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**Adult Dyslexia in New Zealand:
The Professional Development Needs of Adult Literacy Educators**

A thesis

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ABSTRACT

The needs of New Zealand adults with dyslexia are typically not sufficiently catered for in the tertiary education system (Rowan, 2010a; Tunmer & Greaney, 2010). In recent years efforts have been made to increase training opportunities for adult learners with literacy needs and to enhance the quality of teaching (Tertiary Education Commission, 2010b). This challenge can only be met if New Zealand adult literacy educators are adequately prepared in teaching learners with dyslexia. Research suggests they are not (Benseman, Sutton & Lander, 2005b; Dymock & Nicholson, 2012; Leach, Zepke & Haworth; 2010).

The purposes of the study were (a) to investigate the need among adult literacy educators in New Zealand to engage in training or professional development (PD) in order to improve their capability to cater for the needs of adult dyslexic learners; (b) to measure their perceived confidence as well as their perceived and actual knowledge levels in three areas: language, reading development, and dyslexia; and (c) to measure the effectiveness of targeted training and professional development.

An online survey was conducted with 137 staff at tertiary organisations, including PTEs, ITPs and Wānanga. Post-survey, semi-structured interviews were conducted with 4 adult literacy educators. The online survey included a questionnaire and a knowledge assessment. The questionnaire measured educators' confidence levels in meeting the needs of dyslexic learners, their perceived training need, and their perceived levels of knowledge in the areas of language, reading development and dyslexia. The knowledge assessment measured the actual levels of knowledge in these three areas.

The results suggested that there is a high need among New Zealand adult literacy educators to engage in training or professional development in dyslexia, that they feel less than confident in meeting the needs of dyslexic learners, and have insufficient knowledge in areas relevant to the teaching of dyslexic learners. Perceived knowledge levels exceeded actual knowledge levels, indicating unrealistic self-evaluations of knowledge. A comparison of the test results of educators who had and those who had not engaged in dyslexia training indicated that targeted training and professional development is effective in raising educators' awareness and understanding of dyslexia.

Implications support the development and reform of training and PD opportunities in dyslexia to better prepare, inform and educate New Zealand adult literacy educators.

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CHAPTER 1

INTRODUCTION

I think if teachers knew a bit more about dyslexia and they had a student in their class, they would know they were having difficulties and they would know how to help them. I think when teachers get trained they should do a section on how to deal with dyslexia and how to help dyslexics in class.

(student interviewed by Glazzard, 2010, p. 65)

International survey results indicate that New Zealand literacy education is not fully effective in providing New Zealanders, both children and adults, with the skills they need to function adequately in today's society. In the 2006 Adult Literacy and Life Skills (ALL) survey it was found that "1.1 million New Zealanders (43% of adults aged 16 to 65) had literacy or numeracy skills below the level deemed necessary to understand and use information contained in the texts and tasks that characterise our emerging knowledge society and information economy" (Tertiary Education Commission, 2012a, p. 6). A decade earlier, in the 1996 International Adult Literacy Survey (IALS), between 40% and 50% of New Zealand adults were found to have less than adequate literacy levels (Chapman, Tunmer, & Allen, 2003).

It is not surprising that survey results for New Zealand children show a similar picture: evidence from the 2001 Progress in International Reading Literacy Study (PIRLS) indicates New Zealand's performance on reading comprehension was significantly lower than in countries of similar economic development (Tunmer, Chapman, & Prochnow, 2004). In the same survey a distinctly wide

spread of scores was found, indicating “high levels of disparity between good and poor readers” (Tunmer et al., 2004, p. 127). Five years later, in the subsequent 2006 PIRLS survey, this literacy achievement gap had not narrowed (Tunmer, Nicholson, Greaney, Prochnow, Chapman, & Arrow, 2008).

1.1 The Reasons for Low Literacy Achievement in New Zealand

There appears to be a variety of reasons why a developed country with a modern economy and a relatively high standard of education is falling short in the literacy education of its citizens. Tunmer, Chapman, Greaney and colleagues, who have been conducting an unrelenting campaign to advocate the reform of the literacy approach used in our education system, have presented a well-documented explanation for New Zealand’s low literacy performance and the associated inequity in literacy outcomes (Chapman, 2001; Chapman, Tunmer, & Prochnow, 2001; Chapman et al., 2003; Tunmer et al., 2004; Tunmer & Chapman, 2007; Tunmer et al., 2008; Tunmer & Greaney, 2008; Tunmer & Greaney, 2010). Their explanation focuses on three areas: the fact that dyslexia was not recognised by the New Zealand government until 2007; the persistent adherence to the whole language approach in New Zealand primary schools; and the reliance on Reading Recovery as a programme of early intervention and remediation (Tunmer et al., 2008; Tunmer & Greaney, 2008; Tunmer & Greaney, 2010).

In 2007 the New Zealand Ministry of Education issued a media release in which they formally recognised dyslexia (Ministry of Education, 2007). The main reasons for this delay were the lack of an internationally recognised definition of dyslexia (Ministry of Education, 2008a) and the fact that New Zealand education

officials preferred a “more generic approach to meeting the needs of struggling readers” (Tunmer & Chapman, 2006). This deferred recognition of dyslexia has meant that New Zealand educators are not typically trained in recognising the signs of dyslexia in a learner, or in remediating their learning difficulties.

Research suggests that the whole language approach, which has been nationally implemented since 1963, is insufficiently effective in teaching reading if it is not complemented with structured, explicit instruction of decoding and comprehension (Chapman et al., 2003; Pressley, 2006; Snow & Juel, 2005; Tunmer & Greaney, 2008).

If children fall behind in reading they may be placed in the Reading Recovery programme. This programme, introduced into New Zealand schools in the early 1980s (Tunmer & Chapman, 2007), has two major drawbacks. First, children typically do not access the programme until they have been found to lag behind in reading results after one year of schooling. Second, it is a one-size-fits-all, generic approach designed to meet the needs of all struggling readers, founded on the same principles as the whole language approach (Chapman et al., 2001; Chapman et al., 2003; Tunmer & Greaney, 2008; Tunmer et al., 2008). As such it fails to provide the differentiation in remedial strategies which struggling readers need (Moats, 2009a; Tunmer et al., 2008; Vance & Mitchell, 2006; Valencia & Buly, 2005; Wolf, 2007).

