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The Characteristics of Adult Readers in Entry Level Tertiary Settings in New Zealand

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Abstract

International literacy and life skills surveys in 1996 and 2006 assessed the broad group of skills encompassing reading, numeracy, and problem solving skills across OECD countries. Findings show that around half of the adult population in New Zealand have literacy levels below the minimum level of competence required to meet everyday life (Ministry of Education, 1998; 2001; 2005; 2007b). This study examines the specific literacy skill of reading and looks at the reading related characteristics of 52 New Zealand adults in entry level tertiary settings. The 40 males and 12 females attended three Private Training Establishments and engaged in employment skills courses, security work training or trade skills courses. Participants ranged in age from 16 years to over 50, and 22 identified as European, 20 as Maori, 2 as Pasifika with the remaining 8 identifying with more than one of these ethnicities.

The simple view of reading (Gough & Tunmer, 1986) which suggests that decoding and linguistic comprehension make separate contributions to reading comprehension is used to examine the relationships between the sub-components of reading in this population. One-to-one interviews are used to test participants on decoding skill, word reading skills, sentence comprehension skills and receptive vocabulary knowledge. In addition, information on self-belief in reading ability, value placed on reading and reading habits is collected from each participant.

The 3 sub-groups of less-skilled readers described by the simple view are found to be present in this population and correlations between the key measures

indicate strong positive correlations between decoding and listening comprehension in the over-all general population of readers. In the general population of less-skilled readers there are significant positive correlations between decoding and sentence comprehension and between receptive vocabulary skill and sentence comprehension. Further analyses indicate negative correlations exist between decoding and listening comprehension among the participants in each of the 3 less-skilled readers groups. The results support the pattern expected under the simple view of reading and the previously reported pattern of spiky skill profiles of adult learners.

Over-all there is no apparent relationship between actual skill of the readers in this study and their perception of that skill or between the value placed on reading and actual skill. Generally the skilled readers in this study read a broader range of materials and read more regularly than less-skilled readers in this study.

These results, by providing evidence of reading related characteristics of adults in tertiary training in New Zealand, will help inform adult literacy programme content and delivery methods and increase our understanding of the specific reading instruction needed for less-skilled adult readers.

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Chapter 1: Introduction

This introduction provides an overview of adult literacy survey findings from 1996 and 2006, and the economic and social implications of these findings for New Zealand society. In addition, the significance of examining entry level tertiary training in this study is explained. The chapter concludes with a summary.

Adult literacy surveys

There is strong evidence internationally that in developed countries full participation in society and the labour market is linked to the capacity to accumulate knowledge and to develop and maintain a broad range of skills (Satherley & Lawes, 2007). In the 1990s a comparative survey of adults, the International Adult Literacy Survey (1996) (IALS), was designed and conducted to measure these skills among participating countries. An adult was defined as any person between the ages of 16 and 65 living in a private household. The survey used a *task based* methodology to assess skills and was developed by Statistics Canada and the Education Testing Service in the United States. This methodology has been found to be valid in producing population estimates of literacy across countries (Ministry of Education, 1998).

IALS was conducted in New Zealand in March 1996 with a random sample of 4223 adults (Ministry of Education, 2001). By the end of 1998 more than 20 countries had completed their collection of data. At this time the survey

was estimated to have covered 10% of the world population and 52% of the world GDP (Kirsch, 2001). It was intended that the collected and analysed data would provide empirically grounded interpretations to inform policy decisions. Kirsch (2001) places IALS (1996) in the context of policy research. It provided New Zealand with the opportunity to identify groups with low skills and to assist in setting strategic directions aimed at addressing skill needs of the population.

IALS (1996) utilised a wide range of prose, document, and quantitative literacy tasks reviewed and adapted to contain the information that people encounter in everyday circumstances in New Zealand. Prose literacy was defined as the knowledge and skills required to understand and use information from texts such as passages of fiction and newspaper articles. Document literacy was described as the knowledge and skills required to locate and use information contained in various formats such as timetables, graphs, charts, and forms. Quantitative literacy covered arithmetic operations (Ministry of Education, 2001).

Proficiency in the skills examined in IALS (1996) was graded at five levels. Level three and above indicated ‘functional literacy’ (i.e., the skills necessary to function in the current economic market). Tasks at Level 1 representing the lowest ability range required the capability to read simple text and accomplish literal information matching. Adults at this level could be expected to experience considerable difficulties in using much of the text encountered in everyday life. Tasks at Level 2 include those that

demand the capacity to search a document, filtering out simple distracting information. Those at this level would be able to use some printed material but it would generally be very simple (Ministry of Education, 2001; 2007b).

The results showed that a significant proportion of the New Zealand adult population had considerable literacy difficulties (Ministry of Education, 2001). Almost 50% of New Zealand adults operated below Level three (i.e., 45% prose; 49% document; 50% quantitative). Within this group, around 1 in 5 was found to have very poor literacy (Level 1). A million adults were found to be below the minimum level of competence required to meet the demands of everyday life (Ministry of Education, 1998; Business New Zealand, Council of Trade Unions, Industry Training Federation, & Workbase, n.d.).

A second survey known as the Adult Literacy and Life Skills Survey (ALL) (2006) was designed to further investigate certain literacy and numeracy skills both nationally and internationally. It allows comparison with the earlier IALS (1996) providing a picture of some of the skill changes over the previous decade (Satherley & Lawes, 2007). Having both the IALS (1996) and ALL (2006) data establishes a baseline against which to measure change in levels of skills in the New Zealand population. The prose literacy and document literacy domains of the two studies are directly comparable but changes were made to the measure of numeracy skills.

The key findings from ALL (2006) show that the proportion of the adult population with very low literacy skills had reduced substantially since the 1996 IALS but a proportion with low skills persisted (Satherley, Lawes, & Sok, 2008a). There was a large shift toward increased levels of educational participation of the adult population between 1996 and 2006. However, literacy skill decreased for each of the three levels of educational participation; lower secondary or less (completed Year 10), higher secondary (completed up to Year 13 or equivalent), or tertiary level. The smallest decrease in skill levels was for those with tertiary education (Satherley, Lawes, & Sok, 2008b).

Implications for New Zealand Society

Widespread mastery of literacy skills is argued to be critical for functioning effectively within society. A range of claims is made in the media and in industry and Government publications about the negative economic and social consequences of inadequate levels of literacy (e.g., Business New Zealand, New Zealand Council of Trade Unions, Industry Training Federation, New Zealand.govt.nz, 2008; Ministry of Education, 2001; Sutton & Benseman, 2006; Vignoles, De Coulon, & Marcenaro-Gutierrez, 2008). These will now be described in terms of economic impact and social impact.

Economic impact

Workbase (2007) states that while no studies have been conducted in New Zealand about the true economic impact of inadequate literacy at a

national level, studies in the United Kingdom estimate that low literacy skills cost British industry more than £4.8 billion per annum. While this figure represents a very small percentage of the gross domestic product of the United Kingdom economy it is argued that the significant minority of the workforce with poor basic skills may have economic implications for that country. Policy makers and many academics agree that improvements in individuals' skills and education are linked to a high productivity workforce and a strong economy (Vignoles et al., 2008). The United Kingdom has similar workplace literacy levels to New Zealand (Workbase, 2007).

There is clear evidence of the benefits of literacy skills. Individuals with high literacy levels are more likely to be employed and earn more (Johnston, 2004). In each of the three literacy domains surveyed in IALS (1996), the top 20% of earners consistently recorded the highest levels of literacy. Three quarters of all unemployed were found to be in the two lowest levels across each domain (Ministry of Education, 1998; 2001).

In addition while little information on the economic outcomes of learning programmes designed to address literacy issues exists (Benseman & Sutton, 2007), there is a strong relationship between educational attainment and literacy. Seventy-five percent of those who had not gone beyond primary school were at the lowest level of prose literacy; that is they were unable to use printed materials common in everyday life. There is concern that as the availability of low-skilled jobs within the New

Zealand economy diminishes, and change and technology bring increasingly more complex demands the groups with low level literacy skills will become increasingly vulnerable (Ministry of Education, 1998; 2001; Workbase, 2007).

Social impact

Policy makers consider a broader view when placing a value on individuals' skills. While possessing high literacy skill is seen as a route to high productivity and a strong economy, there is also a strong focus on the social implications of not possessing such skills. Factors such as personal well-being and satisfaction with life are considered (Vignoles et al., 2008) while outcomes such as success through lifelong learning are sought (Ministry of Education, 2007a). Literacy is linked to 'life chance' (Ministry of Education, 2001). To have a positive 'life chance' or put another way, to live and participate effectively in a modern knowledge society, New Zealand policy makers suggest that adults require a certain level of expertise in literacy (Tertiary Education Commission, 2008).

Of particular concern for New Zealand, is that IALS (1996) and ALL (2006) showed that poorer literacy skills were concentrated in Maori and Pasifika[1] (Benseman & Sutton, 2007). Strong literacy skills are considered a

[1] Pasifika people comprise a diverse range of peoples from the South Pacific region or people within New Zealand who have strong family and social connections to Pacific Island countries. Pasifika people include those born in New Zealand or overseas (Ministry of Education, 2008).

necessary ingredient for citizenship, community participation and a sense of belonging (Ministry of Education, 2001). A successful society needs to ensure that all in the New Zealand community are given opportunities to succeed, and the raising of literacy levels of Maori and Pasifika is a Government priority in achieving this goal (Gibbs, 2008; Solomon & Solomon, 2008).

One indicator of the wellness of a society is the crime and prison statistics. The number of people held in New Zealand prisons has increased over the last decade with general statistics available on the characteristics of prison inmates (Statistics New Zealand, 2007). There are attributes in common with the level 1 and 2 groups in IALS (1996) and ALL (2006). Over 50% of prison inmates are recorded as having no qualifications with over 40% having left school before reaching Year 11 (Harpham, 2004). Maori and Pasifika are over-represented in prison populations as are those who were unemployed prior to offending. Claims are made in the media which connect prison inmates and low literacy (Vester, 2007). A review of the New Zealand Literacy Portal (December 2008, http://www. nzliteracyportal. org. nz) reveals that low literacy and incarceration is an under-researched area in New Zealand.

Studies from the United States of America reveal that the offender population has lower than average academic skills and the majority have not completed high school. Estimates of those in corrections facilities in the United States of America who need special education range between

40% and 50% of the total prison population (Weisel, Toops, & Schwarz, 2005). A study in Alabama found approximately 75% of all state inmates read below the 5th grade level and 60% had not finished the New Zealand equivalent of secondary school (Shippen, 2008).

Significance of entry level tertiary training

Results from IALS (1996) show that while there are some adults with post-school qualifications who have foundation learning difficulties (Ministry of Education, 2005), the great bulk of literacy need is among those adults with no or low qualifications, and this includes those who are engaged in entry level tertiary education (Benseman, Sutton, & Lander, 2003). International evidence supports this with entry level groups expected to include a significant number of students whose literacy skills are poorly developed (Braze, Tabor, Shankweiler, & Mencl, 2007).

In New Zealand many learners in entry level training are enrolled in Private Training Establishments (PTEs) and receive funding from the Government. In many cases learners pay no fees for training. A consequence of this is that learners are often from a wide range of socio-economic backgrounds, with a range of previous education experiences and exhibit a diverse demography. Learners in entry level tertiary training provide a broad sample for an investigation of literacy issues.

Summary

IALS (1996) and the follow-up ALL (2006) provide evidence of low literacy skill levels among the New Zealand adult population. Low literacy skill has economic and social consequences for New Zealand society in the new millennium with the challenges of new technology and more complex tasks both in the workforce and the community. Survey results have identified specific groups within New Zealand as being more at risk because of low literacy levels. One such group is those in entry level tertiary education.

Thus, given this knowledge of the prevalence of low literacy skills in New Zealand and the related social and economic implications, deeper understanding of the literacy skills of adult learners is essential. Entry level tertiary courses offer an appropriate setting for an examination of a broad demographic range of learners who can be expected to operate at the range of literacy levels measured by IALS (1996) and ALL (2006). Chapter 2 reviews the literature concerning adult literacy in general, and studies of adult reading.

Chapter 2: Literature review

Overview

This study has a focus on the specific literacy skill of reading. Chapter 2 reviews the literature concerning adult readers. This review serves as a justification for the specific focus of this study and the research questions outlined at the end of the chapter.

The review is conducted in seven sections. The chapter begins with a review of understandings of the general term adult literacy and the definition of literacy used in this study is stated. An examination of the current research base on the adult reader in the second section is followed by a consideration of available demographic information for low-literacy skill New Zealand adults in the third section. In the fourth section, reading models are discussed followed by an examination of the difficulties some adults have with reading in the fifth section. The literature shows the importance of having a model of reading from which to approach the study and the case is made for the use of the simple view of reading (Gough & Tunmer, 1986). The sixth section reviews research on the reading sub-components of phonological awareness and listening comprehension respectively. Section seven focuses on what the literature says about the role of reading habits and self-belief about reading, and the chapter concludes with a summary and states the research questions for this study.

Definitions of adult literacy and adult reading

Adult reading is a component of adult literacy in general. Over the last decade the role of adult literacy has become a priority with governments and organisations around the world, educators, volunteers and very recently the business community (Jackson, 2004). Low adult literacy levels are linked to unemployment, low levels of pay (Johnston, 2004), and prison occupancy (Shippen, 2008). Defining the term adult literacy has "prompted many prolonged debates" (Benseman, 2008, p. 12) and the word literacy has come to have differing, sometimes conflicting meanings (Jackson 2004).

Theoretical traditions

Adult literacy has been shaped by several theoretical traditions (Sligo, Comrie, Olsson, Culligan, & Tilley, 2005) and at present there is neither an agreed name nor a fixed definition (Benseman & Sutton, 2007). The theories underpinning adult literacy in New Zealand can be discussed generally, in terms of three approaches which inform current research and practice: a social action approach, the 'new literacies' approach, and a functionalist view (Benseman, 2008).

The social action approach is based on the writings of Paulo Friere (1971). Within this approach the technical aspects of learning are always linked to individual learners' lives. Literacy skills are seen as the means to gain equality and power. In this vein early development of the adult literacy

network in New Zealand was characterised by a strong empathy for human rights and equal opportunity (Harrison, 2008).

The new literacies approach views effective literacy as only happening when skills are learned and used in a way that integrates understanding with practical applications and actions. Being literate means not just performing the task but doing it as a member of a social group, and having an understanding of its purpose (Jackson, 2004). In this approach the inclusive plural term *literacies* is felt to be more appropriate than the singular form because reading and writing skills are viewed as just one part of a multidimensional view (Belfiore, 2004). The term *multi-literacies* is sometimes used in this model (Jackson, 2004).

The functional approach sees literacy as a distinct, definable set of technical skills. With an emphasis on a neutral skill set, functionalists view literacy chiefly in respect to an individual's ability to cope with reading and writing print materials (Sligo et al., 2005). The functionalist argues that universal mastery of these distinct skills by New Zealanders will have a positive effect on the economy and much of the current policy making for adult literacy has been orientated to this functional view (Johnston, 2004).

The advent of these theoretical traditions, dating from the 1970s, coincided with the emergence of an acknowledgement that adult New Zealanders had literacy issues (Harrison, 2008). Adult literacy issues were mostly invisible before this time with New Zealand, like other Western

countries, assuming that the achievement of universal primary and secondary schooling meant that the population was literate and illiteracy was a Third World problem (Benseman, 2008).

While these three theoretical approaches to adult literacy can be teased out and discussed in isolation, in practice, most programmes and tutors in the New Zealand adult literacy sector operate using a blend of the three approaches (Benseman, 2008).

Definitions of literacy

A consequence of the blend of approaches to literacy is confusion about terminology and the meaning of the word literacy (Jackson, 2004). Gough (1995) argues that since the first use of the word by the Romans, the term literacy has had two distinct meanings: the ability to read and write which he terms literacy$_1$ and being educated which he terms literacy$_2$. Gough (1995) regards literacy as an autonomous, neutral set of skills and is in contrast to the new literacies view which regards literacy as a social practice that is linked with culture, knowledge, and power (Rassool, 1999). Gough (1995) argues that the meaning of literacy has "stretched considerably" (p.80). Literacy$_2$ with its broader meaning has lost its relationship to literacy$_1$ and has come to have a meaning closer to competence and knowledge than education.

Acknowledging this background debate, a common understanding of what is currently understood by the use of the term adult literacy, is derived from the functionalist view. Consistent with international usage, literacy in this

functionalist context includes reading, writing, numeracy and language. It is commonly shortened to LNL (literacy, numeracy and language) and some studies use the terms *core workplace competencies*, *foundation skills, essential skills,* or *key competencies* (Johnston, 2004; Sutton & Benseman, 2006). The three components of LNL while seen as being part of the same complex process are often separated out to allow emphasis to be given to each component in terms of policy and programmes (Ministry of Education, 2008).

