained from parents if students volunteer to be interviewed. The students have the right not to participate in all or part of the study.

The potential inconveniences associated with your involvement in the study are the additional time involved in professional development that would be required by teacher participants, and in providing access to the data collected by the school related to student achievement.

The benefits of your participation in the study are that the teachers will be receiving literacy professional development from an experienced and qualified literacy facilitator at no cost to the school, over a period of one year.

The study will provide valuable insights into the ways in which the teaching of students in your school at year 11 can be enhanced. It would be anticipated that the findings from this study could be shared more widely within the school and help to raise the achievement outcomes for a wider group of students.

It is important for you to know that the data about students and teachers remains confidential to the researchers. No individual school, teacher or student will be identified in any reported research or presentations from this study. To make sure data and any other personal information is safe, everything will be kept in locked storage at 6 Cassis Place, Crofton Downs, Wellington, and a copy kept at Curtin University of Technology, Western Australia. All data will be kept for 5 years after the completion of the study and then destroyed.

Should you wish to have further information about this study please phone Denise Hitchcock (Phone: 04 9388448), email [denise@itm.org.nz](mailto:denise@itm.org.nz) or you may wish to contact the Principal Investigator, Professor Darrell Fisher (Phone 61 8 9266 3110), email [d.fisher@curtin.edu.au](mailto:d.fisher@curtin.edu.au).

This study has been approved by the Curtin University Human Research Ethics Committee (Approval Number HR **29/2010**). The Committee is comprised of members of the public, academics, lawyers, doctors and pastoral carers. Its main role is to protect participants. If needed, verification of approval can be obtained either by writing to the Curtin University Human Research Ethics Committee, c/- Office of Research and Development, Curtin University of Technology, GPO Box U1987, Perth, 6845 or by telephoning 9266 2784 or by emailing [hrec@curtin.edu.ac](mailto:hrec@curtin.edu.ac).

Thank you for your consideration

Yours sincerely

Denise Hitchcock and Professor Darrell Fisher

## Appendix 5: Sample Writing Analysis

Feature	Indicators	Specific areas of concern / Individual needs/ Strengths
<p><b>Audience and Purpose</b></p> <p><i>Who are we writing this for?</i></p> <p><i>What is the purpose of the task?</i></p> <p><i>Has the student written according to purpose?</i></p>	<ul style="list-style-type: none"> <li>• Evidence that the writer recognises the purpose for writing</li> <li>• Language use and writing style appropriate for audience and purpose</li> </ul>	
<p><b>Content / Ideas</b></p> <p><i>What were you looking for?</i></p> <p><i>A list of facts? Personal response?</i></p> <p><i>Detailed explanation? Supported by examples?</i></p> <p><i>Specific content knowledge?</i></p>	<ul style="list-style-type: none"> <li>• Develops /sustains a central idea/ argument</li> <li>• Supports ideas/ points with detail and/or comment</li> <li>• The information given is accurate / relevant</li> </ul>	
<p><b>Structure / Organisation</b></p> <p><i>How should this writing be organised?</i></p> <p><i>Steps in a process?</i></p> <p><i>Logical sequence of paragraphs?</i></p> <p><i>A defined structure e.g. writing up an experiment?</i></p>	<ul style="list-style-type: none"> <li>• Introduction is clear</li> <li>• There is a logical sequence of the ideas / explanation / argument</li> <li>• Paragraphs are in a logical order</li> <li>• Links are made between paragraphs e.g. 'Firstly..., Secondly... Therefore...</li> <li>• A variety of sentence beginnings and lengths have been used.</li> <li>• Ends with a conclusion/ summary statement</li> </ul>	
<p><b>Language</b></p> <p><i>What are your expectations?</i></p> <p><i>Use of topic-related vocabulary?</i></p> <p><i>Formal language?</i></p>	<ul style="list-style-type: none"> <li>• Uses topic-related vocabulary appropriately</li> <li>• Selects a wide range of vocabulary</li> <li>• Formal, objective language is used</li> <li>• Descriptive language is used</li> <li>• Rhetorical questions/ emotive words/repetition used for effect</li> </ul>	
<p><b>Surface Features</b></p> <p><i>What are your expectations in terms of accuracy?</i></p>	<ul style="list-style-type: none"> <li>• Uses correct tense</li> <li>• Spelling is accurate</li> <li>• Uses appropriate punctuation</li> </ul>	