In addition to the three factors identified so far, which may have contributed to the low literacy achievement levels in New Zealand, there will no doubt be a number of other factors which have also played a role. Within the scope of the New Zealand literacy issue I will focus on one aspect of it in the present study, adult dyslexia. Although our poor literacy performance appears to

stem from the fact that the instructional and remedial literacy approaches used in New Zealand primary education are not fully effective in meeting the needs of all children, it is not just our children who are at risk and whose needs are not being met. If no appropriate intervention is provided, children with literacy difficulties are likely to grow into adults who struggle to cope with the literacy demands of tertiary education programmes, the workplace and society as a whole. A number of these adults will have dyslexia. The reason why I have selected adult dyslexia as the topic of my thesis is two-fold: It deserves urgent attention as, in New Zealand, it has long been a neglected topic of research and discussion (Rowan, 2010a); also, an increased awareness of adult dyslexia and improved teaching strategies and resources would undoubtedly have a significant, positive impact on adult literacy as a whole, and hopefully contribute to better performance scores in future literacy surveys. Two definitions of dyslexia will be provided in Chapter 2.

1.2 Initiatives to Address the Adult Literacy Issue

New Zealand's consistently low adult literacy survey performance data have prompted the government to consider adult literacy and numeracy an urgent priority. In recent years a sustained effort has been made to address the issue by the Tertiary Education Commission (TEC), a government body responsible for the policies, funding and monitoring of the tertiary education sector (Tertiary Education Commission, 2010a).

In the "Action Plan for Literacy, Language and Numeracy" (Tertiary Education Commission, 2008b) the TEC outlined their intentions for the 2008-2010 period. The key focus was on "increasing the number of learning

opportunities that include literacy and numeracy” and “capability building for providers and educators” (Tertiary Education Commission, 2010a, p. 7). In view of this a number of initiatives were introduced, including the *Learning Progressions for Adult Literacy and Numeracy*, the National Centre of Literacy and Numeracy for Adults (NCLANA), the *Literacy and Numeracy for Adults Assessment Tool*, funding for workplace, intensive and embedded literacy programmes, and the National Certificate in Adult Literacy and Numeracy Education (NCALNE). These will now be discussed in more detail.

The Learning Progressions for Adult Literacy and Numeracy (Tertiary Education Commission, 2008a) are a set of progressions which were developed to provide tertiary educators with a common framework outlining the stages in literacy and numeracy development, in order to inform their teaching and assessing of adult learners.

In 2009 the National Centre of Literacy and Numeracy for Adults was established to provide professional development workshops and a tailored advisory service, lead research in adult literacy and numeracy, organise national symposia, and build relationships with tertiary organisations throughout New Zealand (Literacy and Numeracy for Adults, 2012).

In 2010 the Literacy and Numeracy for Adults Assessment Tool was introduced to provide educators with reliable information about their learners’ literacy and numeracy levels. It is now implemented by tertiary organisations nationwide (Tertiary Education Commission, 2012d).

Other key areas of development have been the introduction and funding of workplace and intensive literacy programmes as well as embedded literacy provision in vocational programmes. In order to increase learning opportunities

for adult learners and teach literacy within a meaningful, vocational context, vocational tutors are expected to embed literacy into their vocational content (Tertiary Education Commission, 2009b). The aim is that, by 2013 "100,000 learners will participate in programmes that include literacy and numeracy" (Tertiary Education Commission, 2010a). Although a National Certificate in Adult Literacy and Numeracy Education was developed in 2005 in an attempt to provide a foundation qualification for the training and professional development of adult literacy educators, it does not provide extensive training in how to teach literacy. The wide-scale participation in embedded literacy programmes could be much more effective if educators were adequately trained in these areas. This will be further discussed later.

Although it may seem that current literacy and numeracy provision for adult learners meets demand, Sutton and Vester (2010) urged caution by pointing out that 440,000 adults in Auckland have low document literacy skills, while there are only 21,000 learning places available. Therefore, existing literacy provision in Auckland meets less than 5% of the need for targeted programmes (Sutton & Vester, 2010).

1.3 Tertiary Educators in New Zealand: Training and Qualifications

A familiarity with the tertiary education landscape in New Zealand, the national qualification structure and the acronyms which abound may be helpful to position literacy provision within the provider context. In New Zealand the tertiary sector comprises universities, polytechnics and institutes of technology (Industry Training Providers or ITPs), Wānanga, Private Training Establishments

(PTEs), workplace training organisations and community-based organisations such as Literacy Aotearoa (NZQA, 2012b). The present study concerns educators at all of these providers except universities.

The New Zealand Qualifications Authority (NZQA) administers the New Zealand Qualifications Framework (NZQF) which lists all national qualifications at ten levels, from certificate and diploma to degree and postgraduate levels (NZQA, 2012b). Unlike other educational sectors the tertiary sector has no standardised career structure or selection procedure resulting in a diverse workforce with a wide range of qualifications and backgrounds (Beaty, 1998; Projects International, 2010; Viskovic, 2009). Particularly in the ITP and PTE sectors “tertiary teachers are usually appointed on the basis of their knowledge, qualifications and experience in their subject areas, and lack pre-service teacher education” (Projects International, 2010, p. 36).

An inventory of tertiary teaching qualifications commissioned by Ako Aotearoa, the National Centre for Tertiary Excellence, reveals that the way in which tertiary educators are trained and supported is “singularly complex...and – to say the least – somewhat confused” (Projects International, 2010, foreword). In his foreword to the report Dr Coolbear concluded that “a renewed debate on effective preparation of new tertiary teachers and ongoing professional development for established practitioners is overdue in this country” (Projects International, 2010, foreword). Only 40% of PTEs surveyed required new staff to have a teaching qualification, while ITPs and universities had no such requirement (Projects International, 2010). The vast majority of the 8,000 people who gained a tertiary teaching qualification between 2004 and 2008 qualified at the two lowest levels, National Certificates 4 and 5 (Projects International, 2010).

A total of 62 qualifications for the education and training of tertiary teachers were identified in the report, three of which are primarily focused on literacy and numeracy provision: the NCALNE (level 5), the Certificate in Adult Literacy Training (level 5) and the Master of Adult Literacy and Numeracy Education (level 9). In addition to these three qualifications identified in the Ako Aotearoa report (Projects International, 2010), literacy and numeracy teaching qualifications are available at diploma level (level 6) (NZQA, 2012a), graduate diploma level (level 7) (Tertiary Education Commission, 2012a, p. 34) and postgraduate diploma level (level 8) (University of Waikato, 2012). The minimum requirement for tertiary educators engaged in teaching intensive, embedded or workplace literacy tends to be the NCALNE (Tertiary Education Commission, 2009a).

The three types of literacy provision, intensive, embedded and workplace, are intended to provide the foundation in literacy and numeracy competency which tertiary students need in order to engage in further training or to enter the workforce. Intensive literacy programmes, for those with high literacy needs, are generally delivered by PTEs in small groups with students typically receiving 100 to 200 hours of tuition. In embedded literacy vocational educators embed literacy and numeracy into their vocational content. In workplace literacy the educators generally provide literacy support, individually or in small groups, at the workplace with the delivery being contextualised to the workplace context. For the purpose of the present study the term ‘adult literacy educators’ will include those delivering intensive, embedded or workplace literacy programmes.