Wider definitions of literacy cover generic cognitive skills including the ability to handle information, express ideas and opinions, to make decisions, and to solve problems (Johnston, 2004). Literacy is no longer considered to be something a person either does or does not have but rather to be a continuum upon which each person lies (Benseman, 2008; Johnston, 2004). It is viewed as an advancing set of skills, knowledge and strategies that individuals build on throughout their lives in different contexts and interactions (Kirsch, 2001).

Definitions of literacy in the literature have commonalities. IALS (1996) included in its definition of literacy the concept of possessing the ability to understand and employ printed information in daily activities whether that be at home, in the community, or at work (Johnston, 2004). The Industry Training Federation (2006) cites core literacy and numeracy requirements as the ability to effectively read, write, communicate, count, and calculate. Elsewhere in the literature it is also seen to include speaking, listening,

maths, using technology, problem solving, and critical thinking (Business New Zealand et al., n.d). Benseman and Sutton (2007) agree that literacy includes listening, speaking, reading, writing and numeracy.

For the purpose of this thesis the lack of one accepted definition is acknowledged (Benseman & Sutton, 2007) and adult literacy is taken to mean the broad group of skills encompassing listening, speaking, reading, writing, numeracy and problem solving skills. While the socio-cultural nature of literacy (Denny, 2008) is acknowledged, a skill-based component exists to ensure targeted skilled instruction matches the diverse range of difficulties adult learners exhibit. Thus, within the general use of the term literacy, more specific meanings may be used in different contexts, with specific stakeholders. The move to the use of specific definitions and away from broader meanings is reflected in current policy (Ministry of Education, 2008). The focus in this review is on adult reading skills and practices.

Adult literacy research

Research across the New Zealand adult literacy sector is both piecemeal and limited (Benseman, 2005). Internationally little information on reading difficulties in adult learners exists (Besser et al., 2004). Further to this is what Durgunoglu and Oney (2002) refer to as an added layer of complexity. Studies of adult literacy acquisition have typically focused on an undifferentiated group labelled low literate adults. It is not clear whether these adults have specific learning or reading difficulties, are second

language learners, or fall into another category such as low general intelligence learners (Pressley et al., 2008).

Durgunoglu and Oney (2002) argue for the need for studies to be made of adults whose first language is the majority language of the country in which the study is conducted, and who have no known cognitive impairments. Thompkins and Binder (2003) add to this and caution against the use of sweeping statements in regard to adults acquiring reading skills based largely on what we know about children learning to read. The obvious similarity is that both groups, adult and children, are attempting to acquire the same skill but Thompkins and Binder (2003) argue that there is a need to build a cognitive profile of adult literacy students by determining what factors contribute to their reading success. It is argued that there should not be grouping of adult literacy students as a homogeneous group but careful screening to identify differentiated needs and targeted assessment to inform instruction.

There is then, an acknowledgement of the need to explore what Venezky and Sabatini (2002) refer to as “basic reading processes in adult learners” (p. 217) and, further, a need to conduct this research in a New Zealand setting. The literature recognises that the nature of reading amongst this population has to be explored and understood and that subsequent instruction needs to take account of such knowledge.

Demographic information for low skill New Zealand adults

As described earlier, the ALL survey (2006) has made available demographic information concerning how literacy skills are distributed within the New Zealand adult population. This type of information on skill distribution across the population is important in providing insights that can be used in the development of skill enhancement initiatives (Satherley & Lawes, 2008a). It is important to know which demographic groups are at risk of having low literacy skills. This current study will add to existing information about the New Zealand adult population.

Results from ALL (2006) show, among other factors, a strong age effect with individuals in the 25-54 age band performing better on average than those younger (16-24 years old) and those older (55-65 years old). On average, women have higher prose literacy skills than men. Prose literacy is concerned with continuous text such as that found in novels, newspapers, or magazines. Pasifika and Maori adults appear to be more at risk of low English literacy than those who identify as European. Particular concern has been expressed that the literacy skills of Pasifika need to be raised so they will be able to participate fully in the society of the future (Gibbs, 2008). Specifically, results from IALS (1996) showed 75% of Pasifika adults failed to meet the minimum levels of literacy competence considered necessary for the knowledge society (Gibbs, 2008). Ten years on from IALS (1996), results from ALL (2006) showed Pasifika continue to be over-represented in the low levels in all sections of the survey (Satherley & Lawes, 2008b).

Sutton and Reid (2008) argue that these demographic characteristics reported by IALS (1996) and ALL (2006) only provide an understanding at the macro-level. Demographic information merely provides an understanding of one dimension of adults in the lower skill levels. So although the current study will serve to compare findings with the demographic findings of ALL (2006), it will also investigate adult learners' attitudes to reading and reading habits, and provide a more detailed picture to inform policy and learning programmes as has been suggested by Sutton and Reid (2008).

Reading models

Background

Three classes of models of reading have been key in building an understanding of reading. Those termed *bottom-up* models emphasise a series of discrete stages, each necessary for subsequent stages in the reading process. According to this model good readers automatically recognize many words and efficiently decode unfamiliar words they encounter (Pressley, 2006). Good readers do not guess words but process letters and sounds, and the words once sounded out, are listened to by the mind to make meaning (Gough, 1985).

In contrast to this serial-staged view of reading are those models termed *top-down* whereby the fluent reader engages in hypothesis-testing as they proceed through the text (Stanovich, 1980). Top down models such as

proposed by Goodman and Goodman (1979) argue that learning to read is a natural process and should not be broken up into stages. Developing reading skill occurs in the same way as we learn to speak and listen. According to this model instruction in reading and writing must be consistent with the natural process whereby children learn to speak and listen (Goodman, 1976).

The third class of models, termed interactive-compensatory models, proposed that during the reading process information is provided from several knowledge sources (Stanovich, 1980). The various component sub-skills of reading can compensate for deviancies at any other level. Thus, it has been argued, a reader with poor word level recognition skills may rely on contextual factors while reading (Stanovich, 1980). There is support for the view that skilled reading is a coordination of higher-order processes such as comprehension and lower-order processes such as decoding. Recent understanding is that the primary cues that good readers use to decode words are the letters not the meaning of the text or the syntactic context (Pressley, 2006).

There has been a call to adopt a balanced perspective using what is now understood about what good readers do when they read (Pressley, 2006). Many educational specialists now support the view that reading clearly involves subprocesses that must be skilfully coordinated (Gough, Hoover, & Peterson, 1996) and a reading model based on an analysis of what the reading process entails (Cartwright, 2007). The focus is on what the

reader is able to do and what specific instruction is required to facilitate skilled reading at higher levels.

Gough and Hillinger (1980) proposed that learning to read is not a natural process and can be divided into two parts as described in the simple view of reading that suggests that decoding and linguistic comprehension make separate contributions to reading comprehension. These two components will now be explained.

Decoding and linguistic comprehension

The components of the simple view are not in themselves simple. Each represents complex and important processes (Kirby & Savage, 2008). Gough and Tunmer (1986) acknowledge that the term decoding is confusing and they discuss it as meaning more than sounding out words and closer to the idea of recognising context-free words. Decoding in English, they reason, necessitates knowledge of English letter-sound correspondence and it is clearly not sufficient for reading (Gough & Tunmer, 1986). What is decoded must also be understood. This understanding is termed *comprehension*, the process by which, given word information, sentences and discourses are interpreted (Gough & Tunmer, 1986).

It is possible to hear language and not comprehend. To get meaning from language, specialised listening known as *auding* takes place (Sticht, Beck, Hauke, Kleiman, & James, 1974). Auding is the special kind of listening we

do when we listen to speech and get meaning from it. Without auding there is no comprehension.

Gough and Hillinger (1980) argue the crucial learning event occurs when the learner encounters the printed word at the same time as they think of the spoken counterpart to that word. This spoken counterpart is linguistic comprehension. The term listening comprehension is also used in the literature to describe this linguistic competence (e.g., Gough, Hoover, & Peterson, 1996; Keenan, Betjemann, Wadsworth, DeFries, & Olson, 2006; Savage, 2001). By stressing linguistic comprehension the simple view signals that all the complexities of natural language are involved in reading comprehension (Kirby & Savage, 2008).

A case for the simple view

Recent research acknowledges that "there are a number of reasons for attempting to identify a simpler picture with a limited number of constituent processes of reading" (Savage, 2006, p. 143), but also argues for a less simple view of reading (Pressley et al., 2008). It is suggested that the simple view (Gough & Tunmer, 1986) may explain reading of traditional texts but is not adequate to explain other types of reading tasks with other types of text. The assertion is that the simple view model fails to account not only for the variety of reading tasks but also for the influence of the individual development of the reader.

Pressley et al. (2008) argue that while the simple view can account for passive reading of easy texts where "simply listening to oneself read is all

that is required to comprehend" (pp. 528-529) more active reading is needed as texts become more complex. An active reader engages in a variety of reading tasks including skimming and navigating text and the contention is that this goes beyond decoding words and listening for their meaning but involves continuing decision making about where to go to next in the text and whether the information being sought has been found (Pressley et al., 2008). It is argued that there is a case for moving to a more complex theory of reading comprehension and intervention to produce these active readers (Pressley et al., 2008).

Given the confused notions of what it means to read, and discussion around context in adult literacy learning (Thompkins & Binder, 2003) it is useful to consider arguments for a less simple view (Pressley et al., 2008). It is contended that that there are readers who can decode automatically and fluently and have adequate language abilities but who continue to experience difficulty coordinating the processes needed to comprehend more complex text. Nation and Angell (2006) surmise that these readers are unable to control the complex processes needed to monitor both ongoing comprehension and consistency of text in the reading. This control would enable the reader to initiate strategies when a comprehension breakdown is detected.

Cartwright (2007) adds to the call for a less simple view of reading claiming that recent cognitive developmental work has increased our understanding of the flexibility with which individuals can consider

phonological and semantic aspects of print simultaneously and that this is not captured in the simple view of reading. This graphophonological-semantic flexibility makes a contribution to skilled adults' reading comprehension. It is a cognitive function that Cartwright (2007) argues is over and above the abilities traditionally associated with skilled reading.

Despite these calls for a more complex approach to the process of reading, the simple view of reading continues to be highly influential (Pressley et al., 2008) and is well supported by empirical evidence (Kirby & Savage, 2008). The simple view neatly formalizes successful reading, which demands both word level reading and the ability to comprehend what is read (Nation & Angell, 2006). An important feature of the simple view is that it gives an account of the different forms of reading disability (Chapman & Tunmer, 2000). The simple view is used to provide an understanding of reading disability from three different perspectives: from an inability to decode (often called dyslexia), an inability to comprehend (hyperlexia), or both (garden variety) (Gough & Tunmer, 1986). Framing reading in this simple manner is a useful way to cope with the complexity of the reading process (Braze et al., 2007).

Thus, given that the simple view of reading is an acknowledged model for approaching a study of reading, and that the relationship between decoding and linguistic comprehension has not been studied beyond primary school aged children (Savage, 2006), the simple view (Gough & Tunmer, 1986) will be used in this thesis. If skilled reading requires skill in

both decoding and comprehension, a strong positive correlation between decoding and listening comprehension should be evident in the general population of readers. The poor reader can be poor at decoding, poor at comprehension or poor at both. If you are a poor reader but good at decoding then you must be poor at comprehension and vice versa. Among poor readers decoding skill and comprehension skill must be negatively correlated (Gough, Hoover, & Peterson, 1996). This major premise of the simple view has not been tested with New Zealand adult readers and this study proposes to do this.

Reading difficulties and how are they dealt with

Durgunoglu and Oney (2002) found in their work with adults that many contemporary models of literacy acquisition confirm two semi-autonomous cognitive components of skilled reading: a) linguistic competence as operationalised by listening comprehension and b) decoding, reflecting an understanding of how spoken language is represented in written form, as indicated by both word-recognition and spelling performance. However, with adults who are experiencing reading difficulties the mastery of these components varies and patterns of strength and weakness exist resulting in what has been called a *spiky* learner profile. Existing interventions to address these complex reading difficulties vary both in the quality of delivery and content.

Spiky profiles

Adult literacy practitioners and researchers commonly talk about adult learners having spiky profiles (Hanifin, 2008). Strucker and Davidson (2003) studied 955 randomly selected adult basic education (ABE) learners in the United States. Learners were tested in phonological awareness, rapid naming, word recognition, oral reading, spelling, vocabulary, and background knowledge. Each participant was also interviewed about their educational history and reading habits.

The study identified 10 clusters of adult learners with similar reading profiles and described groupings of difficulties with partial acquisition of reading sub-components. Subsequent studies have confirmed difficulties with word identification, explicit and implicit comprehension, phonological awareness, decoding and spelling, and revealed a scattered pattern of strengths and weaknesses within these components. These patterns are known as spiky profiles and exist among individual readers (Besser et al., 2004).

This focus on the existing skills of individual learners and the subsequent instruction required to increase skills forms the basis of the current body of research of adult readers who are experiencing difficulties. To date this research is chiefly from the United States, the United Kingdom, and Europe; there is a need for studies to be done with New Zealand adult readers (Benseman, 2005). This current study will determine whether spiky profiles exist among New Zealand entry level adult readers.

The literacy tutor

The existence of these spiky profiles among adult readers internationally is matched by “the heterogeneity of reading difficulties” (Lyon, 2005, p. 140) observed in readers in the school sector. Results from national surveys indicate a significant proportion of the New Zealand adult population have considerable literacy difficulties (Satherley et al., 2008a). This diversity and depth of need, and research indicating the central role those who teach play in achieving learner outcome (Benseman, Lander, & Sutton, 2008), should mean that tutors of reading are highly trained to deal with the complexity of the task facing them. This is not the case and Denny (2008) quotes international research that describes adult literacy tutors as “enthusiastic amateurs” (p. 180). This lack of specialised knowledge is not unique to the adult sector. Evidence shows teachers in school settings are not trained to address individual learning in general and are not prepared to teach students with a range of complicated reading difficulties (Lyon, 2005).

Besser et al. (2004) found in their observations of adult reading sessions that while tutors used a range of strategies to address reading difficulties, the strategies were not always matched to the specific need. In addition, much of the teaching that occurred was not focused reading instruction in terms of what is known about effective teaching of reading. This low incidence of deliberate teaching of reading skills was also found in a New Zealand study of 15 teachers from a cross-section of adult literacy programmes (Benseman et al., 2008). Ziegler, McCallum, and Bell (2007)

examining the background and preparation of individuals who provide reading instruction to adults with low levels of literacy in the United States found that few adult educators have had education or training to provide reading instruction to adults. In addition there was a gap between what the adult educators think they know about providing reading instruction and what they actually know as measured by an objective test (Ziegler et al., 2007).

The lack of a consistent baseline of professional qualifications and teaching knowledge in the adult literacy sector (Denny, 2008) contributes to the lack of a strong skill set among adult reading tutors. Benseman et al. (2008) found in their New Zealand study that very few of the 15 tutors had specific literacy qualifications. The lack of experienced literacy specialists is an international issue. Given what is now understood about the contributions of the sub-components of reading to the reading process, specialist teaching is essential. Besser et al. (2004) found in studies in the United Kingdom that tutors' subject knowledge relevant to phonics needed further investigation and suggested that improved subject knowledge would enable learners to make better progress (Besser et al., 2004).

The reading sub-components of decoding that reflect an understanding of how spoken language is represented in written form, and linguistic competence as operationalised by listening comprehension, must be understood by tutors of reading. This study, by adding to what we know about the characteristics of adult readers in New Zealand and providing

evidence of what skills adults have, will contribute to more informed training of specialist teachers of reading in the adult sector.

Adult reading studies

Studies of adult reading will be reviewed in this section. Decoding skill is facilitated by phonological awareness which is examined, followed by decoding itself and then by comprehension. Included in the consideration of comprehension are knowledge of vocabulary, words and the world.

Phonological awareness

Phonological awareness can be defined as conscious access to the component sounds of speech within words and ability to manipulate sounds (Besser et al., 2004), or put another way the awareness of different levels in the sound system of spoken language: word, syllable, onset-rime and phoneme. The syllable is a minimal unit of sequential speech sounds comprised of a vowel sound or a vowel/consonant combination. The onset and rime are the opening segment (onset) and the following segments (rime) within a syllable. A phoneme is the minimal sound unit of speech and phonemic awareness is the awareness of the sounds (phonemes) that make up the spoken words (Harris & Hodges, 1995).

The relationship between phonological awareness and early reading in children has been well established (Blachman, 2000; Nicholson, 2005; Stahl & Murray, 1994). Developing phonological awareness is critical for

early success in reading (Stanovich & Stanovich, 1995). Research with adult readers is generally lacking but low phonological awareness has also been found to correlate with adult reading difficulties (Thompkins & Binder 2003). Reading difficulties involving a deficit in phonological processing have been shown to persist into adulthood with research revealing a sample of 25 American adults experiencing reading difficulties displaying significant phonological processing deficits compared to 28 of their peers that read without difficulties (Vukovic, Wilson, & Nash, 2004).

The role of phonological awareness in reading acquisition

While there is agreement on the reciprocal nature of the relationship between phonological awareness and reading acquisition, arguments on the causal nature of the link continue in the adult sector (Durgunoglu & Oney, 2002). Share (1995) while stressing the importance of phonological awareness for independent reading acknowledges that a relatively small number of exposures to a word enable readers to recognise it orthographically allowing them to go directly from the entire letter sequence of the word to its pronunciation without having to use intervening steps of sounding out letters.

Research over the last decade has examined this link between the use of phonological and orthographic information in adult reading. Several studies have shown that adults were found to use more visual/orthographic strategies than phonological strategies when confronted with an unknown word (Durgunoglu & Oney, 2002; Greenberg,

Ehri, & Perin, 2002; Thompkins & Binder, 2003). Adults were found to perform worse than children in the phonologically complex tasks of phoneme deletion and segmentation and in reading non-words. However, in orthographic tasks adults read sight words better but children spelled words better. Adults exhibited both strengths and weaknesses in orthographic knowledge compared with children (Greenberg, Ehri, & Perin, 1997).

In a further study (Greenberg et al., 2002), this adult/child comparison was extended to examine not just error rate in reading and spelling words but also error types. Seventy-two American adult literacy learners were matched with 72 American child readers who read words at the same grade equivalent levels. The findings suggest that adult and child learners tended to use different cognitive processes and approaches to a task and that adults were possibly using compensatory strategies. When adults encountered difficulties they were less likely to use spelling sound correspondence and phonological decoding processes and more likely to rely on visual memory. Greenberg et al. (2002) confirmed earlier findings that adults experiencing reading difficulties rely on orthography over phonology (Greenberg et al., 1997).

Decoding

Good readers can typically read words and nonwords they have never seen because they are able to readily associate letters with their sounds, blending the sounds to pronounce the word. Words can be read in

isolation without relying heavily on context. Good readers are able to do this because they decode well (Pressley, 2006).

Word reading

Greenberg et al. (1997) investigated whether word reading and language processes operated similarly in 72 American adult literacy students and 72 American children from Grades 3-5 who are reading at the same grade-equivalent levels (24 adults and 24 children at each of the three levels; third, fourth and fifth). The Woodcock Reading Mastery Test was used to establish reading levels and thus qualify students for the study. A range of tests were administered to test non-word decoding, sight word reading, phoneme deletion and segmentation, wordlikeness, letter position, spelling and rhyme reading, and receptive vocabulary knowledge (Greenberg et al., 1997).

Following the findings of Greenberg et al. (1997; 2002) that adult's poor graphophonemic and decoding skill contribute to their reading difficulties, Davidson and Strucker (2002) further investigated decoding difficulties by examining word recognition errors in 90 adult basic education students in the United States. Half the students were native speakers of English (NSE) and half non-native speakers of English (NNSE). Both groups of students were assessed on pseudoword reading using the Woodcock Reading Mastery Test and word recognition using Diagnostic Assessments of Reading (Davidson & Strucker, 2002). Both groups had decoding skills that were equal to each other. However, NSE students,

with low print skill and higher skills in meaning aspects of reading such as comprehension, were found to more resemble children with reading difficulties while NNSE were able to make more phonetically plausible substitutions than the NSE students.

Davidson and Strucker (2002) also showed that NSE students had some slow and unautomatized decoding abilities which they used on pseudowords (i.e., when they had no choice). However when reading real words this NSE group fell back on their preferred strategy of looking at the first syllable of a word and attempting to say the rest of it based on that syllable. Davidson and Strucker (2002) suggest that this group have stalled, having some basic decoding knowledge and having made an "incomplete transition to the orthographic processing of syllable patterns" (p. 312).

The use of pseudowords

The most certain indicator of a decoding-accuracy deficit is an inability to read phonologically regular pseudowords (Pressley, 2006). Decoding pseudowords requires knowledge of letter-sound relationships. The advantage of using pseudowords (over the reading of actual words) is that the words have not been encountered before and hence must be decoded by sounding out. Pseudowords cannot be recognised as sight words (Greaves, Geiger-Jennings, & Butcher, 2001). No New Zealand research exists exploring this aspect of adult reading. This current study proposes

to allow an examination of decoding skill in both adults with and without reading difficulties using pseudowords.

Word reading in context

Binder and Borecki (2008) compared a group of 60 American college enrolled skilled adult readers with a group of 60 American adult readers experiencing difficulties. Participants read short paragraphs that contained a correct homophone, an incorrect homophone, or a spelling control. Target words were orthographically similar or dissimilar, and they appeared in context that predicted the target word or was neutral with respect to the target word. The short paragraphs with comprehension questions were presented on a computer's monitor and the computer recorded the length of time between space bar presses and comprehension question responses.

Results demonstrated that skilled readers, as long as the homophones in the pair were orthographically similar, were able to activate the word's meaning from the phonological code. Skilled readers showed no reading time difference between identifying the correct and incorrect homophone. The less-skilled readers did show a difference in reading time and noticed that the incorrect version was present. Findings confirmed that less-skilled adult readers while using phonological codes less efficiently than skilled adult readers have a relative strength in orthographic codes (Binder & Borecki, 2008). However the compensatory effects of increased use of visual and orthographic coding skills are not sufficient to overcome the

effects of poor phonological skills in less-skilled adult readers (Majeres, 2005).

Before this relationship between orthography and phonology is explored for adult readers in New Zealand it is useful to first confirm international findings in regard to phonology and less-skilled readers (Binder & Borecki, 2008). Phonological awareness facilitates decoding skill which in turn determines word recognition ability which, in conjunction with listening comprehension, determines reading comprehension (Stanovich, 2000). The present study will add to what is known about adult New Zealand readers' ability to decode and read words.

Comprehension

As discussed above, both decoding and linguistic comprehension, the understanding of language including vocabulary, are necessary for reading comprehension (Gough & Hillinger, 1980; Gough & Tunmer, 1986). While the current trend in adult reading research is to examine early reading behaviour, especially phonological aspects, the majority of adult learners are beyond the beginning stage and more likely to have problems with other reading processes such as comprehension (Besser et al., 2004). The good decoder can typically read words they have never seen, even non-words (Pressley, 2006) but the goal of reading is to understand what is read, to construct meaning, and to comprehend (Nation & Angell, 2006).

There is consensus that comprehending text is a complex process (Pressley et al., 2008). To understand text, words need to be recognised, their meanings accessed, relevant background knowledge activated, and then inferences made during reading (Nation & Angell, 2006). Reading comprehension requires active thinking about the ideas in the text and conscious construction of meaning by thinking about large parts of the text together (Pressley, Duke, & Boling, 2004). In addition to this, good readers monitor their understanding of the text, continuously checking that the text is making sense and then applying a wide range of strategies if a breakdown in comprehension is detected. In the Besser et al. (2004) study of adult literacy programmes in the United Kingdom, tutors report that adult learners with low reading skills did not seem to recognise when there is a breakdown in comprehension, suggesting the learners did not have the prerequisite metacognition awareness to monitor their understanding.

Proficient readers do not rely on just one reading comprehension strategy to process text, but several, and research has found summarizing and drawing inferences to be important reading comprehension strategies for adult literacy outcomes (Hock & Mellard, 2005; National Reading Panel, 2000; Pressley, 2006). However, research examining these text-level processing skills of struggling adult readers is not plentiful and studies of children are still widely used to inform interventions in the adult sector.

Studies of children support the changing nature of the difficulties struggling readers face as they become more proficient decoders and focus

increasingly on comprehension tasks. Johnston, Barnes, and Desrochers (2008) argue that although phonological and word-decoding skills are related to, and constrain reading comprehension, their influence diminishes with age as text comprehension comes to require a host of language-based and cognitive skills. There is a need for New Zealand studies to examine the relationship between comprehension factors and word decoding skills for adults and this will be addressed in this study.

Vocabulary, word and world knowledge

In addition to text level factors, a study of comprehension also needs to consider word knowledge, including vocabulary. Empirical support is well established for the link between word knowledge and comprehension (e.g., Braze et al., 2007; Stanovich, 1986).

Braze et al. (2007) explored the relationships among reading-related abilities in 44 participants aged 16 to 24 years. Cognitive and educational tests assessed phonological awareness, decoding, verbal working memory, listening comprehension, reading comprehension, word knowledge, and experience with print. Participants were found to span a wide range of reading ability with an indication that weakness in word knowledge may compound weaknesses in decoding skill. Readers with poorly developed lexical representations had disproportionate difficulties identifying printed words.

Perfetti (2007) examining research on adult readers with a focus on the role of word knowledge, argues that skilled reading depends on high quality lexical representations. This refers to the extent to which the adult reader's knowledge of a given word, its form and meaning constituents combine with knowledge of a particular word's use; the way word meaning combines with pragmatic features of the word. Readers with inefficient word-level processes have problems with comprehension (Gough & Hillinger, 1980; Perfetti, 2007).

In support of this Braze et al. (2007) found that for older readers, past the beginning stages, there is some evidence that the demands of text reading more often reflect challenging vocabulary and content which is closely tied to world knowledge. The knowledge a reader possesses about a subject impacts upon their reading comprehension. Possessing sound prior knowledge related to a text favourably impacts on comprehension (Pressley et al., 2008).

In the simple view (Gough & Tunmer, 1986) reading comprehension is made up of two components: decoding and linguistic comprehension. In her 1993 PhD dissertation, Peterson (as cited in Gough et al., 1996) examined the relationships among background knowledge, reading, decoding, and comprehension. One hundred and thirty-five naval reservists participated in the study. A series of assessments were conducted on the reservists' knowledge of two unrelated subjects, baseball and personal computers. Peterson found that background

knowledge contributed primarily to comprehension and not decoding. Comprehension varies from subject to subject and this variation is likely to be due to background knowledge. Reading has two dimensions, the decoding component which is general, and the comprehension component which is specific (Gough, et al., 1996).

In addition, a reciprocal relationship exists between vocabulary growth and exposure to oral and written language. Increased print exposure leads to an increase in vocabulary, which in turn leads to increased comprehension (Stanovich, 1986). This is termed the Matthew Effect (Stanovich, 1986) whereby due to limited external motivation and environmental experience the reader who does not read becomes a poorer reader and the reader who does read is 'rich' in reading skill. This is an analogy to Matthew's gospel in the Bible where the rich get richer and the poor get poorer.

In the past it was assumed adults with more experience of living should have more extended word and world knowledge than younger readers (Pressley et al., 2008). However for the last two decades this assumption that adult linguistic proficiency is better than that of children has been questioned. Stanovich and Cunningham (1993) submitted 268 undergraduate students to a two hour session where participants completed a series of tests which measured general ability, print exposure and general knowledge. The print exposure measures included an author recognition test, magazine and newspaper recognition tests and questionnaires designed to measure television preferences. Stanovich and

Cunningham (1993) found that adults who do not use written materials are likely to have less developed linguistic proficiency. Rather the amount of exposure to written material is a strong predictor of vocabulary development and general knowledge. Studies have found receptive vocabulary of the less-skilled adult readers is weak (Davidson & Strucker, 2002), adding support to the view that although they have lived longer, adults with poor reading skills may have less developed vocabularies (Rice, 2004).

Greenberg et al. (1997) found the 72 adults in their study who were matched with third and fourth grade level child readers did have larger vocabulary knowledge than the children. However this vocabulary advantage disappeared at the fifth grade reading level. Adults did not outperform children at this level nor in successive reading levels. Children's vocabulary scores increased at higher reading levels; scores of adults experiencing reading difficulties did not. Greenberg et al. (1997) suggest that the disappearance of a vocabulary advantage at fifth grade reading level may indicate that at this level the benefits from exposure to written language catch up with the benefits from exposure to oral language in terms of vocabulary development.

Thus lexical quality with its source in literacy and language experience is important (Perfetti, 2007). For any reader there will be varying lexical quality from rarely used words to frequently encountered well known words. Skilled comprehension is not just about the size of the vocabulary,

it is also about the representation of the word, and the knowledge the reader has about the word's form and meaning. This knowledge needs to be precise and flexible. Studies of processing speed at the lexicon level involving homophone pairs have shown that skilled comprehenders make faster meaning decisions with both control and homophone pairs and show less homophone confusion (Johnston et al., 2008).

Difficulties with the use of context are among the most consistently reported findings in studies of individual differences in comprehension. Adults who are poor comprehenders activate a full range of word meanings from the surface code (e.g., all meanings of spade), but they have difficulty suppressing irrelevant meanings over time in relation to contextual constraints (Johnston et al., 2008). The good adult comprehender has better word knowledge than the poor adult comprehender. Word experience is crucial and a skilled comprehender has had more experience with words than a less skilled comprehender (Nagy, 1988; Nagy & Scott, 2000; National Reading Panel, 2000; Perfetti, 2007). This relationship between vocabulary and reading comprehension will be examined for New Zealand readers in the current study.

As discussed earlier the simple view of reading is that reading comprehension is a function of the two processes of decoding, and linguistic or listening comprehension (Gough & Tunmer, 1986). Braze et al. (2007) argue that the primary locus of reading difficulty seems to be different for older students and adults and more likely to involve processes

to do with vocabulary and content; however they also found Gough and Tunmer's (1986) simple view of reading accounts for most of the variance in reading comprehension among the young adults they studied.

This current study will examine the relationship between the sub-components of reading which have been discussed in this section in a New Zealand context.

The role of self-belief about reading skills and reading habits

The next section will review belief about individual reading skills and the relationship these have to actual reading ability, and what is known about adult reading habits.

Self-belief

The relationship between self-concept of reading skill, actual ability, and reading habits among adult readers is still to be examined in depth. In studies of children Savage (2001) found that reading self-perception is related to decoding skill rather than skill in reading comprehension. In other words the reader thinks they can read because they are able to say the words (Savage, 2001). According to the simple view of reading (Gough & Tunmer, 1986) a good decoder yet poor comprehender is not a reader. From observations of struggling adult readers in a variety of New Zealand contexts over a number of years, Hanifin (2008) notes a pattern of readers who fail to understand the active nature of comprehension when reading. Readers in Hanifin’s (2008) observations needed to be taught that reading

is not passive, not just a matter of decoding, and that active interaction with the text is necessary for reading comprehension to occur.

This apparent lack of awareness of skills required for a literacy task is reported elsewhere among adult New Zealand learners (Ministry of Education, 1998). Only one in four of New Zealand respondents assessed at the low levels in IALS (1996) rated their literacy skills as ‘poor’ or ‘moderate’ and only one in five felt ‘somewhat dissatisfied with their skills’ (Benseman, 2008). Thus it seems that this group of low level adult readers does not see themselves as having literacy issues. Many at Level 1 in the IALS (1996) results rated their reading skills highly (Johnston, 2004).

Reading habits

In addition to a reader’s perception about skill, there is strong evidence from reading programmes with children that the more time spent on reading connected text at an appropriate level, the higher the achievement level of the reader (Stahl & Kuhn, 2002). This National Reading Research Centre-designed programme (Stahl & Kuhn, 2002) had three distinct components: a re-designed reading lesson, free reading during school time, and a home reading programme. Over the course of the two year study involving 14 teachers in three United States schools, children read significantly more connected text than was previously required with positive gains in comprehension.

Recent research evaluated the way perception about reading skill impacts on actual reading. Conlon, Zimmer-Gembeck, Creed, and Tucker (2006)

report that children perform better and are more motivated to select increasingly challenging tasks when they perceive that they have the ability to experience success. As children become adolescents, attitudes towards reading also become significantly related to reading achievement (Conlon et al., 2006).

Research indicates that individuals who engage in reading for pleasure are better readers than non-readers, and reading for pleasure correlates strongly with academic achievement (Gambrell, 2008). Frequent, extensive reading not only increases vocabulary and world knowledge (Henry, 2006; Stanovich, 1986), it also gives the reader access to thousands of different realities they might never encounter. This, in addition, adds to understanding of human relationships (Henry, 2006). The good reader is evaluative about text and develops critical thinking, being able to agree and disagree with what is written (Pressley et al., 2008). Reading has the power to transform human thinking (Gambrell, 2008). Language rich, information-filled texts are important to build world knowledge critical for understanding even more complex texts (Pressley et al., 2008).