In adult literacy education the diversity in qualifications and experience of educators is particularly evident. Benseman, Sutton and Lander (2005b) noted that

it is common for literacy, language and numeracy (LLN) educators to enter the sector “via the back door” (p. 26). For many it is not their chosen career, but they have entered the sector through a variety of avenues. Dennie (2008) explained that “traditionally adult literacy has been the domain of well-meaning persons with a leaning towards teaching and a belief in the power of literacy to affect people’s lives. Some have entered the field on the strength of their industry knowledge” (p. 180). In a study conducted to gain an insight into the teaching practices of educators engaged in teaching or embedding literacy, Benseman et al. (2005b) observed and interviewed 15 educators from tertiary organisations throughout New Zealand. They found that educators’ qualifications ranged from no qualifications to degree levels and commented on the diversity in qualifications and the fact that the higher qualifications were typically not specific to adult literacy, numeracy and language (Benseman et al., 2005b).

In an effort to address this lack of standardisation in the adult literacy sector, the TEC made study grants available in 2006 for educators to gain a recognised adult literacy and numeracy qualification. This resulted in a large uptake of the NCALNE, with many literacy educators now qualified at this level or studying towards it. Two levels are available: the NCALNE (Educator), aimed at intensive literacy educators and literacy specialists, and the NCALNE (Vocational/Workplace) for vocational and workplace educators (Tertiary Education Commission, 2009a).

1.4 Objectives of the Present Study

My main objective is to investigate whether there is a need among educators to engage in a programme of targeted training or professional development to enhance their knowledge of dyslexia and improve their ability to cater for the needs of their learners with dyslexia. My aim is to measure the extent of this training need and to create an insight into why educators may need to learn more about dyslexia by gathering information about their perceived confidence, their perceived and actual knowledge levels in areas relevant to dyslexia, and the types of difficulties they experience in responding to their learners' needs. An effort will also be made to measure the effectiveness of targeted training in dyslexia, by comparing the knowledge levels of educators who have received dyslexia training and those who have not.

In spite of the fact that mistakes may have been made in the education of our children, it is important not “to dwell on the waste that has been caused by years of ignorance about dyslexia and many other forms of learning disabilities” (Wolf, 2007, p. 228). Rather, we need to learn from this sad chapter in our history by identifying ways of redressing the situation and moving forward. Dyslexia is now recognised as a specific reading difficulty by the New Zealand Ministry of Education and the TEC acknowledges adult literacy as an urgent priority. However, it will take more to effectively resolve the issues. Dymock and Nicholson (2012) explained that “there is still a great deal of work to be done to raise awareness and educate pre- and inservice teachers about teaching dyslexics to read and write well as well as how to best cater for them in the classroom” (p. 41). The next chapter will provide a review of the literature concerning the

specific knowledge required by adult literacy educators to meet the needs of dyslexic learners. In addition, literature on the knowledge adult literacy educators have in areas relevant to dyslexia will be reviewed in order to ascertain whether their knowledge is sufficient for them to be effective in their teaching of dyslexic learners.

CHAPTER 2

LITERATURE REVIEW

It is critical that an adult with dyslexia has someone who is there for them, who understands what it is like for them and who is willing to adapt their teaching to help them.

(Dymock & Nicholson, 2012, p. 128)

2.1 Introduction

Although the topic of educator knowledge and expertise in the adult literacy context has received considerable international research attention, there is a dearth of research on adult dyslexia in New Zealand (Rowan, 2010a) and the professional development needs of tertiary educators (Dennie, 2008). It appears that, internationally, issues with respect to adult literacy provision are similar to the ones being faced in New Zealand, such as a lack of standardisation in educator qualifications, inadequate support systems and professional development opportunities for educators, funding and compliance constraints, a challenging teaching and learning environment, and a significant diversity of student need (Beder & Medina, 2001; Berghella, Molenaar, & Wyse, 2006; Bingham et al., 1998; Dymock, 2007; Mackay, Burgoyne, Warwick, & Cipollone, 2006; McNeil & Dixon, 2005; Smith & Hofer, 2003; Wickert & McGuirk, 2005). Much can be learned from international efforts to address the situation.

The New Zealand government recognises the urgency of the need to improve our adult literacy education: “The scale of the literacy and numeracy

challenge is significant and will take many years to address” (Tertiary Education Commission, 2010a, p. 21). The TEC’s firm intention is to implement changes to the tertiary education system to make it more relevant and efficient, so that it meets the needs of students, employers and the economy” (Tertiary Education Commission, 2010b). In view of this the TEC wants to “enable providers to be innovative and responsive to the needs and aspirations of students” (Tertiary Education Commission, 2010b, p. 3) as they realise that the quality of teaching and learning needs to improve (Tertiary Education Commission, 2010b).

In their current Tertiary Education Strategy the TEC outlines the main priorities and objectives for the next few years (Tertiary Education Commission, 2010b). Despite their awareness that the quality of teaching and learning is central to improving New Zealand’s adult literacy education, the TEC has failed to include in this document a clear objective to build the capability of tertiary educators in order to enable them to meet the needs of learners, in particular those with dyslexia, whose needs have been neglected for many years. If the TEC expects “all providers to offer an inclusive environment that caters to the needs of students with disabilities to improve participation and achievement” (Tertiary Education Commission, 2010b), educators will need the knowledge and expertise to meet this challenge.

A worrying trend appears to be that the TEC’s focus has shifted. In a previous publication, the “Literacy, Language and Numeracy Action Plan 2008-2012” (Tertiary Education Commission, 2008b), capability building was presented as one of the main priorities. In the past few years this intention was materialised by a number of initiatives, as discussed in Chapter 1. However, it no longer seems to be a top priority as some of these initiatives have been

downscaled. Since 2010 the Adult Literacy Educator Grants (ALEG) have been significantly reduced (Tertiary Education Commission, 2012b). The National Centre of Literacy and Numeracy for Adults (NCLANA), established in 2009 and tasked by the TEC with developing and delivering a programme of professional development and related activity, had its TEC funding continued, but at a reduced level, following the end of its initial contract in 2011 (D. Coben, personal communication, November 21, 2012).

In addition to these funding reductions, more recent TEC publications (Tertiary Education Commission, 2012a; Tertiary Education Commission, 2012e) appear to focus largely on the students and the creation of more learning opportunities for priority learner groups, such as Māori, Pasifika and students aged below 25. In their “Statement of Intent” (Tertiary Education Commission, 2012e), the TEC explained that over the past decade large increases in government expenditure on tertiary education have been made, “primarily with the purpose of increasing participation” (Tertiary Education Commission, 2012e, p. 7). The majority of the seven priorities set out by the TEC in this 2012 – 2015 plan for tertiary education focus on increasing the number of students participating and achieving in tertiary education, rather than building the capability of the educators.