Despite evidence pointing to the importance of reading for general achievement nearly half of all Americans aged 18-24 read no books for pleasure. From 1984 to 2004, the percentage of 17 year olds who reported that they "read for fun" on a daily basis declined from 31% to 22%. Teens and young adults read less often and for shorter amounts of time when

compared with other age groups and with Americans of the past (Gambrell, 2008). Mellard, Patterson, and Prewett (2007) looked at the reading practices of 213 low literate adults enrolled in adult education programmes in the United States and found varied personal and contextual factors influenced adults' reading habits. Younger adults and those with fewer reading skills were more likely to read magazines daily. Older adults read more formal materials such as novels and manuals. Older employed adults frequently read employment materials. Education level was not found to be a significant predictor of reading skill or reading practices but younger adults who had recently attended compulsory education out-performed older adults who had had a break from formal education. Thus, less-skilled adult readers in this study although inclined to read daily read different types of material than more skilled adult readers (Mellard et al., 2007). It is important to note that all the adults in this study had chosen to be enrolled in up-skilling programmes so did show a level of commitment to improving their skills and therefore their reading practices may vary from other low literacy adults not involved in literacy programmes.

In New Zealand, although IALS (1996) found adults with literacy at Level 1 reported that they did not read at home (Johnston, 2004) there are no studies which look in depth at adult reading habits and low literacy levels.

This current study will add to existing information about New Zealand adult readers' attitudes and beliefs about reading.

Summary

Current understanding of the term ‘adult literacy’ incorporates, among other things, reading, writing, listening, numeracy and speaking. Adult reading, considered a key underpinning literacy skill, is under-researched and has become a priority for current researchers. Findings from international literacy surveys show high numbers of adult New Zealanders with low reading levels. This study will examine adult reading in New Zealand.

A review of current literature finds support for the use of the simple view of reading (Gough & Tunmer, 1986) as a model to enable an examination of the relationship between decoding and linguistic comprehension in adult New Zealand readers. While some international research has focused on aspects of adult reading, very few New Zealand studies exist.

International studies have identified a spiky profile of reading skills among adult readers. Groupings of difficulties exist with individuals having strengths and weaknesses which can be developed with explicit teaching. Instruction in reading skills, however, has been observed to not always match the need of the reading group, and there is evidence of a lack of a strong skill set among adult reading tutors.

Research suggests that adult readers experiencing difficulties do not have the skill to be active comprehenders of text and can be unaware when a breakdown in reading comprehension has occurred. In some cases lack of

comprehension is linked with poor word and world knowledge. This lack of awareness in regard to good reading comprehension is further exhibited when adult readers with poor skills over-rate their skills.

To examine adult readers in a New Zealand setting the following questions have been formulated:

The over-arching research question is: What are the characteristics of adult readers in entry level tertiary settings?

The sub-questions are:

1. Is there a relationship between levels of reading skills and demographic characteristics of age, gender, and ethnicity within adult readers in entry level tertiary settings?
2. As predicted by the simple view of reading (Gough & Tunmer, 1986), is a strong positive correlation between decoding and listening comprehension evident in the general population in entry level tertiary settings?
3. As predicted by the simple view of reading (Gough & Tunmer, 1986), is a negative correlation between decoding and listening comprehension evident in less-skilled adult readers in entry level tertiary settings?
4. Among adults in entry level tertiary settings, are readers with fewer skills less efficient at decoding than skilled readers?
5. Do adult readers at tertiary entry level with low reading skills exhibit poor receptive vocabulary?
6. Is a ‘spiky profile’ of strengths and weaknesses of reading skill sub-components evident among adult readers in entry level tertiary settings?

7. Is there a relationship between adult entry level tertiary readers' self-concept and attitude to reading, and their assessed reading skills?

Chapter 3: Method

Introduction

The study was designed to describe reading sub-skills and attitudes towards reading of a sample of adult readers in three New Zealand tertiary settings. The design is premised on the belief that reading is not whole but can be broken down into two components; decoding which is unique to reading, and comprehension which is shared with auding (Gough et al., 1996). The term auding refers to the process of listening to language and then processing it for comprehension (Sticht et al., 1974). The measures described in this chapter were chosen to obtain data about the skills of adult readers within these two components as well as measure attitudes to reading. This chapter describes the methods and procedures used in this study, the limitations of these, and covers the following areas: The setting of the study; Description of the Private Training Establishments; Phase 1: the participants; and Phase 2: administering assessment measures. The chapter concludes with a summary.

Setting

Three government funded tertiary training organizations known as Private Training Establishments (PTEs) were chosen. The 3 PTEs are in the same, mid-size New Zealand city. These 3 PTEs were chosen because a previous relationship with the researcher existed. Hence staff and the culture of learning in each PTE were known to the researcher.

The 3 PTEs offer a range of courses considered entry level tertiary courses and while there are a number of reasons people may enrol, a common factor is that they have previously attained no or limited qualifications. The findings reported by ALL (2006) found a link between the group of New Zealanders with no or low level qualifications, and low levels of prose literacy (Ministry of Education, 2007b). It was expected then that the adults attending these courses would exhibit a range of reading skills, and some would present with low levels. This expected range would facilitate the purpose of the study as described.

The quality of training and standards at New Zealand's approximately 860 PTEs (New Zealand Qualification Authority, n.d.) is controlled by the New Zealand Qualifications Authority (NZQA). This government organisation quality-assures secondary and tertiary qualifications and education providers, evaluates overseas qualifications, and administers the New Zealand Register of Quality Assured Qualifications and the National Qualifications Framework (New Zealand Qualification Authority, n.d.).

Courses offered in the 3 PTEs in the present study include assessment of unit standards on the NZQA framework up to, and including, level 3. This framework, used to structure national qualifications, consists of 10 levels. Level 1 is the least complex. The levels do not equate to years spent learning but reflect the content being delivered. At level 1 the learner is required to recall a narrow range of knowledge and cognitive skills, and the generation of new ideas is not expected. At level 2 a learner should

demonstrate a basic operational knowledge and be able to solve familiar problems. At level 3 the ability to interpret available information is needed (New Zealand Qualification Authority, n.d.). To avoid confusion it is important to note these levels do not equate to the levels reported in ALL (2006), a five level scale with level 3 and above indicating 'functional literacy' (the skills necessary to function in the current economic market) (Ministry of Education, 2001, 2007b).

Description of the PTEs in this study

The 3 PTEs which participated in this study will now be described. For a summary see Table1.

PTE 1 is a large organisation delivering 25 courses ranging up to degree level. It has been operating for over 20 years, making it one of the more established PTEs in the city. In addition to the main city site it operates several sites outside the city.

The learners chosen from this PTE were enrolled in a branch of the company which runs government-funded programmes for up to 80 learners at the city site. PTE 1 delivers a range of training courses that build foundation-level employment skills and offer level 1 and 2 certificates. These certificates include skills such as youth music, security work skills, trade skills, and heavy transport licensing. Training occurs both in training rooms and workshops with 10 staff involved in the tutoring. The staff use training materials developed by another branch of the

organisation. All courses are 48 weeks long. Enrolment can occur at any time throughout the year, when places are available.

PTE 2 is a mid-size organisation which has delivered specialist trade training for a decade. It operates from one site although learners go off site for practical experience in relevant workplaces. On-site training occurs both in conventional training rooms and workshops. Five courses ranging from levels 1 to 3 are delivered for up to 80 learners with some training being fully government funded and other courses being approved for student loans and allowances. In addition, specialist trade assessment services are provided to secondary schools nationwide. Courses, designed to be completed within a calendar year, start in January and run for 36 to 44 weeks. All the training materials are developed by the 7 staff on site.

PTE 3 is a small organisation which has been delivering foundation skill training across a range of construction trades for four years. It operates one site for up to 34 fully funded learners. Learners also go off site for practical experience in relevant workplaces. On-site training occurs both in conventional training rooms and in a workshop. Learners are able to complete National Certificates at level 2 and year-round enrolment occurs as places become available. Courses are 48 weeks long. Four staff are involved in delivery including the two trade staff who are qualified in their respective fields. Training material is supplied by a relevant Industry Training Organisation (ITO) or purchased from other sources.

Table 1

Private Training Establishments

	Size	Established	No. of adult learners	Courses offered
PTE 1	large	Over 20 years	Up to 80 (sub-branch)	Foundation level employment skills, level 1 & 2 certificates
PTE 2	mid-size	10 years	Up to 80 in total	Level 1-3 specialist trade certificates
PTE 3	small	4 years	Up to 34 in total	Level 1 & 2 trade certificates

Participants

In total 52 adults participated in the study. Of the 52, 40 of those interviewed were male and 12 female. The participant age range was 16 years to over 50 years. The minimum age of 16 years equates to that used in ALL (2006) so although New Zealanders can remain in the compulsory (school) sector after the age of 16, this age group is also classed as 'adult'. In the age band 16-19 years there were 19 male participants and 7 female. In the band of 20-25 years there were 9 male participants and 2 female while in the next group of 26-29 years there was 1 male and 1 female. Four males and I female were aged from 30-35 years while there was I male and 1 female aged 36-39 years. The remaining 6 males were aged 40 and above, with no females in this group. Therefore 75% of the participants in this study were aged less than 30 years while 11.5% were over 40 years. See Figure 1 for participants' age bands.

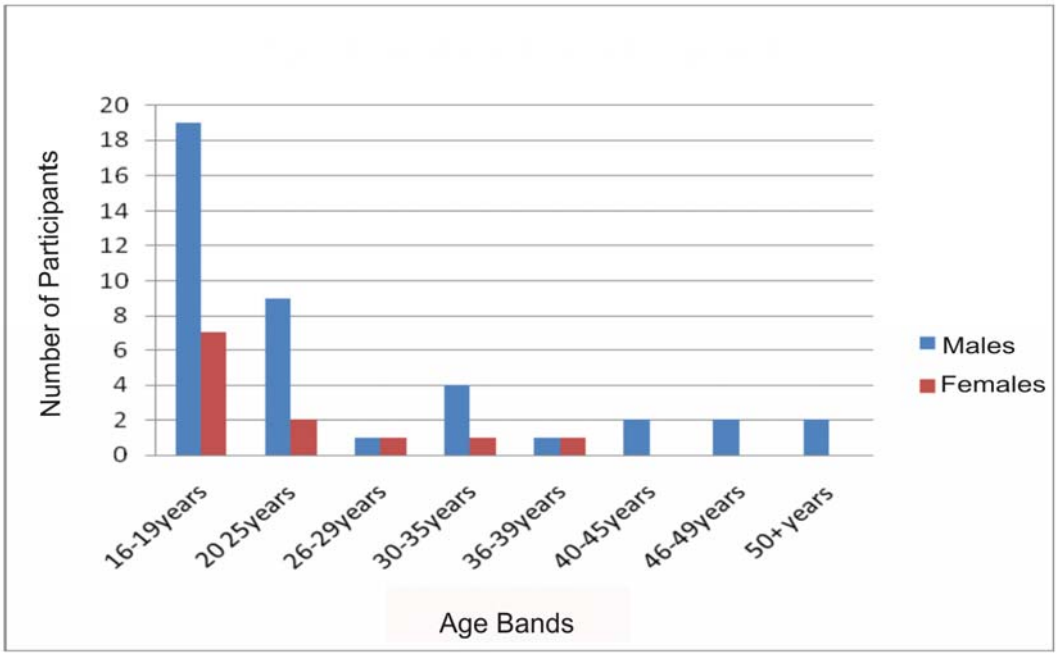

Figure 1. Age band of participants.

Twenty-two of the 52 participants (42%) self identified as New Zealand European/Pakeha, 20 (38%) as Maori, two (4%) as Pasifika, five (10%) as both Maori and New Zealand European/Pakeha, and three (6%) as European and Pasifika (see Figure 2).

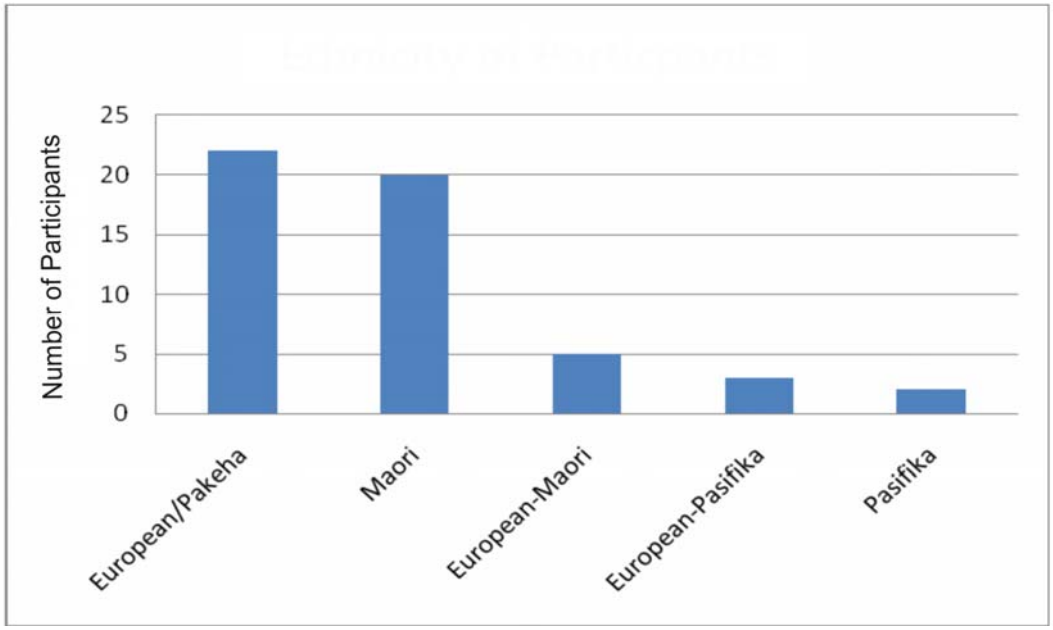

Figure 2. Ethnicity of participants.

The courses participants were enrolled in can be grouped into the three general groupings: employment skills, security work training, and specific trade skills (see Figure 3). Over 50% of those who took part were enrolled in specific trade training. A total of 17 (33%) were gaining employment skills including vehicle licensing, 5 (10%) were training to work in security and the remaining 30 (57%) were training in the range of specific trade skills offered by the 3 PTEs (e.g., carpentry, automotive trades, welding, panel beating) (see Figure 4).

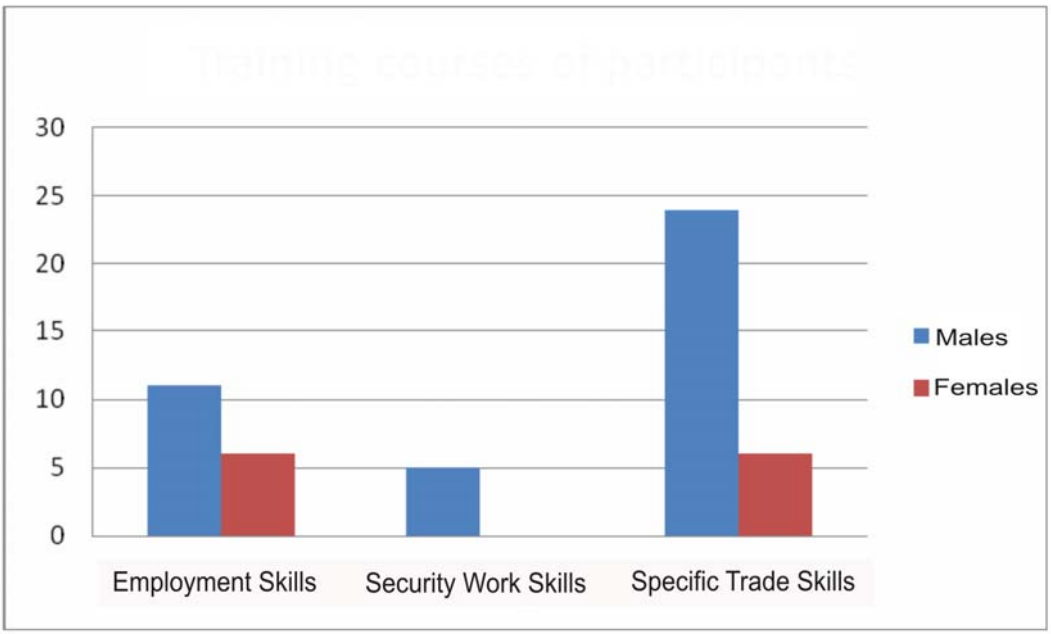

Figure 3. Numbers of participants in three general groupings of training courses.

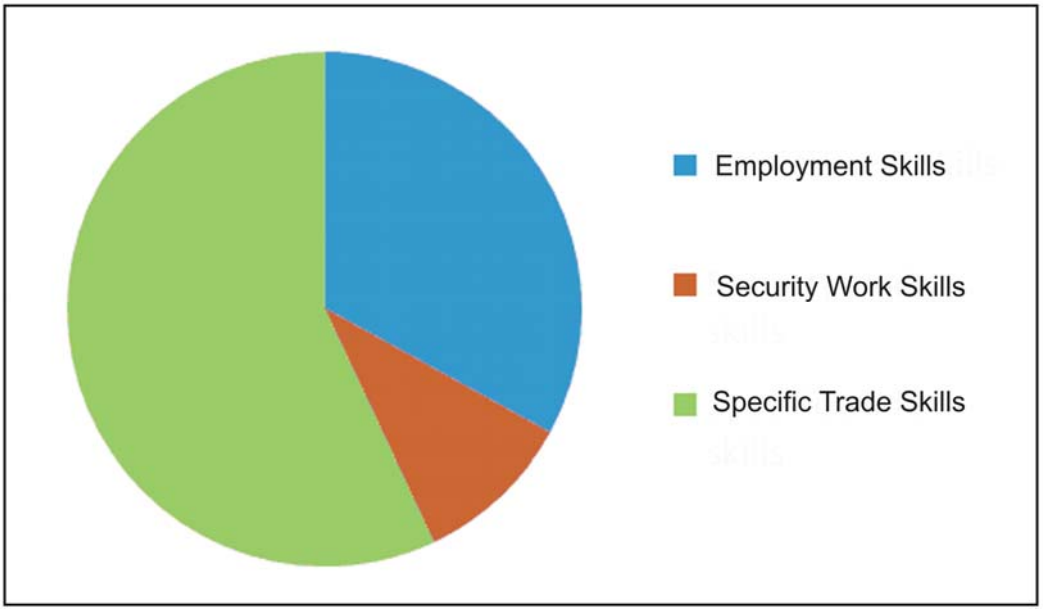

Figure 4. Proportion of participants enrolled in each training course.

Data collection

The two phases of data collection will now be described.

Phase 1: Approaching participants

A letter was delivered to the manager of each PTE explaining the study and seeking permission to conduct interviews with learners on site (see Appendix A). Previous work experience by the researcher in these organisations meant there was an understanding of the type of learner in each of the 3 PTEs. This enabled an easy rapport to be established and ensured the language used both to approach potential volunteers and to carry out testing (which was referred to as an interview) was appropriate.

The researcher spoke at each course giving a general explanation of the study and volunteers were called for. During this explanation, course

participants were told they needed to have English as their first language. Volunteers came forward readily. The interviews (i.e., testing) were carried out in a private space, on site, over several visits to each PTE between March 2008 and September 2008. All volunteers participated in the study and all gave informed consent.

Phase 2: Administering assessment measures

A full explanation of the study was given and informed consent gained (see Appendix B). The interview was made up of a collection of six assessments (summarised in Table 2) to allow an examination of a series of sub-components of reading.

Interviews, administered individually, consisted of the following: Collection of personal information, a two part motivation-to-read profile/self-concept-as-a-reader survey and a conversational interview, a decoding test, a word recognition test, a sentence comprehension test, a reading comprehension test, and a receptive vocabulary test.

Collection of personal information. In each case this information was collected first serving to establish a rapport with the participant and put them at ease. The information collected consisted of the name of the

participant and interviewer, the date and venue for the interview, the course being completed, and the gender, age band and ethnicity of the participant. Each participant was asked to identify their ethnicity as New Zealand European/Pakeha, Maori, Pasifika, Asian or offer an alternative ethnicity (see Appendix C).

A two part motivation-to-read-profile/self-concept-as-a-reader survey and a conversational interview. This survey was adapted from the Adolescent Motivation to Read Profile reading survey (Pitcher et al., 2007). It consisted of 15 items using a four-point scale assessing self-concept as a reader (eight items) and value of reading (seven items). Items were scored on responses rated from positive to least positive. The conversational interview consisted of five items that were open-ended to encourage free response about the general reading habits of participants (see Appendix D). The researcher took notes regarding the participants' responses. This assessment took approximately 10 minutes to administer.

Decoding. The Bryant Test of Basic Decoding Skills (Bryant, 1975) consists of 50 pseudowords that assess learner knowledge of letter-sound relationships (i.e., single consonant-vowel-consonant correspondences, consonant and vowel blends and diagraphs), and multi-syllable words. The 50 pseudowords are read aloud. The test took approximately 10 minutes to administer.

Word recognition. The blue word reading list of Wide Ranging Assessment Test (WRAT4) (Wilkinson & Robertson, 2006) tests print concept and word recognition out of context. This test is norm-referenced for adults. Fifteen letters of the alphabet and 55 words of increasing difficulty (e.g., from cat to terpsichorean) are tested. Responses are read aloud. The correct responses, a possible 15 for letter recognition and 55 for word recognition, are added together to get a total out of a possible 70. This assessment took 10 to 15 minutes to administer.

Sentence comprehension. The blue sentence comprehension subtest of Wide Ranging Assessment Test (WRAT4) (Wilkinson & Robertson, 2006) tests understanding of the meaning of 50 sentences. Participants are asked to read each sentence and say a word to go in the blank space to correctly complete the meaning of the sentence. This test may take 15 minutes to administer but will take less time if the participant is unable to continue or conversely is able to quickly complete the tasks. In this study this subtest took between 10 and 15 minutes to administer.

Reading comprehension. READ (Reading Evaluation-Adult Diagnosis) (Colvin & Root, 1999) is used to measure ability to read aloud and discuss the meaning of passages of increasing difficulty from Grade 1 to Grade 8 level. The READ texts are from the writing of adult literacy students and other informational texts. Four passages at each level are included and

cover subjects grouped into four general headings: family, work, self, and community. Set questions are asked orally about the content, and oral responses are recorded. Additional notes are made about the quality of oral reading. This assessment may take 15 to 20 minutes to administer. The testing stops if the tasks become too difficult for the participant. In this study the subtest, when it was administered, took between 10 and 15 minutes.

Receptive vocabulary. The Peabody Picture Vocabulary Test (PPVT) (Form 111A; Dunn & Dunn, 1997) is an untimed, norm-referenced test that assesses receptive vocabulary but can also serve as a measure of verbal ability. For each test item participants select one of four pictures which best represents the target word read by the researcher. There are 204 items but the adult starting point was chosen for each interview. If more than one error is made in that first set of 12 items the participant is taken back to the previous set. This process is repeated until a set of 12 is completed with 1 or no errors. This is the starting set. The testing continues until 8 or more incorrect answers are given for a set or until all sets have been tested. PPVT uses age equivalent norms up to age 22. The assessment took approximately 10 to 15 minutes to administer.

Table 2

Assessments

Assessment	What it measures
Motivation-to-read-profile/self-concept survey	Self concept as a reader /attitudes to reading
Bryant Test of Basic Decoding Skills (Bryant ,1975)	Ability to decode unknown words
Wide Ranging Achievement Test (WRAT4) (Wilkinson & Robertson, 2006)	Letter knowledge and word recognition
Wide Ranging Achievement Test (WRAT4) (Wilkinson & Robertson, 2006)	Sentence comprehension
READ. Reading Evaluation-Adult Diagnosis (Colvin & Root, 1999)	Reading comprehension
The Peabody Picture Vocabulary Test (PPVT) (Form 111A; Dunn & Dunn, 1997)	Receptive vocabulary

Limitations of the measures

The contentious nature of the use of assessment measures (Benseman, 2005) in the adult sector is acknowledged. This is partly because of the perceived lack of adult-appropriate tests and partly because for some adults with low literacy levels testing is argued to have negative

associations with school. There is further argument that adult-normed tests are inappropriately linked to school developmental scales.

However there are few studies of New Zealand adult literacy learners and it is considered important that this study of adult reading addresses issues that have been identified in the literature as being key reading processes: decoding and word recognition skill, linguistic comprehension, and reading comprehension. The lack of assessment tools appropriate to adults is reflected in the choice of the Peabody Picture Vocabulary Test (Dunn & Dunn, 1997). It is accepted that it is primarily a measure of receptive vocabulary. However, receptive vocabulary is a component of linguistic comprehension and precedent was found for the use of PPVT as a measure in this way; "another purpose was to compare the two groups in their linguistic comprehension as indexed by the Peabody Picture Vocabulary Test-revised (PPVT-R; Dunn & Dunn, 1981)" (Greenberg et al., 1997, p. 264).

The limitations of the measures used in this study will be discussed in more depth in Chapter 5.

Summary

The purpose of this study is to describe the reading-related characteristics of a sample of adult learners in an entry level tertiary setting. The settings chosen were 3 PTEs in a mid-sized New Zealand city. The study involved 52 participants. The group of mostly male learners ranged in age from 16

years to over 50 years and were enrolled in three general course groupings of employment skills, security work skills, and specific trade skills. Over 40% of participants self identified as New Zealand European with 38% of participants identifying themselves as Maori. Fewer than 5% identified as Pasifika and the remaining participants identified as having links to more than one ethnic group.

Statistical information was collected with an oral interview and a four-point scale was used to gauge a profile of self concept as a reader and attitude to reading. A range of methods and procedures were used to allow a description of the reading-related characteristics of this sample. Print concepts and word reading were tested using The Bryant Test of Basic Decoding Skills (Bryant, 1975) and the WRAT4 (Wilkinson & Robertson, 2006) standardised word reading list. Comprehension was tested using the WRAT4 (Wilkinson & Robertson, 2006) sentence comprehension subtest and further testing was possible in the READ (Colvin & Root, 1999) informal reading inventory. READ (Colvin, & Root, 1999)) was also used to obtain information on decoding and reading level. The norm-referenced PPVT (Form 111A; Dunn & Dunn, 1997) enabled an assessment to be made of receptive vocabulary and verbal ability.

Chapter 4: Results

In this chapter I present the results relating to the research questions for this thesis. The over-all question is: What are the characteristics of adult readers in entry level tertiary settings?

The sub-questions are:

1. Is there a relationship between levels of reading skills and demographic characteristics of age, gender and ethnicity within adult readers in entry level tertiary settings?
2. As predicted by the simple view of reading (Gough & Tunmer, 1986), is a strong positive correlation between decoding and listening comprehension evident in the general population in entry level tertiary settings?
3. As predicted by the simple view of reading (Gough & Tunmer, 1986), is a negative correlation between decoding and listening comprehension evident in less skilled adult readers in entry level tertiary settings?
4. Among adults in entry level tertiary settings, are readers with fewer skills less efficient at decoding than skilled readers?
5. Do adult readers at tertiary entry level with low reading skills exhibit poor receptive vocabulary?
6. Is a ‘spiky profile’ of strengths and weaknesses of reading skill sub-components evident among adult readers in entry level tertiary settings?
7. Is there a relationship between adult entry level tertiary readers’ self-concept and attitude to reading, and their assessed reading skills?

The results are presented in two sections. Note that although the survey was done first in the data collection, survey results will be presented last in this chapter. The first section presents an overview of the general characteristics of the participants (sub-question 2). The range and mean scores of key assessments are presented and the correlations between these key measures are given. The results for sub-questions four and five are then presented. The participants are grouped into skilled and less-skilled readers and the receptive vocabulary skill and decoding skill of the less-skilled readers are examined.

In the second section a detailed description of the participants as arranged in four reading sub-skill groups is given. Included in this section are the correlations between decoding and linguistic comprehension for less-skilled readers (sub-question 3) and the pattern of strengths and weaknesses in reading skill sub-components for individual readers (sub-questions 6). In addition there is an examination of demographic characteristics (sub-question 1). The final part of this section looks at the attitudes to reading and the reading habits of the participants (sub-question 7). The chapter concludes with a summary.

General characteristics of participants

These results give an overview of general characteristics of adult readers in entry level tertiary settings. The first group of results presented are the range and mean scores for the Bryant Test of Basic Decoding Skills (Bryant, 1975), WRAT4 (Wilkinson & Robertson, 2006) word reading,

WRAT4 (Wilkinson & Robertson, 2006) sentence comprehension and PPVT (Form 111A; Dunn & Dunn, 1997) receptive vocabulary (see Table 3 for an overview of this data). The data show that on all measures participants recorded scores over a wide range.

Table 3
Over-all Means and Standard Deviations for 52 Participants on Four Tests

	Highest possible score	Range	Mean	SD
Bryant decoding	50	0-49	36.15	13.23
WRAT4 Word Reading	70	25-70	55.02	9.98
WRAT4 Comprehension	50	9-50	37.73	10.12
PPVT-111	204	129-196	167.46	16.98

Decoding. The raw scores for the Bryant Test of Basic Decoding Skills (Bryant, 1975) ranged from no correct responses to 49 out of a possible score of 50 with a mean of 36.15 and a standard deviation of 13.23. For the purpose of this study, a good decoder is one who can accurately decode 40 or more non-words on Bryant (1975). A reader with a reading equivalent age of 9 years is expected to accurately decode 50 words on Bryant (1975), but the cut-off of 40 was chosen. This lower cut-off was to

allow for errors related to adult non-familiarity with the notion of reading nonsense words particularly polysyllabic nonsense words such as *sanwixable,* and with possible mispronunciations associated with the ways different groups pronounce English words. Twenty-one or 40% of participants scored below 40.

Word reading. The range for the WRAT4 word reading sub-test (Wilkinson & Robertson, 2006) was from 25 to the maximum possible 70 with a mean of 55.02 and a standard deviation of 9.98. Scores in the 25-54 range indicate poor or low word reading ability. Twenty-three participants or 44% scored below 55.

Sentence comprehension. Scores for the WRAT4 sentence comprehension sub-test (Wilkinson & Robertson, 2006) ranged from 9 to the maximum possible 50 with a mean of 37.73 and a standard deviation of 10.12. Raw scores below 40 indicate low sentence comprehension ability. Twenty-two participants or 42% were in this category.

Receptive vocabulary. The range for the Peabody Picture Vocabulary Test (PPVT) (Form 111A; Dunn & Dunn, 1997) was from 129-196 with the maximum possible score being 204. The mean was 167.46 and the standard deviation was 16.98. Raw scores converted to age equivalents show scores below 163 indicate receptive vocabularies below 16 years or the age accepted as adult for this study. Twenty-one out of the 52 participants, or 40% scored below 163.

Informal Reading Inventory (IRI). The IRI used was the READ reading evaluation-adult diagnosis (Colvin & Root, 1999). Most participants reached the ceiling in this IRI which was used to measure decoding and comprehension. The IRI was not found to be a useful measure in this study, although it was used as an additional check with eight participants who had very low scores in the other measures. In those eight cases the IRI reading level was consistent with the findings of the other tests.

Correlation between measures

Correlation co-efficients between the key measures are reported in Table 4 (sub-question 2). In each case a close relationship exists between the two variables correlated. These results are in line with expected relationships between the sub-components of reading as described by the simple view for a general population of readers (Gough & Tunmer, 1986).

Table 4
Correlation between Measures

	Bryant decoding	WRAT4 comprehension
WRAT4 word reading	0.89*	0.85*
PPVT-111	0.60*	0.84*

*p< 0.01

The Bryant Test of Basic Decoding Skills raw scores had a correlation of 0.89 ($p < 0.01$) with the WRAT4 word reading raw scores. It was expected that ability to read pseudowords in the decoding test (Bryant, 1975) would have a high positive correlation with the ability to read isolated words accurately, and accordingly no participant scored poorly on the Bryant Test of Basic Decoding Skills and well on the WRAT4 word recognition tasks. The decoding raw scores (Bryant, 1975) had a correlation of 0.60 ($p < 0.01$) with PPVT raw scores. In this general population of adult readers decoding is positively correlated with PPVT (a measure of receptive vocabulary which is a component of listening comprehension).

The correlation with the WRAT4 word reading raw scores and WRAT4 sentence comprehension raw scores is 0.85 ($p < 0.01$). Comprehension is linked with understanding and meaning. Good reading comprehension requires good word reading ability (Gough & Tunmer, 1986). PPVT-111 (Form 111A; Dunn & Dunn, 1997) measures oral comprehension. The processes to comprehend orally are similar to those for comprehending written text. The correlation between the two groups of raw scores of PPVT and WRAT4 sentence comprehension in this study is 0.84 ($p < 0.01$).

Decoding and receptive vocabulary skills

To examine decoding skills and receptive vocabulary skills among less-skilled adult readers (sub-questions 4 and 5) participants were grouped into two groups (skilled and less-skilled readers) using the WRAT4

sentence comprehension raw scores. As described earlier raw scores below 40 indicate low sentence comprehension ability. To comprehend sentences requires the reader to have broad general reading comprehension skills. All participants who scored ≤39 were grouped together as less-skilled readers. Twenty-two participants or 42% were in this category of less-skilled readers.

The correlation between this subgroup of 22 less-skilled readers and their decoding scores as measured by the Bryant Test of Basic Decoding Skills was 0.62 ($p < 0.01$) and the correlation with their receptive vocabulary skills as measured by PPVT-111 was 0.64 ($p < 0.01$). There is a significant positive correlation between receptive vocabulary skill and less-skilled readers and between decoding skill and less-skilled readers.