Despite all the good intentions of the government to address the adult literacy issue, there appears to be a lack of long-term vision and commitment. While considerable investments have been made, as in the establishment of a National Centre (NCLANA), projects such as these are not being followed through or further developed as a result of a withdrawal of funding. The TEC aims for the National Centre to “eventually become financially self-sustaining”

(Tertiary Education Commission, 2012a, p. 32). Considering the fact that the uptake of the professional development training offered by the National Centre has considerably reduced since users of their services have been required to partly cover the cost, it is likely that PD opportunities will only be available to the adult literacy educators who can afford to engage in the training.

In this literature review I will review national and international research on the knowledge needed by adult literacy educators. I will first define dyslexia and provide some background information regarding the concept of adult dyslexia. Subsequently, I will examine what knowledge adult literacy educators require by discussing the distinctive needs of learners with dyslexia and the need for the creation of a dyslexia-friendly learning environment. Lastly, I will review international and New Zealand literature which examines the levels of knowledge and expertise adult literacy educators have in areas relevant to dyslexia.

2.2 What is Dyslexia?

As the research field of dyslexia is characterised by a variety of understandings and conceptualisations it may be useful, at this point, to define dyslexia. For this purpose I have selected two definitions developed in New Zealand. In order to place dyslexia within the wider context of reading difficulties I will next discuss the Simple View of Reading (Gough & Tunmer, 1986). This discussion will lead to a focus on dyslexia in adults.

2.2.1 A definition of dyslexia.

Tunmer and Greaney (2010) proposed the following four-part definition of dyslexia: “Persistent literacy difficulties in otherwise typically developing children, despite exposure to high quality, evidence-based literacy instruction and intervention, due to an impairment in the phonological processing skills required to learn to read and write” (p. 239).

This definition acknowledges the fact that there are numerous other reasons why some children, and in time, adults experience difficulty learning to read and write effectively. Vellutino and Fletcher (2005) stressed the importance of distinguishing dyslexia, which has a biological origin, from other types of reading difficulty. In fact, “most children with early reading difficulties suffer from experiential and instructional deficits and the truly disabled readers are those children with relatively severe phonological processing deficits” (Tunmer & Greaney, 2010, p. 236). The biological origin of dyslexia will be discussed later in this chapter.

In 2008 the New Zealand Ministry of Education drafted a working definition of dyslexia: “Dyslexia is a spectrum of specific learning difficulties and is evident when accurate and/or fluent reading and writing skills, particularly phonological awareness, develop incompletely or with great difficulty. This may include difficulties with one or more of reading, writing, spelling, numeracy, or musical notation. These difficulties are persistent despite access to learning opportunities that are effective and appropriate for most other children” (Ministry of Education, 2008b).

2.2.2 The Simple View of Reading.

The Simple View of Reading (Gough & Tunmer, 1986) provides a useful framework for classifying three main categories of reading difficulty and distinguishing dyslexia from other subtypes of reading difficulty. It is based on two variables: decoding (D) and oral language comprehension (C). Reading comprehension (R) is presented as the product of these: $R = D \times C$, as competence in both skills is required for skilled reading. From this model three subtypes of reading difficulty can be identified: those with oral language comprehension difficulties but adequate decoding skills; those with poor decoding but adequate oral language comprehension skills; and those with deficits in both areas. The last category is sometimes referred to as “mixed reading disability” (Tunmer & Chapman, 2007, p. 45) or “garden variety readers” (Gough & Tunmer, 1986, p. 7). The model helps to clarify the understanding of dyslexia as characterised by difficulties in decoding. These are generally accompanied by phonological awareness and spelling difficulties (Dymock & Nicholson, 2012; Goswami, 2008; Vellutino & Fletcher, 2005). It is important to keep in mind that a decoding difficulty does not always indicate dyslexia. The definitions of dyslexia provided earlier in this chapter show that a variety of factors can lead to decoding difficulties.

Although the prevalence of dyslexia in New Zealand has been estimated at 10 per cent (Dyslexia Foundation of New Zealand, 2012), this estimate is likely to be inflated, as it may include those with mixed reading disabilities and those whose difficulties are due to poor instruction (Tunmer & Greaney, 2010). In other publications, more conservative estimates have been made of approximately 5 per

cent of the population (Bell, 2010; Pressley, 2006; Tanner, 2009a). Wadlington and Wadlington (2005) pointed out that “the incidence of dyslexia is sometimes debated due to overlapping definitions of types of learning disabilities as well as differing specific definitions used by diverse agencies” (p. 18). In addition, prevalence figures may vary as they will depend on the cut-off point in relation to the severity (Kelly & Phillips, 2011). As dyslexia occurs on a continuum, there are different degrees of severity. The criteria adopted in relation to the degree of severity must be considered when interpreting and comparing prevalence figures.

2.2.3 Dyslexia in adults.

There is overwhelming research support for the fact that early identification and intervention are most effective in preventing and remediating reading difficulties (Goswami, 2008; Gunnell Ingesson, 2007; Lishman, 2006; Nicholson, 2005; Shaywitz, 2003; Tunmer & Greaney, 2008). From the discussion in Chapter 1 on the instructional and remedial approaches in primary education it will be evident that these approaches should be a major target for scrutiny. The introduction of the *National Standards* in 2010 is one example of the government’s initiatives to measure the achievement of children being instructed according to these approaches (Ministry of Education, 2011). Their purpose is to provide teachers and parents with clear guidelines regarding the benchmarks children should achieve at certain ages (Ministry of Education, 2011). One of the priorities is that "every child achieves literacy and numeracy levels that enable success" (Ministry of Education, 2011, p. 18).

It is equally important, however, to consider those children whose learning needs were not addressed during primary school. Children do not outgrow dyslexia (Chapman et al., 2003; Ministry of Education, 2008a; Moats, 2001; Shaywitz, 2003; Spear-Swerling & Sternberg, 1998; Vellutino, Fletcher, Snowling, & Scanlon, 2004) and, without adequate attention to their needs, may grow into adults who experience difficulty in their vocational and academic learning (Bell, 2010; Snowling, Muter, & Carroll, 2007). If these adults are to succeed in tertiary education it is vital for their educators to be able to provide adequate and appropriate instruction and support. In order to achieve this, educators will need in-depth background knowledge. The particular knowledge required will now be discussed in more detail.