Four reading groups

Creating the groups

The 52 participants were divided into four groups of readers to examine in more detail specific characteristics including demographic and skill relationships (sub-question 1), correlation between decoding and listening comprehension among less-skilled readers, and patterns of strengths and weaknesses in the sub-components of reading (sub-questions 3 and 6).

The four groups were created with results derived from the Bryant Test of Basic Decoding Skills (Bryant, 1975) raw scores and PPVT-111 (Form 111A; Dunn & Dunn, 1997) raw scores. PPVT-111, primarily a measure of receptive vocabulary, is used here as a measure of linguistic or listening comprehension skill. As discussed in Chapter 3 the Greenberg et al. (1997) study compared the linguistic comprehension of 72 adults and 72 children using PPVT.

Participants who scored 0-39 in the decoding test (Bryant, 1975) were classed as low decoders. Participants that scored between 40 and 50 were classed as high decoders. A PPVT raw score of ≤162 was used to classify participants as having low linguistic or listening comprehension skills. Raw scores of ≤ 162 indicate a receptive vocabulary below 16 years old. Participants with a PPVT raw score of ≥163 were classed as having high listening comprehension skill. Thus four groups were created: low decoders, low comprehenders (Group 1), low decoders, high comprehenders (Group 2), high decoders, low comprehenders (Group 3), and high decoders, high comprehenders (Group 4). There were 16 participants in Group 1, 5 in Group 2, 5 in Group 3 and 26 in Group 4 (see Table 5).

Table 5

Numbers of Readers in the Four Groups (N=52)

	Low comprehenders (≤162)	High comprehenders (≥163)
Low decoders (≤39)	16 (Group1)	5 (Group 2)
High decoders (≥40)	5 (Group 3)	26 (Group 4)

Note. The comprehension and decoding values represent raw scores

Correlation between decoding and comprehension within the four groups

The correlation between decoding and listening comprehension within the four groups will now be presented (sub-question 3). The results from the three groups of less-skilled readers (Groups 1, 2 and 3) will be examined first. In Group 1 (n=16; low decoders, low comprehenders) there was a modest negative correlation of −0.17 (ns) between decoding skill and listening comprehension skill. In Group 2 (n=5; low decoders, high comprehenders) the correlation was −0.33 (ns) and in Group 3 (n=5; high decoders, low comprehenders) there was a correlation of −0.15 (ns). In Group 4 (n=26; high decoders, high comprehenders) there was a positive correlation of 0.50 ($p < 0.05$) between decoding skill and listening comprehension skill. While none of the correlations was statistically

significant for the three groups of poor readers, decoding skill and listening comprehension skill was negatively correlated as is predicted by the simple view of reading (Gough & Tunmer, 1986). This negative correlation supports the concept of a spiky profile of strength and weakness of reading skill sub-components among individual readers. If you are a poor reader but good at decoding then you must be poor at comprehension (Group 3 readers, high decoders, low comprehenders). If you are a poor reader who is good at comprehension you must be a poor decoder (Group 2 readers, low decoders, high comprehenders).

Demographic characteristics

The demographic makeup of the four reading skill groups will now be presented using the statistical data collected for each of the 52 participants (sub-question 1). The first group of results will examine the makeup of each reading group according to their training course and then the gender and age band information will be presented. Following this the ethnic breakdown of participants in each of the four groups will be presented.

A summary of the training courses attended by participants in each group is presented in Table 6. These courses have been grouped into the three categories of employment, trade and security work skills. The categories were derived from commonalities in content of individual courses.

Table 6

Training Course Information for the Four Groups (N=52)

	Group 1 LD/LC	Group 2 LD/HC	Group 3 HD/LC	Group 4 HD/HC
	(n=16)	(n=5)	(n=5)	(n=26)
Skills				
Employment (n=17)	9	0	0	8
Security Work (n= 5)	2	1	2	0
Trade (n=30)	5	4	3	18

Note. LD=low decoder; LC=low comprehender; HD= high decoder; HC= high comprehender.

In Group 1 (n=16; low decoders, low comprehenders) 9 participants were enrolled in employment skill training, 2 participants were doing security work training and 5 were engaged in trade skill training. In Group 2 (n=5; low decoders, high comprehenders) 1 participant was doing security work and 4 trade skill training. Group 3 (n=5; high decoders, low comprehenders) had 2 participants doing security work and the remaining 3 were enrolled in trade skill training. Group 4 (n=26; high decoders, high comprehenders) had a sizable group of 18 enrolled in trade skill training with the remaining 8 engaged in employment skills.

Table 7 shows the results of gender and age band breakdown of each group. Each demographic category is distributed widely through the reading skill groups. Of the total of 16 in Group 1 (low decoders, low comprehenders), 12 were male and four female. Seven were aged 16-19 years, 3 were 20-29 years, 2 were aged 30-39 years and the remaining 4 were over 40 years. Group 2 (n=5; low decoders, high comprehenders) had 3 males and 2 females, with 4 aged 16-19 years, and 1 in the 30-39 years band.

In Group 3 (n=5; high decoders, low comprehenders) there were 3 males and 2 females. Two of this group was aged 16-19 years, and 3 were 20-29 years. Four, the largest group (n=26; high decoders, high comprehenders) had 22 males and 4 females. Thirteen people were aged 16-19, seven were 20-25, four were 30-39 and the remaining 2 were over 40 years. It is interesting to note that 13 or nearly half of the 16-19 year old participants (n=26) are in Group 4 (high decoders, high comprehenders).

Table 7

Gender and Age Band Information for the Four Reading Groups (N=52)

	Group 1 LD/LC	Group 2 LD/HC	Group 3 HD/LC	Group 4 HD/HC
	(n=16)	(n=5)	(n=5)	(n=26)
Gender				
Male (n=40)	12	3	3	22
Female (n=12)	4	2	2	4
Age band				
16-19 yrs (n=26)	7	4	2	13
20-29 yrs (n=13)	3	0	3	7
30-39 yrs (n= 7)	2	1	0	4
40+ yrs (n= 6)	4	0	0	2

Note. LD=low decoder; LC=low comprehender; HD= high decoder; HC= high comprehender.

The ethnic breakdown of the 52 participants in the four reading groups is presented in Table 8. Ten people in Group 1 (n=16; low decoders, low comprehenders) were Maori and 4 were European. One participant was European-Maori and 1 was European-Pasifika. This group contains half of the total number of Maori participants. In Group 2 (n=5; low decoders, high comprehenders), 3 of the participants were European, 1 was European-Pasifika, and 1 was Pasifika.

Two members of Group 3 (n=5; high decoders, low comprehenders) identified as European-Maori and 3 as Maori. Of the 26 participants in Group 4 (high decoders, high comprehenders) 15 were Europeans, 7 Maori, 2 European-Maori, 1 European-Pasifika and 1 was Pasifika. Interestingly this group has over half of the total European participants.

Table 8

Ethnic Information for the Four Reading Groups (N=52)

	Group 1 LD/LC	Group 2 LD/HC	Group 3 HD/LC	Group 4 HD/HC
	(n=16)	(n=5)	(n=5)	(n=26)
Ethnicity				
European (n=22)	4	3	0	15
Maori (n=20)	10	0	3	7
Eur-Maori (n= 5)	1	0	2	2
Eur-Pasifika (n=3)	1	1	0	1
Pasifika (n= 2)	0	1	0	1

Note. LD=low decoder; LC=low comprehender; HD= high decoder; HC= high comprehender.

Attitudes to reading

The four groups of readers were used to examine the relationship between reading skills and reader self-concept and attitude to reading and value of reading (see Appendix D). These results address sub-question 7. A total possible score of 60 was derived from the eight items measuring skill self-

concept as a reader and seven items measuring the perceived value of reading (15 items in total). Responses were scored on a scale of 1 as negative to 4 as positive. The range of 19-55 and mean of 42.50 (SD 7.33) indicates the wide collection of attitudes held by participants.

In the first part of the survey, skill self-concept was measured using eight items (see Appendix D). The responses were analysed within each of the four reading skill groups to gauge if there was a relationship between measured skill and self-concept of skill. The percentage of responses to each of the eight items was calculated and examined in regard to whether they represented very low self concept (a score of 1) to very high self concept (a score of 4). An example of a survey statement is “I am…” Participants were then required to choose from four options: A very low self concept (a score of 1) is reflected by choosing the response “a poor reader”. The response “an OK reader” reflects low self concept (a score of 2) through “a good reader” (high self concept; a score of 3) to a very high self concept (a score of 4) reflected by choosing “a very good reader”. The results are shown in Figure 5.

As mentioned earlier, the measured skills of Group 1 indicate both low decoding and low comprehension skills. While 30% of participants’ scores for this group indicate an awareness of this low skill level 70% of scores show a belief in their reading skills which does not correspond with actual skill. In Groups 2, 3 and 4 a high percentage of scores were in the high to

very high self concept range (over 70%). Over-all these scores do not equate to measured skills.

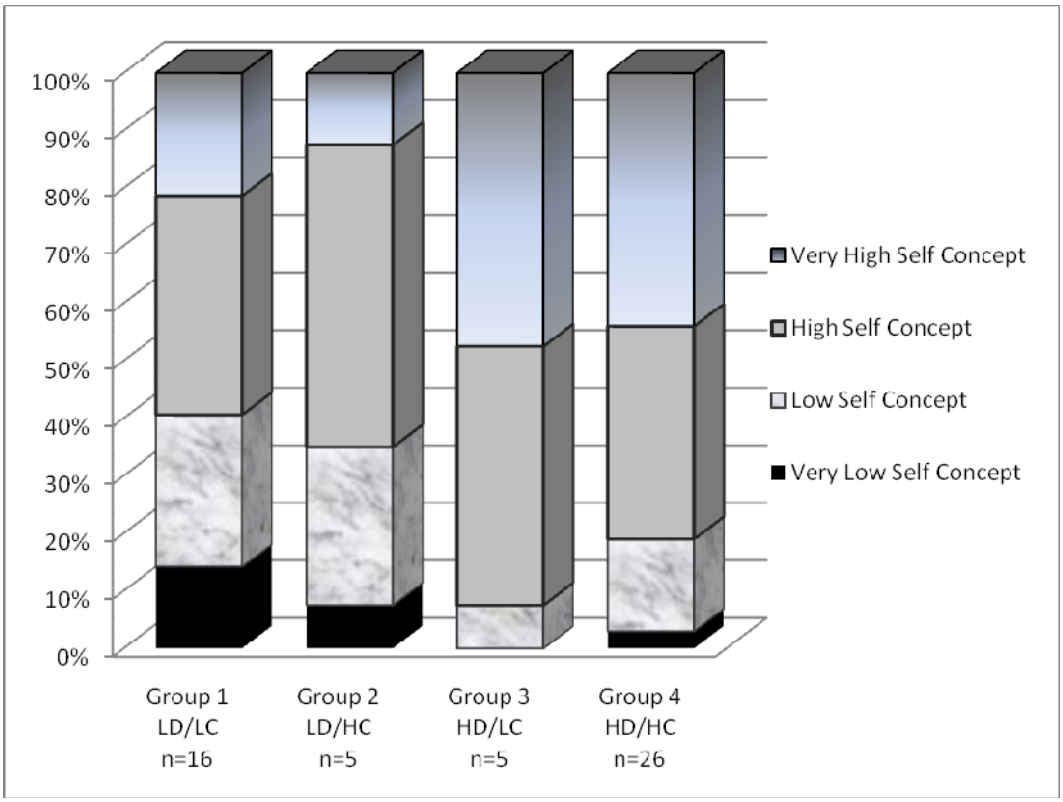

Figure 5. Percentages of self-concept survey responses for each reading skill group.

The second part of the survey measured the value participants place on reading using seven items (see Appendix D). Again the scores were analysed within each of the four reading skill groups to gauge if there was a relationship between measured skill in reading and the value placed on reading. The percentage of responses to each of the seven items was calculated in regard to whether they represented very low value (a score of 1) to very high value (a score of 4). A very low value of reading (a score of 1) is reflected by choosing the answer "never" to the statement "Reading a book is something I like to do…" Other possible choices ranged from "not

very often” (low value of reading; a score of 2), to “sometimes” (high value of reading; a score of 3) or “often” (very high value of reading; a score of 4).

The results are presented in Figure 6. Across the four groups a broad range of attitudes to the value of reading is demonstrated. Almost 50% of responses for Group 1 (low decoders, low comprehenders) reflected a low or very low value of reading and 40% of the responses made by Group 4 (high decoders, high comprehenders) reflected a similar low or very low value. The responses made by Group 3 readers (high decoders, low comprehenders) over-all reflected the highest value of reading.

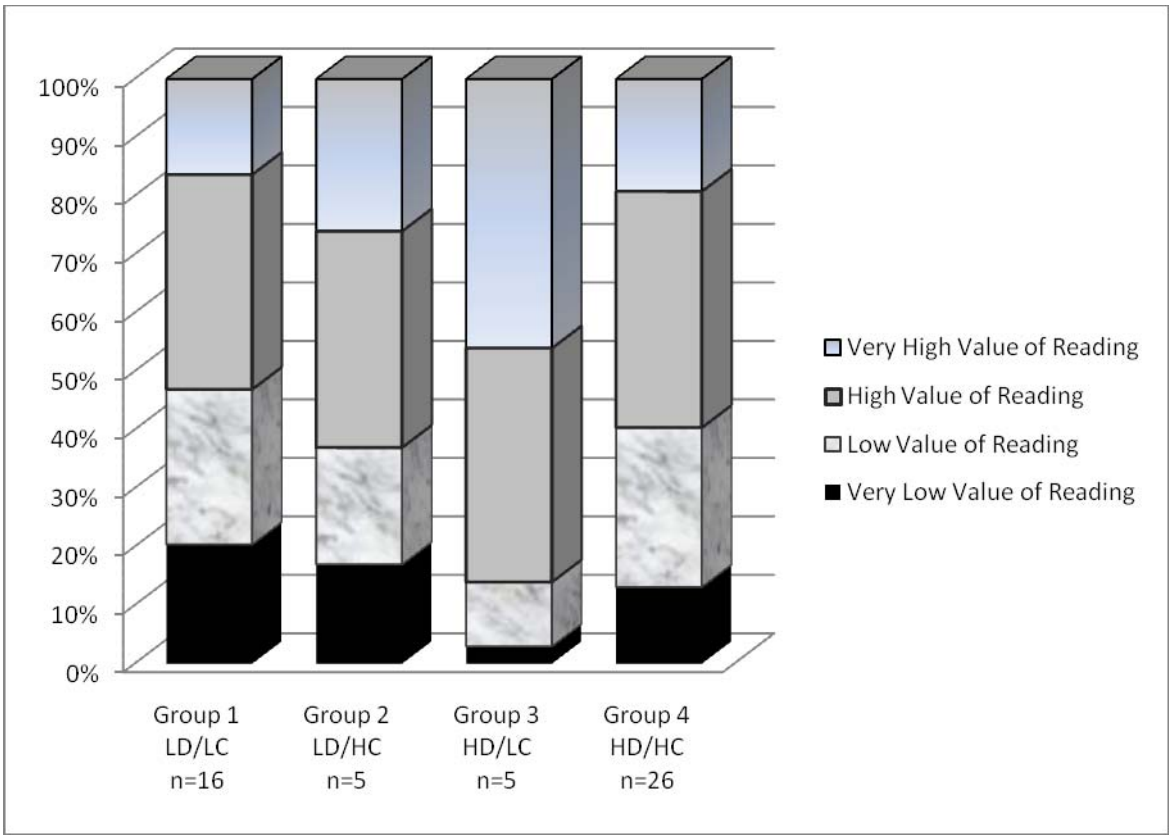

Figure 6. Percentages of value of reading survey responses for each reading skill group.

Reading habits

The four groups of readers were used to examine the relationship between reading skills and reading habits. Thus as part of the conversational interview described in Chapter 3 participants were asked open-ended questions about their reading habits. In Group 1 (low decoders, low comprehenders), the 16 participants were asked what kinds of reading material they were interested in. Two stated they “did not read” and 7 said they only read magazines and newspapers. The remaining 7 cited reading materials including magazines, newspapers, novels, history books, children’s books, and National Geographic magazines. Nine people stated they had read nothing the day before other than course material. When asked what they might need to learn to be better readers, 8 responses related to reading, while the remainder were either unsure about what they would need to learn or were confusing reading with other forms of literacy (e.g., “I would need to learn how to spell better”).

In Group 2 (n=5; low decoders, high comprehenders) 2 people said they only read magazines while the other 3 read magazines, the Bible, Maori legends, newspapers, and novels. Two out of the 5 had read nothing outside of course work the previous day. The responses to what they needed to learn to improve generally, reflected reading-related skills although 2 participants were unsure as to what they needed to learn and confusion with other literacy skills such as spelling was evident.

Group 3 (n=5; high decoders, low comprehenders) read magazines, newspapers, novels, the internet, and technical books. One participant limited themself to magazines. However 1 person did comment that they “read most things”. One participant when asked about their favourite author commented that they “liked a lot” while another commented that they “haven’t read a book in a long time”. Three people read nothing outside course time the previous day and all 5 talked about specific reading-related skills they could work on to improve their reading.

Of the 26 participants in Group 4 (high decoders, high comprehenders), 8 read magazines only but the remainder talked about reading novels, short stories, magazines, newspapers, instructional material, forms, the internet, travel guides, posters, games consoles, and nonfiction material. Some reported only reading novels occasionally. Nine of the group had read nothing that was not course-related the previous day but the rest had read from the range of material described. One participant was surprised by the question saying “I read every night”. Another, when asked what he had read replied “lots of stuff”. Interestingly 2 of this group felt they needed to learn nothing further to improve their reading and another 2 could not think of anything that would improve their reading. The remainder had a range of reading-related replies when asked what they needed to learn to be better readers including being able to increase vocabulary knowledge, increase reading speed, increase ability to focus, and increase knowledge of comprehension strategies. When asked what they may have to learn to

be a better reader one participant commented that “they were not interested in being one”. This participant had reported reading “nothing”.

The results of this section of the survey suggest a range of reading habits across all participants. There is, however, a pattern of the good readers reading a wider range of materials, more often, and an awareness of what is needed to improve their reading skills.

Summary

The results described in this chapter showed that a range of reading-related characteristics existed among the 52 participants in this study. The key measures tested skill in decoding, word reading, sentence comprehension, and receptive vocabulary which served as a measure for linguistic comprehension. High correlations between the measured results indicate close positive relationships among the general population of adult readers in the study. The 52 participants were divided into four groups of readers based on skill in decoding and linguistic comprehension. These groups exhibited the patterns of reading deficiency described in the simple view (Gough & Tunmer, 1986). Group 1 were low decoders, low comprehenders, Group 2 low decoders, high comprehenders, and Group 3 high decoders, low comprehenders while Group 4 were high decoders, high comprehenders. A modest negative correlation existed between the sub-skills of decoding and linguistic comprehension in each of the three groups of less-skilled readers (Groups 1, 2 and 3).

In section two, the demographic characteristics of the readers in each of the four groups were described. Generally there was an even distribution of reading skill groups across the three training courses examined in this study although a larger group of Group 4 (high decoders, high comprehenders) were engaged in trade skills training. In terms of gender, age distribution, and ethnicity there was a wide distribution through the reading skill groups. In terms of ethnicity 50% of Maori participants (n=20) were in Group 1 (low decoders, low comprehenders) and over 60% of European/Pakeha participants (n=22) were in Group 4 (high decoders, high comprehenders).

The results of the survey which examined the self-concept of reading skills, the value placed on reading, and the reading habits of participants were described for the four reading skill groups. The appreciation that the 52 participants had of their reading ability did not relate strongly to actual skills of readers. The conversational interview used open-ended questions to gauge an indication of reading habits. Although Group 4 readers (high decoders, high comprehenders) generally read a broader range of material and did this more often than readers in the other groups, there were a wide range of attitudes to reading held across all the four skill groups.

These results are discussed in the next chapter.

Chapter 5 Discussion

The purpose of this study is to examine the characteristics of adult readers in entry level tertiary settings in New Zealand. This chapter discusses the results of the study.

Part 1 of this discussion provides an overview of the reading skills of the 52 participants. These results address sub-questions 2 and 3 relating to the correlation between decoding and listening comprehension as predicted by the simple view of reading (Gough & Tunmer, 1986), skill at decoding (sub-question 4), and receptive vocabulary knowledge (sub-questions 5). In addition the presence of a 'spiky learner profile' of strengths and weaknesses (Besser et al., 2004) in reading skill sub components among New Zealand adult readers is discussed (sub-question 6).

Part 2 addresses sub-questions relating to the relationship between levels of reading skill and the demographic characteristics of age, gender and ethnicity (sub-question 1). The relationship between reader self-concept, attitude to reading and actual skill level is then discussed (sub-question 7).

The chapter concludes with a summary of the findings, a discussion about the limitations of the study, and suggestions for further research.

Overview of reading skills (Part 1)

The results from the 52 participants in this study represent a wide range of reading scores indicating a broad sample of adult readers and helping to provide a reliable indicator of the strength of relationships between the variables (Pallant, 2005).

Correlations

As predicted by the simple view of reading (Gough & Tunmer, 1986) there are strong positive correlations between the measures for the general population of readers in this study.

While the skilled reader must be good at both decoding and listening comprehension and the less-skilled reader is generally poor at both (Gough et al., 1996), the simple view of reading (Gough & Tunmer, 1986) says the poor readers can be poor in any of three ways; poor at decoding, poor at comprehension or poor at both. These three groups of poor readers were representative of half of the 52 participants in the current study (i.e., n=26). Half the participants (n=26) made up the fourth group of good decoders and good comprehenders. International surveys, IALS (1996) and ALL (2006), report a similar pattern of approximately half the sample being below an acceptable literacy level. Also of note is that the group of poor decoders and poor comprehenders (the garden variety reader) was the largest group (n=16) among the poor readers. This follows the pattern that less-skilled readers are generally poor at both skills (Gough et al., 1996).

The 5 participants in Group 2, (low decoder, high comprehender; the dyslexic reader), and the 5 in Group 3 (high decoder, low comprehender; the hyperlexic reader), provide small samples. The pattern of dissociation between the two components of decoding and comprehension was not strong for each group (i.e., enough readers who were strong in one skill and weak in the other) which may account for the modest negative correlation rather than the strong negative relationship predicted by the simple view of reading. However, the negative relationship is present confirming that decoding and listening comprehension were inversely related in less-skilled adult readers.

Decoding skill and poor readers

The relationship between less-skilled reading and decoding skill was examined using a sub-group of 22 less-skilled readers who were identified by poor sentence comprehension skill in order to examine a general population of poor readers in relation to their ability to decode. The positive correlation for this group between their sentence comprehension skill and their decoding scores supports the view that less-skilled readers are not efficient at decoding (Besser et al., 2004; Davidson & Strucker, 2002; Pressley, 2006). Comments from participants in the interview in answer to the question “what do you think you have to learn to be a better reader?” further illustrate this: Participants talked of the need to learn how to “pronounce words they don’t know”, to “have patience with bigger words”, and another admitted that they “miss out the big words”. The knowledge that entry-level tertiary learners in this study struggle with decoding tasks is important because by being aware that numbers of adult

learners have word-level challenges, educators are in a better position to address their needs (Capotosto, 2008).

Within the general population of less-skilled readers the simple view (Gough & Tunmer, 1986) states that some poor readers are good decoders but have poor linguistic comprehension. This sub-group of poor readers was identified in this study lending support to the presence of spiky skill profiles among adult New Zealand readers. Spiky profiles as described by Strucker and Davidson (2002) and Besser et al. (2004) will be discussed in more detail later.

Interestingly when doing the Bryant Test of Basic Decoding Skills (Bryant, 1975) less-skilled decoders in this study were observed attempting to recognise words rather than using sound-to-letter knowledge. This has been observed elsewhere (Greenberg et al., 1997; Thompkins & Binder, 2003). Participants in this current study commented when decoding the pseudowords that they looked for patterns that they knew within the words to help them know how to pronounce the words. One participant said he looked for “real words” or “parts of real words” to help decode. This concurs with the literature which says that good readers can efficiently and automatically decode (Pressley, 2006) but poor readers rely on strategies other than decoding when encountering unknown words (Stanovich & Stanovich, 1995).

However, limitations of discussing decoding skill based on a score in a test are noted. Identical scores on a measure do not mean identical use of decoding skills (Strucker & Davidson, 2003) and while a correct score does indicate efficiency with decoding that specific pseudoword, incorrect responses (which were not recorded in this study) provide additional information about the knowledge that reader does not have. Also, as noted, participants may use a number of sub-skills or strategies to respond correctly. A correct response does not necessarily inform a tester about the sub-skill sequence which may have been used to arrive at that correct response (Sabatini, Venezky, Kharik, & Jain, 2000). This current study has found evidence that poorer adult readers are less efficient at decoding but recommends that future studies explore this further by extending the results beyond merely noting correct responses to a decoding task to include examining the specific strategies used in incorrect responses.

Less-skilled readers and receptive vocabulary

The reciprocal nature of vocabulary knowledge and reading comprehension has long been established (Nagy, 1988; National Reading Panel, 2000; Stanovich, 1986). The relationship between less-skilled reading and receptive vocabulary knowledge was examined in this study using the same general sub-group of 22 less-skilled readers as mentioned above. The positive correlation between the sentence comprehension skill of this group and their receptive vocabulary scores supports the view that as receptive vocabulary decreases, so does sentence comprehension, thus less-skilled readers have poorer receptive vocabulary than skilled readers. However, as discussed earlier, the simple view of reading (Gough

& Tunmer, 1986) states that within the general population of less-skilled readers there are dyslexic readers with good linguistic comprehension skill but poor decoding skill. Listening comprehension is dependent on knowing what the words mean (Samuels, 1987) so dyslexic readers, although less-skilled readers in general terms, will have good receptive vocabulary skill.

Of interest is what vocabulary was not known by the participants in this study. Participants in the less-skilled readers groups commented that they had never heard whole blocks of words within a set on the receptive vocabulary measure used in this study. Included among these was the word mammal ("I have no idea what that is"), transparent ("*swear word* if I know") and pillar ("never heard of it"). One participant asked "are these all real words?" These adults have all been through the compulsory school sector in New Zealand and it could be argued that they will have encountered these words in the school environment if not in their daily life. However, multiple exposures to a word are necessary if the word is to become part of a reader's vocabulary. It does not occur in a single encounter and to know a word well it needs to be encountered many times in meaningful contexts. Nagy and Scott (2000) report that after 40 encounters with a word students have yet to reach a ceiling. A possible reason these words are unknown to these participants may be that they have not encountered the word frequently enough thus they lack the volume of reading experience necessary for that word to become part of their vocabulary (Stanovich, 1986).

It is argued that adults with greater experience and world knowledge should have an advantage over children and be able to apply this knowledge when reading (Thompkins & Binder, 2003). However the results of the present study lead us to question whether adults necessarily have the receptive vocabulary they are assumed to have. Participants commented that they had “never heard these words before” and spoke of “just guessing the meanings”. If adults do not have the vocabulary knowledge they are assumed to have, they will not be able to rely on it to facilitate meaning. Poor readers rely on semantic context cues more than skilled readers who are able to recognize individual words reliably and efficiently (Pressley, 2006). Poor readers with poor receptive vocabulary cannot rely on their knowledge of word meanings.

In addition there is evidence that weakness in word knowledge may compound weaknesses in decoding skill so that readers with poorly developed lexical representations have a disproportionately hard time with printed word identification. This suggests, as discussed by Braze et al. (2007), that efforts directed at vocabulary development might be especially helpful in reading instruction for adult poor readers.

Spiky profiles

Reader profile analysis conducted in overseas studies support the existence of spiky profiles among low skill adult learners (Besser et al., 2004; Strucker & Davidson, 2002). The term refers to the wide skill level across literacy components for adult learners (Hanifin, 2008). While experienced practitioners in New Zealand discuss spiky profiles (Hanifin,

2008) and there is support for the validity of practitioners' insights in evidence based education (Comings, 2003), empirical studies of this phenomenon do not exist for New Zealand. This study sought to find evidence of this spiky profile. Clearly in Group 2 (low decoder, high comprehender) and Group 3 (high decoder, low comprehender) the sub-skills exhibited by participants vary and so the existence of spiky profiles in New Zealand adult learners is confirmed.

However this data is not sufficient for a full discussion of the spiky profiles of the 52 participants. The limitations of the measures used are acknowledged. A wider range of subtests would be needed in future studies to explore additional components of reading including phonological awareness, word identification, and comprehension.

Demographic characteristics (Part 2)

In this section the gender, age bands and ethnicity of the 52 participants will be discussed, followed by an examination of the courses they were enrolled on. In addition, the self-concepts and attitudes to reading of participants will precede a consideration of reading habits.

Gender and age bands

Among the 52 participants in this study the number of male participants (n=40) was much greater than female participants (n=12). This may be a reflection of the nature of the training courses in the current study with a high number of male participants (n=24) being attracted to trade training.

Although in general terms male and female participants are evenly distributed across the four reading skill groups only 4 females are in Group 4 (high decoders, high comprehenders), with the remaining 8 females in the 3 groups of less-skilled readers. This is different to the male participants where over half (n=22) are in Group 4 (high decoders, high comprehenders). In contrast ALL (2006) found women had higher prose literacy skills[2] than men across all age bands (Satherly & Lawes, 2008a). A possible explanation of this difference may also be linked to the nature of training courses participants in the current study are enrolled in. It is possible that females are attracted to trade training because of the practical nature of the work and the current sample does not represent a broader sample of female readers as explored by ALL (2006).

Half of the participants (n=26) were aged under 20 years old which can be expected given that tertiary training in New Zealand is encouraged for school leavers. Of the 26 participants aged less than 20 years, half were in Group 4 (high decoders, high comprehenders) which is the group of skilled readers and the other half were in the three groups of poor readers. This pattern of approximately half in Group 4 and half in the other three groups is repeated in the other age bands. These results differ from results from ALL (2006) which showed a strong age effect with 25-54 year olds having on average stronger skills than those aged under 24 and those over 55

[2] The knowledge and skills required to understand and use information from texts such as passages of fiction and newspaper articles.

years old (Satherly & Lawes, 2008b). Further study would be needed to explore the reasons for this difference but a possible explanation may be that in some courses in the current study enrolment is screened for literacy skill. Therefore participants aged less than 24 years in the current study may not be representative of the age group in general.

Ethnicity

Twenty-two of the total of 52 participants self identified as European and 15 of these were good readers and in Group 4 (high decoder, high comprehender). In contrast, of the 20 participants who self-identified as Maori, 13 were less-skilled readers in Groups 1, 2 or 3. ALL (2006) results parallel this pattern of a high percentage of Maori with low literacy levels (Satherly & Lawes, 2008b). Two participants in the present study self identified as Pasifika (with an additional 3 being European-Pasifika) and this low number was expected as the total population of Pasifika in the city where this study was undertaken is relatively low. In this study the small number of Pasifika (n=2) and European-Pasifika (n=3) were evenly distributed across the four reading skill groups while in ALL (2006) they were over-represented in low literacy levels. However, the total number of 5 Pasifika participants is too low for generalisations to be made from.

Course information

Information about courses that participants attended and their reading skill group adds to our knowledge about the demographic characteristics of readers at entry level tertiary education in New Zealand. The training courses participants attended are grouped into three general categories:

trade training, employment skills and security work training. Although trade courses had just over 50% of their participants in Group 4 (high decoders, high comprehenders), this may be attributed to the fact that some of the trade courses were not open entry. Participants, in some cases, had to demonstrate good reading skill to be accepted into the course. Interestingly, employment skills courses which are open entry and considered at the lower level of entry courses had 9 of the total number of 17 participants in Group 1 (low decoders, low comprehenders) and the other 8 in Group 4 (high decoders, high comprehenders).

Self-concept and attitude to reading

Participants' self-concept of reading skill, their attitudes to reading and reading habits were gathered through self-reporting. The accuracy of self-reporting of skills is controversial. However strong arguments have been made for collecting such information as the learner's perspective does offer some understanding of what education is needed (Sutton & Benseman, 2006). If a learner over or underestimates their skills this gives indications of the instruction a learner might require. Over 50% of the Group 1 poor readers (low decoders, low comprehenders) had responses to the survey which demonstrated a high or very high self-concept of their reading skill. Over 65% of the responses of Group 2 (low decoder, high comprehender) and 92% of Group 3 (high decoder, low comprehender) poor readers were in this category. In contrast 18% of responses from skilled readers (Group 4; high decoders, high comprehenders) reflected a low or very low self-concept of reading skill. Thus it is apparent that the

actual skill level of the reader is not necessarily reflected in their belief about their ability to read.

Interestingly no Group 3 readers (high decoders, low comprehenders) gave responses which reflected a very low self-concept and only 7% of responses reflected a low self-concept. Over 90% of responses for this group demonstrated a high or very high self-concept. This is in line with Savage's (2001) findings that reading self-perception is related to decoding skill rather than comprehension skill. These readers believe they can read because they can say the words. This was illustrated by responses participants made to assessment tasks during interviews. One participant while reading aloud said "that doesn't make sense" but kept reading seemingly unaware that the purpose of reading is to make sense of the text. Another told the researcher after being unable to answer the question "I just skim the words when I read…I don't actually think about it". One participant immediately re-read and re-answered a question showing no recollection that he had just done so. This may reflect a belief that reading is about decoding while not registering what the words being read actually say. In contrast there was evidence of monitoring for meaning among skilled readers. One Group 4 reader (high decoder, high comprehender) asked if they could go back and re-do a previous question. The participant had been unhappy with the response made and had been able to keep processing it while working on other questions. Others showed evidence of slowing down and re-reading questions to clarify meaning. This approach was in contrast to a less-skilled reader who

responded to a question with “no idea” and when encouraged said “he gave up easily”.