2.3 What Knowledge is Needed to Meet the Needs of Adult Dyslexic Learners?

Research concerning the needs of adult dyslexic learners has identified a number of specific areas. These include the integration of explicit, direct instruction of basic skills and authentic reading experiences (Beder & Medina, 2001; Chapman et al., 2003; Fink, 1998; Pressley, 2006); increased reading exposure (Rice & Brooks, 2004; Spear-Swerling & Sternberg, 1998); a strength-based approach which aims to identify and build on a learner's existing strengths and competencies (Valencia & Buly, 2005); strategies for planning, organisation and note-taking (Gilroy & Miles, 1996); the provision of extra time (Shaywitz, 2003); a learning environment where their social and emotional needs are met (Tanner, 2009a); and the need to be informed about dyslexia (Burden, 2008). To

provide an inclusive education the educator will need the expertise to attend to these needs and create a dyslexia-friendly learning environment (Bond et al., 2010; Kelly & Phillips, 2011). In this section the knowledge needed to meet the needs of adult dyslexic learners will be discussed by reviewing these learners' distinctive needs. It is important to bear in mind that adult dyslexics are a diverse group. Naturally, every dyslexic individual is different and will have a distinct pattern of strengths and weaknesses (Coffield, Riddick, Barmby, & O'Neill, 2008, Valencia & Buly, 2005). However, there are some areas of need which occur in most learners with dyslexia. The knowledge needed to cater for these needs will be discussed below.

2.3.1 Balanced literacy instruction.

There is extensive research support for the fact that explicit, direct instruction of basic skills, including phonological awareness and letter-sound relationships, within a balanced approach is most effective in addressing the needs of dyslexic learners (Beder & Medina, 2001; Chapman et al., 2003; Fink, 1998; Kelly & Phillips, 2011; Ministry of Education, 2008a; Moats, 2010; National Institute for Literacy, 2007; Pressley, 2006; Rayner, Foorman, Perfetti, & Seidenberg, 2001; Rice & Brooks, 2004; Snow & Juel, 2005; Tunmer & Greaney, 2008; Tunmer et al., 2004; Tunmer et al., 2008). A balanced approach combines the strengths of the whole language and basic skills instructional philosophies by integrating the explicit, direct teaching of skills within meaningful, holistic reading and writing experiences (Fink, 1998; Pressley, 2006). In order to provide dyslexic learners with the most effective literacy instruction, educators will need

the expertise to implement a balanced approach, and be aware of the ways in which it can benefit learners.

Stanovich (1986) coined the term ‘Matthew Effect’ to describe the persistent nature of reading difficulties if no adequate intervention is provided and the consequent widening of the gap between proficient and poor readers. The term is taken from a biblical statement in Matthew, Chapter 25, Verse 29: “To all those who have, more will be given, and they will have an abundance; but from those who have nothing, even what they have will be taken away.” It is crucial for beginning readers to accumulate a good measure of ‘reading mileage’ for them to improve their reading proficiency (Dymock & Nicholson, 2012; Rice & Brooks, 2004; Spear-Swerling & Sternberg, 1996; Wolf, 2007). Good readers will further develop their reading skills as they are exposed to more reading material at increasing levels of complexity. They develop their decoding accuracy and fluency, grow their vocabulary and acquire strategies for comprehension so that they are able to cope with more difficult reading material (Tunmer & Greaney, 2008). Many poor readers, on the other hand, due to their phonological processing deficits, will experience difficulties in word recognition and phonological recoding (Dymock & Nicholson, 2012; Nicholson, 2005; Vellutino et al., 2004). As a consequence they will receive less practice at reading and encounter text which is too difficult for them (Snowling et al., 2007; Torgesen, 2005; Tunmer & Greaney, 2008; Venezky & Sabatini, 2002). This may result in them losing interest in reading, so that their exposure to reading, needed to develop their reading skills, is even more reduced. Stanovich (1986) referred to this chain of events as “the rich get richer and the poor get poorer” (p. 382). If adult dyslexic learners have experienced reading difficulties from an early age, the educator will

need to address their specific areas of need in order to reverse this downward spiral. This includes ensuring the learners engage in regular reading practice.

The Simple View of Reading (Gough & Tunmer, 1986), as previously described, classifies three broad categories of reading difficulty and identifies decoding as the main difficulty for dyslexic learners. It has widely been accepted that this difficulty is generally caused by phonological processing deficits, such as phonological awareness and phonological recoding (Goswami, 2008; Shaywitz, 2003; Stanovich, 1988; Tunmer & Greaney, 2008), which also affect spelling development. Adult dyslexic learners have often, over time, learnt how to decode, but it is their decoding fluency and spelling, and sometimes their handwriting, which tend to remain problematic (Shaywitz, 2003; Torgesen, 2005). Wolf (2007) explained that the transition from accuracy to fluency in decoding is not an easy one and that many dyslexics never achieve it.

2.3.2 The paradox of dyslexia.

Shaywitz (2003) explained that “the hallmark of dyslexia is unexpected difficulties in phonology and reading in relation to the person’s other cognitive and academic abilities” (p. 335). The reason why these difficulties are unexpected is explained by Shaywitz’s “paradox of dyslexia model” (2003, p. 56). According to this model dyslexic learners tend to be weak at the lower order thinking processes, including decoding and spelling, whereas they generally have distinct strengths in the higher order cognitive processes, such as critical thinking, oral vocabulary, reasoning, concept formation, visualisation, oral language comprehension, and problem solving (Dymock & Nicholson, 2012; Oakland,

Black, Stanford, Nussbaum, & Balise, 1998; Shaywitz, 2003; Wolf, 2007). Gilroy and Miles (1996) described how dyslexics tend to process information “simultaneously and holistically” (p. 6) and that they are consequently weak at tasks involving rapid processing of language and thinking in a sequential way but strong in creativity and lateral thinking. The decoding difficulty can act like a barrier as it impedes access to the more advanced thinking skills (Shaywitz, 2003). It is important for educators to be aware of this paradox as it helps them recognise dyslexia and it creates an opportunity to build on the learner’s strengths and abilities. For example, teaching metacognitive processes to guide reading and spelling could be one way of employing a dyslexic learner’s strengths, such as their thinking skills, to help address their areas of need (Oakland et al., 1998).

2.3.3 The biological foundation of dyslexia.

Research has demonstrated that the roots of dyslexia are in the brain (Goswami, 2008; Lishman, 2006; Shaywitz, 2003; Wolf, 2007). Shaywitz (2003) explained that, broadly speaking, there are two main neural pathways for decoding, each with a different pattern of activation of reading structures in the brain. Skilled readers use the more effective pathway, whereas dyslexics tend to use the neural pathway typically used by beginning readers, resulting in slow, effortful decoding. Due to the plasticity of the human brain, effective teaching can help activate the neural structures and pathways involved in fluent reading (Shaywitz, 2003; Wolf, 2007). In order to develop a deep understanding of the causes of dyslexia and the ways in which the effective neural pathway can be stimulated, it is vital for educators to be informed about the biological foundation

of dyslexia. Hudson, High and Al Otaiba (2007) explained that “having information about the likely explanation for and potential cause of the student’s difficulties often relieves teachers’ fears and uncertainties about how to teach the student and how to think about providing instruction that is relevant and effective” (p. 506).