It is noted, however, in results from this current study that participants’ perception of their ability to read is relative to their peers. Thus a Group 4 reader (high decoder, high comprehender) may class themselves as an OK reader which is less positive than a very good reader because their social group consists of others who they judge to be better readers than themselves. This may be why a small group of Group 4 demonstrate a very low self-concept. Despite this limitation of self identification the responses still demonstrate that self-belief does not always indicate measured ability in this reading population.

The finding of the present study is not unusual. In IALS (1996) over 60% of respondents at Level 1 prose literacy had self-assessments that were more optimistic than their skill level. Sutton and Benseman (2006) note that it is unclear if the respondents find their literacy skills are adequate for the contexts in which they live (i.e., they are unaware of what they do not know) or if the respondents are in denial about their low skill levels.

It is interesting to note that while Group 2 members in the current study (low decoders, high comprehenders) had a narrow self-concept range, they reported a broad range of reading values. Responses from Group 3 (high decoding, low comprehension) demonstrate the most positive scores or a pattern of valuing reading highly. It is acknowledged however, that

both these groups provide small samples with 5 participants in each. Overall there is no apparent relationship between measured skills as seen in the grouping of participants and the percentage scores indicating how participants value reading. This is interesting in the light of recent findings that suggest attitudinal barriers play a key role in predicting successful progression in generic adult literacy education. A positive attitude to learning is important (Carpentieri, 2008) but these results would suggest that a positive attitude to reading is not necessarily related to actual skill or perceived skill and further investigation of these factors in future studies is needed.

Reading habits

Overall, there was a wide range of reading habits across all reading skill groups in the study. There was, however, evidence of good readers reading on a more regular basis. Only 9 of the 26 participants in Group 4 (high decoders, high comprehenders) had read nothing the previous day while 14 of the remaining 26 less-skilled readers were in this category. Those who only read magazines were spread across the four reading groups but it is worth noting that half of the participants in this study were aged less than 20 years old. Mellard et al. (2007) found in their study that readers in this age group were more likely to read magazines than other reading materials. Eighteen of the 26 Group 4 readers (high decoders, high comprehenders) were able to talk about reading a wide range of materials compared to the narrow range discussed by the 14 less-skilled readers in the other three groups who read material other than magazines.

Summary: The characteristics of adult readers

This study has examined the characteristics of adult readers in entry level tertiary settings in New Zealand. The case has been made for approaching the study using the simple view of reading (Gough & Tunmer, 1986) which states that reading can be divided into decoding and linguistic comprehension each making separate contributions to reading comprehension (Gough & Hillinger, 1980). The adult readers have been studied by examining the relationships between these sub-components and sub-groups of readers categorised by skill, and relationships between demographic characteristics and reading skill groups.

The study found that for this general population of adult New Zealand readers there is a strong positive correlation between the sub-components of reading described by Gough and Tunmer (1986). Of the 52 participants in the study, half were identified as skilled readers while the remaining 26 were grouped in three ways: poor decoders, poor comprehenders or poor at both. The sub-group of poor readers who are poor at both decoding and comprehension made up the largest group (n=16) of the less-skilled readers. Among the poor readers a negative relationship exists between the sub-components of reading supporting the view that decoding and listening comprehension are two distinct parts of reading (Gough et al., 1996).

The less-skilled readers in this study were generally found to be less efficient at decoding, and to have a poorer receptive vocabulary than

skilled readers. However, within the general group of less-skilled readers a group of five hyperlexic readers (high decoders, low comprehenders) were identified and a group of five dyslexic readers (low decoders, high comprehenders). The existence of these sub-groups of readers is consistent with the simple view of reading (Gough & Tunmer, 1986) and the concept of spiky skill profiles (Besser et al., 2004) among adult readers in general.

Male and female participants were evenly distributed across the reading skill groups. Half of the 52 participants were aged less than 20 years and this age group was equally divided into skilled readers and less-skilled readers. This lack of a relationship between age band and skill level was also evident with the remaining 26 participants. Twenty-two participants identified as European and 15 of these were skilled readers. In contrast, of the 20 who identified as Maori, 13 were in the less-skilled readers groups. There was only a small group of Pasifika (n=2) and European-Pasifika (n=3) and these participants were distributed across the skill groups.

The actual skill of readers in this study was not related to their belief about their ability to read nor to the value they place on reading. Although a wide range of reading habits exist across all the reading skill groups in this study the skilled readers appear to read more, and on a more regular basis.

Limitations of this study

It is appropriate to acknowledge the limitations of the present study, particularly, as was discussed earlier in the methodology chapter, with regard to the measures used. This discussion is necessary due to the contentious nature of the use of assessment measures in the adult sector (Benseman, 2005) and the lack of adult-appropriate tests. In addition, for some adults with low literacy levels testing is argued to have negative associations with school. Also contentious is that what we know about children's reading informs programmes with adults. This reliance on well-established research methods with children has been criticized as disregarding what is known about adult learning (Besser et al., 2004).

Further to this, it is contended that adult-normed tests are inappropriately linked to school developmental scales. It is also suggested that adults are disadvantaged in testing because they have fewer opportunities than school-aged learners to engage in print (Sabatini et al., 2000). In other words adults are out of practice and a test may not fairly represent skills they have.

Despite these limitations of using tests designed for children in this examination of the skills of adult readers, assessments such as those used for this study can nonetheless provide insights into an individual's capability in a standardised way (Sligo et al., 2005). Further to this, literature supports the use of a correlation study which is seen as valuable

and necessary in building a complete understanding of the reading process (Cartwright, 2007).

While accepting that the use of formal testing, including reading grade level is controversial it is agreed there is a need for systematic and controlled research in the adult sector (Benseman, 2005). There is a precedent for conducting assessment-based studies and there are also arguments to support drawing on what we know about younger readers. Venezky and Sabatini (2002) point out that process research on children has a 100 year history and a rich literature base to draw on. Benseman (2005) points out that reading-related research of the K-12 schooling system in the United States has been used to provide starting points for teachers of adults. In addition, the argument that learners are out of practice with engaging in print does not apply to the adults in this current study because they are all enrolled in tertiary level training and as a result have to engage with quantities of print daily.

Further justification for the choice of measures comes from international recognition that there is a lack of such tools and a need for adult literacy assessments to be developed (Besser et al., 2004). In New Zealand the Tertiary Education Commission is currently developing the Adult Literacy and Numeracy Assessment Tool primarily designed to help educators to identify the strengths and weaknesses of learners' literacy and numeracy skills (Tertiary Education Commission web site, n.d.). No such New Zealand tool currently exists.

Further research recommendations

Further research is recommended in terms of decoding practices, spiky profiles and reading histories of adult readers.

Decoding practices

While this study found evidence that poorer adult readers are less efficient at decoding, it has been acknowledged that further investigation of the strategies adults are using to get both the correct and incorrect responses is needed to better understand how to remediate poor decoding skills. The less-skilled adult readers in this current study showed evidence of reliance on recognizing orthographic patterns when decoding. In other words the less-skilled reader tries to recognize words rather than use sound-to-letter knowledge (Binder & Borecki, 2008; Thompkins & Binder, 2003). Davidson and Strucker (2002) suggest detailed assessment must identify not only what decoding principles are mastered but also those which are actually used with automaticity as reading occurs. In addition it is worth noting that most studies of the simple view of reading measure decoding accuracy but decoding that is accurate but very slow may not be adequate to support comprehension (Kirby & Savage, 2008). Fluency has not been examined in this study and should be addressed in future research.

In regard to the findings of the current study and their limitations, and given the current political interest and budget investment in New Zealand (Ministry of Education, 2007a), it is important to collect further information about the decoding practices of adult learners in New Zealand.

Spiky profiles in detail

The present study provided empirical evidence to support previous practitioner accounts of the existence of spiky skill profiles among adult readers in New Zealand (Hanifin, 2008). The data collected in this study however, does not allow for an in-depth discussion of this phenomenon. A study design using a wider range of subtests would allow further understanding of the spiky patterns of skills among adult literacy learners and the implications of these for future adult reading programmes.

Reading histories of adult readers

There is consensus that adults bring existing knowledge and experience to their learning (Besser et al., 2004). It is sometimes suggested that less-skilled adult readers can compensate for their lack of reading skill by relying on prior knowledge to attempt to comprehend what they are reading; by making a type of guess at the meaning. However, it is also accepted that adults have diverse personal histories (Sutton & Reid, 2008) and for some this may adversely impact on the depth of knowledge and experience they can bring to their learning. Learners in this study demonstrated a lack of knowledge of vocabulary which is expected in adults (for example, experience with hearing and using the word pillar; “never heard of it”). No attempt was made to measure general knowledge of readers beyond the receptive vocabulary measure in the present study.

As was explained earlier a reader cannot comprehend the text if they do not know the vocabulary and reading is a significant contributor to the growth of vocabulary (Stanovich, 1986). The importance of much practice

reading is established. The benefits of extensive reading include increased vocabulary and world knowledge necessary to comprehend more complex texts (Pressley et al., 2008). This study confirms a positive correlation between less-skilled reading and poor receptive vocabulary. It would be useful to explore further the relationships between reading histories, world and word knowledge, and less-skilled adult readers in a New Zealand context.

Conclusion

This study of reading-related characteristics in adult readers in entry level tertiary settings in New Zealand found half of the 52 participants were not reading at an adult level and the skills exhibited by the less-skilled readers showed a spiky profile. No evidence was found that there is a relationship between gender or age and less-skilled reading but the 20 Maori readers in the study were disproportionately represented among the less-skilled readers. There is evidence that self-belief about skill is not related to actual reading skill or the value each reader places on reading. The reading habits of the participants revealed that skilled readers read a wider range of materials more often than less-skilled readers. Limitations of the study, including the lack of adult-appropriate measures, have been discussed and recommendations for further research concerning decoding practices, spiky profiles and reading histories of adult learners, have been made. These findings will be used to shape future adult literacy programme content and delivery methods by increasing what we know

about adult readers in entry level tertiary training courses and the specific instruction needed for less-skilled adult readers.

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Appendixes

Appendix A: Letter of explanation to PTE manager

Department of Arts and

Language Education Phone +64 7 838 4298

School of Education www.waikato.ac.nz

Toi Tangata

The University of Waikato

Private Bag 3105

THE UNIVERSITY OF WAIKATO
Te Whare Wānanga o Waikato

Researcher's Home Address

Date

Manager and address

Dear _____

I am an experienced practitioner in the Foundation Learning field and I am currently doing research for a thesis to complete a Master of Education with the University of Waikato. As an organisation you will be aware of the importance now placed on Foundation Learning as part of your programmes and will have been informed of current Government policies and strategies in this regard. You will also be aware of findings from national surveys which indicate that many New Zealand adults experience reading difficulties and have low level literacy and numeracy skills.

There is very little New Zealand research on adult Foundation Learning. My MEd research aims to address this gap. In this study I am specifically interested in adults who experience difficulties with reading. In order to

gain a better understanding of the reading skills of adults enrolled in Foundation Learning courses my research will investigate the skill related reading characteristics of a sample group of adults reading at a range of levels.

The purpose of this letter is to ask your permission to conduct interviews for this study on site with your Learners. Participation will be voluntary and approaches to individuals will only be made after consultation with you or a representative you nominate. It is proposed that each participant will be interviewed on up to two occasions for approximately 1 hour each time. The interview will be structured and consist of a range of assessment tasks. Interviews will be conducted at a time arrived at after discussion with tutors.

This study has been approved by the School of Education Ethics Committee, University of Waikato. Any queries of an ethical nature regarding the research should be addressed to Dr Sue Dymock, School of Education (838 4500).

I look forward to meeting and discussing this project with you in the near future.

Yours sincerely

Janet McHardy

Appendix B:Letter of explanation to participant and consent form

Department of Arts and

Language Education Phone +64 7 838 4298

School of Education www.waikato.ac.nz

Toi Tangata

The University of Waikato

Private Bag 3105

Researcher's Home Address

Date

Dear _____

My name is Janet McHardy and I am a Masters student at the University of Waikato. I have also worked as a tutor in programmes such as the one you currently attend. I am very interested in how adults read and what helps us be able to read all the written material we need to, both on course and elsewhere in our lives. At the moment, not much is known about this in New Zealand.

As part of my study I am interviewing adults and gathering information about their reading. You have been selected to participate in this study. The interview is not a compulsory part of your course but will take place during course time. There will be up to two interviews and each will take about one hour.

I will be asking you to read to me and answer some questions. I will also ask you about the types of material you read and when you do most of your reading. You can withdraw from the study at any time before October 2008.You do not have to give me a reason for this.

Your name will not be used on the information I collect and I will respect your privacy at all times. If you have any questions about this study or would like to discuss it further you can ring me on 07 850 *xxxx*.

This study has been approved by the School of Education Ethics Committee, University of Waikato. Any queries of an ethical nature regarding the research should be addressed to Dr Sue Dymock, School of Education (838 4500).

Please complete the slip below.

Yours sincerely

Janet McHardy

Consent to take part in this research

This study has been discussed with me and I have been given a written explanation. I understand what is happening. I have been given a chance to ask questions and get answers. I know that I can withdraw from the study before October 2008 without having to give an explanation.

I agree to take part.

Name:_____

Signature:_____

Date:_____

Appendix C: Collection of statistical data

General

Christian/first name/initials_____

Name of interviewer_____

Date_____

Venue_____

Course being completed_____

Gender_____

Age band: 15-19, 20-29, 30-39, 40-49, 50+

Ethnicity

New Zealand European/Pakeha
Maori _____
Pasifika _____
Asian_____
_____

Appendix D: Two part motivation-to-read-profile/self concept-as-a reader survey and conversational interview

Motivation to read profile

1. Others would think I am…
   - ☐ a very good reader
   - ☐ a good reader
   - ☐ an OK reader
   - ☐ not a good reader

2. Reading a book is something I like to do…
   - ☐ never
   - ☐ not very often
   - ☐ sometimes
   - ☐ often

3. I think I read…..
   - ☐ not as well as others I know
   - ☐ about the same as others I know
   - ☐ a little better than others I know
   - ☐ a lot better than others I know

4. I think people who read a lot are…
   - ☐ very interesting
   - ☐ interesting
   - ☐ not very interesting
   - ☐ boring

5. When I come to a word I do not know I can….
   - ☐ almost always figure it out
   - ☐ sometimes figure it out
   - ☐ almost never figure it out
   - ☐ never figure it out

6. Knowing how to read well is….
   - ☐ not very important
   - ☐ sort of important
   - ☐ important
   - ☐ very important

7. When I am reading by myself, I understand …
   - ☐ almost everything I read
   - ☐ some of what I read
   - ☐ almost none of what I read
   - ☐ none of what I read

8. I think reading is…
   - ☐ a boring way to spend time
   - ☐ an OK way to spend time
   - ☐ an interesting way to spend time
   - ☐ a great way to spend time

9. I am ….

- ☐ a poor reader
- ☐ an OK reader
- ☐ a good reader
- ☐ a very good reader

10. In the future I think I will spend…

- ☐ none of my time reading
- ☐ very little of my time reading
- ☐ some of my time reading
- ☐ a lot of my time reading

11. I worry about what others think of my reading…

- ☐ every day
- ☐ almost every day
- ☐ once in a while
- ☐ never

12. If someone gives me a book to read I feel…

- ☐ very happy
- ☐ sort of happy
- ☐ sort of unhappy
- ☐ unhappy

13. When my tutor asks a question about what I have read I…

- ☐ can never think of an answer
- ☐ have trouble thinking of an answer
- ☐ sometimes think of an answer
- ☐ always think of an answer

14. My friends think reading is…

- ☐ really fun
- ☐ fun
- ☐ OK to do
- ☐ no fun at all

15. Reading is…

- ☐ very easy for me
- ☐ kind of easy for me
- ☐ kind of hard for me
- ☐ very hard for me

Conversational interview

What kinds of reading material are you interested in (magazines, newspapers, science fiction)

_____

_____

Did you read anything yesterday outside of course time? Tell me what you read.

_____

_____

_____

Do you bring any reading material to course with you that is not connected with the work you are doing? Tell me about it.

_____

_____

_____

Tell me about your favourite author.

_____

_____

_____

What do you think you have to learn to be a better reader?

_____

_____

_____