2.3.4 Working memory limitations.

Dyslexics tend to have a relatively inefficient working memory which can affect their functioning in a number of ways (Beneventi, Tønnessen, Ersland, & Hugdahl, 2010; British Dyslexia Association, 2012; Grant, 2010; Jeffries & Everatt, 2004; de Jong, 1998; Kelly & Phillips, 2011; Menghini, Finzi, Carlesimo, & Vicari, 2011; Scheepers, 2009; Simmons & Singleton, 2000, Smith-Spark & Fisk, 2007; Swanson, 1993; Torgesen, 1985; Vance & Mitchell, 2006). Working memory is “a temporary space for holding information...which we use when we have to hold on to information briefly so that we can perform a task with it” (Wolf, 2007, p. 147). Grant (2010) explained how a high verbal reasoning ability is usually accompanied by an above average working memory capacity. In dyslexics there is often an imbalance in that they tend to have good verbal reasoning skills coupled with poor working memory resources. As a consequence the brain may generate more ideas than the working memory can process (Grant, 2010). It is not surprising, therefore, that, due to the fact that the working memory can become crowded, people with dyslexia can be easily distracted, forgetful and disorganised (Kelly & Phillips, 2011; Snowling et al., 2007). Wolf (2007) described working memory as the key to expert reading, as it enables us to keep the visual features of

a word in mind long enough to connect it to the rest of the information about the word. In order to interpret text the written symbols need to be stored temporarily in the working memory in order to connect them to all the knowledge the reader has about the word, such as the letter patterns, semantics, syntactical functions, roots and suffixes, while at the same time processing all the information from the context and allowing time to infer, comprehend and predict. If the working memory is limited in capacity or does not function effectively, these processes may be impeded. In addition, if information cannot be held in working memory for long enough, the transfer of the information to long-term memory will be hampered, thereby affecting the storage of information, so information is not stored or inaccurate representations are stored. Conversely, retrieval of information will also be affected if the information from the long-term memory is not held in working memory long enough to organise and process it (Kelly & Phillips, 2011). Educators need to be aware of these working memory limitations and teach memory strategies, such as rehearsal, visualisation, linking, chunking and grouping (Vance & Mitchell, 2006). In addition, they need to allow sufficient time for thinking and planning, as well as provide a quiet learning environment and ample opportunity for repetition (Kelly & Phillips, 2011; Oakland et al., 1998).

This inefficiency in working memory can also affect writing. If the working memory is easily overwhelmed, it is hard to capture one's ideas and organise them into a logical structure. Naturally, it is also the spelling difficulty which has a negative impact on writing. Dymock and Nicholson (2012) explained that adult dyslexic learners usually have good ideas but have trouble writing them down because of their poor spelling. Planning an essay requires much working

memory capacity, which is why it is important for dyslexic learners to develop planning strategies. In the appendices to their book on dyslexia in tertiary education Gilroy and Miles (1996) included the stories of five adult dyslexics who have successfully completed university, one of whom related, “I know what I want to say but it never comes out on paper as I mean it to” (p. 203) and “it’s getting it down that’s the problem” (p. 203). Teaching planning strategies for writing can be hugely beneficial as they provide the learner with the basic means of recording their thoughts and ideas on paper in a structured manner. In teaching and assessing writing there tends to be an emphasis on the mechanics of writing, including spelling, grammar and punctuation, whereas it would be more effective to focus on the strategies to record one’s ideas on paper, while at the same time paying attention to the mechanics (Dymock & Nicholson, 2012).

Note-taking appears to be particularly difficult for a dyslexic learner (Dymock & Nicholson, 2012; Gilroy & Miles, 1996; Grant, 2010; Kirby, Silvestri, Allingham, Parrila, & La Fave, 2008; Shaywitz, 2003). All five dyslexic adults in Gilroy and Miles’ (1996) study reported that note-taking poses challenges. Taking notes requires remembering the teacher’s words and writing them down quickly. Working memory limitations, combined with spelling difficulties and poor concentration, can turn this into a real challenge. Educators tend to assume that students can take notes and may not explicitly teach how to take notes. However, strategies can be taught to facilitate the process, including highlighting key words and taking notes schematically (Gilroy & Miles, 1996). In addition, notes could be provided in a visual format, like a poster, diagram or powerpoint document.

2.3.5 Processing speed.

Research has shown that, because written information is processed slowly, dyslexic learners will need more time to perform tasks. In fact, they need to make much more of an effort than non-dyslexic learners to complete reading and writing tasks (Frank & Livingston, 2002; Goldup & Ostler, 2000; Grant, 2010; Kelly & Phillips, 2011; Shaywitz, 2003; Simmons & Singleton, 2000; Walker, 2000). The phonological deficit slows down the speed of processing, both receptively, in reading, and productively, in writing. In turn, “slow word reading interferes with comprehension, because it requires that the material to be comprehended be present simultaneously in working memory” (Kirby et al., 2008, p. 298). If phonemes are not clearly distinguished, retrieval of information is impeded. If the brain is thinking faster than it can receive the information from reading, it will slow down the processing speed of what is read. If the brain is thinking faster than the words can be spelled, then writing will be slowed down. In order to counter this imbalance between thinking and processing, the learner can address it in two ways: on the one hand the thinking processes need to slow down to work more in tune with the processing of information, on the other hand decoding and spelling skills can be taught and practised to speed up the reading and writing (Grant, 2010).

2.3.6 Social and emotional needs.

In adults with dyslexia it is not only the educational needs which need to be addressed, but also the social and emotional needs. They have often experienced failure at school and have encountered misunderstanding of their difficulties by teachers and peers (Dale & Taylor, 2001; Dymock & Nicholson, 2012; Price & Gerber, 2008; Wolf, 2007). If learners are told they are not working hard enough, that they are not motivated or that they are slow learners, they will start to doubt themselves, especially if they find that all the time and effort they put into their work is not paying off (Edwards, 1994; Frank & Livingston, 2002; McNulty, 2003; Shaywitz, 2003). In interview studies many dyslexic adults recount having been bullied and humiliated (Dale & Taylor, 2001; Edwards, 1994; Fink, 1998; Glazzard, 2010; Gunnel Ingesson, 2007; McNulty, 2003; Price & Gerber, 2008; Tanner, 2009a; Tanner, 2009b; Tanner, 2010). Tanner (2009a) conducted focus group discussions and interviews with 70 adults with dyslexia. She found that “physical and emotional bullying within and outside the classroom emerged as a common theme” (Tanner, 2009a, p. 793). Participants reported being hit by teachers, being called mentally retarded by peers, and being publicly humiliated in front of the class. These experiences can lead to a lack of confidence, low academic self-concept, anxiety, feelings of isolation and frustration, learned helplessness, a disinterest in learning and even behavioural problems (Bell, 2010; Burden 2005; Burden, 2008; Coffield et al., 2008; Edwards, 1994; Humphrey & Mullins, 2002; Kerr, 2001; McNulty, 2003; Ministry of Education, 2008a). It is, therefore, critical, for adult literacy educators to be aware of the impact dyslexia can have on a learner’s social and emotional well-being. For these learners

building confidence, self-esteem and motivation may be a pivotal part of the learning process and the educator can be instrumental in promoting it.

2.3.7 Identifying dyslexia and informing learners.

As dyslexic learners may find it difficult to understand the reasons why they struggle with reading and writing, it is important for educators to be able to explain their difficulty to them (Gilroy & Miles, 1996; Goldup & Ostler, 2000; Tanner, 2009b). As one adult dyslexic put it, "It's very hard to come out from doing a whole childhood of being told at school that you're stupid...to become an adult and not think you're stupid" (Dale & Taylor, 2001, p. 1002). Tanner (2010) interviewed 10 adults with dyslexia who had enrolled in a programme at a TAFE (Training and Further Education) in Australia "designed to help participants understand their dyslexia and enable them to develop skills to further their vocational prospects and desires" (Tanner, 2010, p. 6). One of the purposes of the study was to gain an insight into the events in people's lives which proved to be turning points for them in their self-perceptions and their life choices (Tanner, 2009b). Tanner found that their new knowledge of dyslexia was empowering and had been instrumental in making positive changes in their lives (Tanner, 2010). Adults with dyslexia, therefore, may need to be informed of the potential reasons for their difficulties, as it can be empowering and motivating to know that their difficulties are not due to low intelligence or a mental deficiency, but that they are quite able to learn (Burden, 2008). Understanding their particular strengths and weaknesses can enable them to take control of their learning and develop their thinking and learning processes. The educator could play an important role in

raising this awareness and understanding in their dyslexic learners, and correct any misconceptions their learners might have, although not all dyslexic learners will feel the need to be informed.

It is therefore vital for educators to be able to recognise the signs of dyslexia in their students. Dyslexia is often referred to as ‘hidden’ or ‘invisible’, because people with dyslexia tend to hide the fact they have difficulties and are reluctant to ask for help (Bell, 2010; Dymock & Nicholson, 2012; Price & Gerber, 2008; Tanner, 2009a). It is only if educators are able to identify dyslexia and if they are aware of the distinctive needs of dyslexic learners that they are able to create a dyslexia-friendly learning environment.

2.3.8 Creating a dyslexia-friendly learning environment.

In the tertiary education programmes offered at ITPs, PTEs, and Wānanga learners typically need to attain high levels of reading proficiency to read the large volumes of text they are presented with. They must also become skilled writers to take notes, do assignments, and present evidence of their knowledge and understanding in assessments. This requirement may pose significant problems for dyslexic learners, who will need to develop effective strategies to focus on the most relevant information and comprehend text (Kirby et al., 2008; Simmons & Singleton, 2000) as well as strategies for planning, structuring, proofreading and editing their writing (Gilroy & Miles, 1996; Walker, 2000). Adult literacy educators are confronted with the task of supporting these learners in their literacy development and helping them cope with the demands of the course or workplace. Their endeavours to do so would be greatly facilitated if they had the knowledge

and expertise to create a dyslexia-friendly learning environment. One of the main objectives of a dyslexia-friendly environment is to reduce the impact of dyslexia on learners. To achieve this, educators need to address the issue in two ways: by building their learners' literacy skills to the best possible level while, at the same time, putting accommodations in place to facilitate learning.

Apart from a structured, systematic, and explicit approach to teaching literacy and the provision of accommodations, research has shown that a dyslexia-friendly learning environment also includes the establishment of predictable routines, opportunity for plenty of practice and repetition, the provision of a quiet space without distractions, as well as a supportive and constructive environment (Kelly & Phillips, 2011; NIFL, 2007; Rice & Brooks, 2004; Shaywitz, 2003). Studies have demonstrated that it is very important for dyslexic learners to have a good rapport with their teacher, to feel included, and to be confident that their difficulty is understood (Dale & Taylor, 2001; Edwards, 1994; Goldup & Ostler, 2000, Price & Gerber, 2008; Tanner 2009a). Dale and Taylor (2001) conducted 3 focus group discussions with 7 adult dyslexic students. The feelings expressed in the group were that recognition and understanding were the most essential factors for them to feel included (Dale & Taylor, 2001). Dyslexic learners also need to experience success to build their confidence and strengthen their self-image.

2.3.9 A multisensory approach.

Reading words only employs the visual sense. If the words are also heard on CD and the text is discussed and summarised by the learner in graphic organiser, poster, or digital format, the auditory and kinaesthetic senses as well as

speech are engaged. Walker (2000) explained how “words need to be seen and read, heard and spelled” (p. 102). This is because, for dyslexics, all the features of the word, its spelling, sounds, pronunciation and meaning, have not been fully integrated and these ‘fuzzy’ representations of words need to be strengthened to facilitate rapid retrieval and automaticity (Shaywitz, 2003). Research has shown that using these four modalities in reading and writing is one way of employing a learner’s strengths.

Research indicates that a multisensory approach to teaching basic decoding skills is most effective for dyslexic learners (Birsh, 2011; Kelly & Phillips, 2011; Oakland et al., 1998). Oakland et al. (1998) conducted a study in the US into the effectiveness of the ‘Dyslexia Training Program’, a multisensory remedial reading programme designed for dyslexic learners. He monitored and assessed the progress of 48 eleven-year-old learners with dyslexia over a period of 2 years. The experimental group ($n = 22$) received instruction in the Dyslexia Training Program and the control group ($n = 26$) received instruction as normally provided in their schools. The groups were evenly matched for intelligence, reading achievement, gender, age and socioeconomic status. Pre- and post-assessments were conducted for decoding, spelling, reading comprehension and word recognition, and a comparison was made between the assessment results of the two groups. It was found that the learners in the experimental group made significantly more progress in word recognition and reading comprehension than those in the control group (Oakland et al., 1998).

2.3.10 Accommodations.

Apart from techniques for multisensory teaching educators also need to be aware of the accommodations they can provide to enable dyslexic learners to access their strengths or to circumvent the need for reading and writing. Shaywitz (2003) pointed out that, for a dyslexic learner, accommodations can “represent the bridge that connect him to his strengths” and that “the most critical accommodation for the dyslexic reader is the provision of extra time” (both p. 314). Dyslexics process text more slowly and need more time to perform tasks, write assignments and sit assessments and exams (Dymock & Nicholson, 2012; Frank & Livingston, 2002, Ministry of Education, 2008a). Often they have the knowledge and understanding required, but they find it hard to express this in writing or are inhibited by spelling, so the educator may need to find an alternative way for them to demonstrate their knowledge, such as conducting assessments orally.

Information can be read out or presented in a visual format, including diagrams, tables, graphs, illustrations, posters or powerpoint presentations, as this is easier for a dyslexic learner to process and retain (Dymock & Nicholson, 2012). In addition, the use of audio, such as recorded workbooks and lectures, can be particularly useful (Ministry of Education, 2008a; Shaywitz, 2003). Electronic devices, such as laptops, digital tablets and smartphones, as well as assistive technology and software, including application software (apps) and spell checkers for dyslexics, can also be utilised to facilitate reading, writing and note-taking and to help students become more organised.

2.3.11 Differentiation.

Teaching practices which are effective for dyslexic learners are equally beneficial for non-dyslexic learners (Benseman, Sutton, & Lander, 2005a; Coffield et al., 2008; Rice & Brooks, 2004), which is particularly relevant for educators engaged in embedded literacy. However, adult literacy educators are often faced with mixed levels of ability within their groups of learners. Wolf (2007) explained that “we need teachers who are trained to use a toolbox of principles” (p. 209) that they can apply to different types of learners. Differentiating one’s delivery requires skill, experience and a sound theoretical background knowledge (Beder & Medina, 2001; Casey et al., 2006; NIFL, 2007; Valencia & Buly, 2005). Beder and Medina (2001) conducted an observational study of 20 adult literacy educators in eight US states. Coping with mixed skill levels was found to be a major difficulty for educators: “Based on everything we observed in classes and heard from teachers, mixed levels and continuous enrolment are very serious problems over which teachers have very little control and with which most teachers simply cannot cope effectively” (Beder & Medina, 2001, p. 89). In a study conducted by Casey et al. (2006) involving 79 vocational programmes in the UK, the researchers found that vocational teachers found it hard to cater for differing needs and that they consequently required support to increase their awareness of the needs of literacy learners, and to develop their capability to cater fully for the differentiation required to meet the needs of their learners (Casey et al., 2006). This study will be reported on in more detail later in this chapter.

2.3.12 Assessment.

The distinctive needs of the dyslexic learner, as discussed so far, necessitate an instructional approach which is targeted at individual need. In order to address each learner's needs it is vital for the educator to have a thorough knowledge of assessment procedures and to ensure that instruction is informed by assessment results. The interpretation of assessment results will be enhanced by knowledge of the different causes of reading difficulty, such as categorised in the Simple View of Reading, as this will assist in identifying the specific learning needs of the learner. Educators will also need the insight to look for the learner's strengths. A sound background knowledge of dyslexia will provide them with an indication of the possible areas of strengths. Assessment results will provide further information for the educator to establish which strengths the learner can draw on in addressing their learning needs. Generally, an adult literacy educator has limited time available to work with a learner, as workplace, embedded and intensive literacy programmes are typically of relatively short duration. Also, in tertiary programmes, instruction tends to be in groups rather than individualised, so that one-to-one time with a dyslexic learner can be scarce. Therefore, in order to effectively target one's instruction and make optimal use of time and resources, knowledge of assessment techniques and procedures, and interpretation of assessment results will greatly benefit the educator.

2.3.13 Categorising the knowledge needed.

In summary, the knowledge needed by adult literacy educators is multifaceted. It includes a familiarity with the balanced approach to teaching literacy, and an awareness of the paradox of dyslexia, its biological foundation, and the working memory and processing speed deficits which may affect learners' reading, writing and organisational abilities. An in-depth knowledge of dyslexia will be needed for educators to be able to recognise the signs of it in their learners, and understand the social and emotional impact it can have. In order to create a dyslexia-friendly learning environment, educators will need to be familiar with techniques for multisensory teaching and differentiation as well as the accommodations which can be put in place to facilitate learning. Finally, expertise in assessment and interpretation of assessment results is essential for educators to adopt instructional strategies which will meet individual learner need.

For the purpose of this study it was necessary to categorise this knowledge which is needed to meet the needs of learners with dyslexia. This proved a challenging task due to the broad scope and complex nature of the knowledge involved. For practical purposes, rather than aiming to be inclusive, the categories I have selected as the most appropriate are: language knowledge, knowledge of reading development, and awareness and understanding of dyslexia. In the next section these areas of knowledge will be discussed with a focus on whether adult literacy educators have sufficient knowledge in these three areas.

2.4 What Knowledge do Adult Literacy Educators Have Regarding Dyslexia?

The previous discussion will have elucidated the fact that adult literacy educators require a significant breadth and depth of knowledge which they can draw on to adequately meet the needs of dyslexic learners. In this next section I will review international and New Zealand research examining adult literacy educators' knowledge. This will then lead to a more in-depth discussion of each of the three specific areas of knowledge relating to dyslexia.

2.4.1 International research findings.

The professional education and development of adult literacy educators is not just a New Zealand issue. Both national and overseas research findings yield converging evidence for the fact that there is a general need for adult literacy educators to be upskilled (Beder & Medina, 2001; Berghella et al., 2006; Dymock, 2007; Leach, Zepke, & Haworth, 2010; Mackay et al., 2006; Smith & Hofer, 2003). Below I will provide a summary of relevant studies in the US, Australia and the UK.

In the United States the National Center for the Study of Adult Learning and Literacy (NCSALL) conducted a two-year study with 106 Adult Basic Education (ABE) teachers between 1998 and 2000 (Smith & Hofer, 2003). The study involved 106 questionnaires, 18 interviews with teachers and their superiors as well as classroom visits. One of the main findings of the study was that the teachers had "limited formal preparation geared specifically to teaching adults, and ... limited opportunities for professional development and continued learning"

(Smith & Hofer, 2003, p. xi). Teachers expressed concerns that they did not feel adequately prepared to deal with the challenges of developing curriculum, organising instruction, and assessing student progress. Although the purpose of the study was to gain an understanding of the effects of professional development on ABE teachers and the factors contributing to these effects, the main findings related to the fact that ABE teachers had little formal preparation and limited PD opportunities, and that they lack adequate support and resources. The study failed to yield information regarding the teachers' specific areas of need with respect to professional development opportunities.

In the Australian adult literacy context the National Centre for Vocational Education Research (NCVER) has published numerous studies on professional development needs in the various literacy subsectors (e.g., Berghella et al., 2006; Dymock, 2007, Mackay et al., 2006; Wickert & McGuirk, 2005). Mackay et al. (2006) conducted a study into the professional development needs of 200 adult literacy educators in three Australian states: New South Wales, Victoria and South Australia. Electronic surveys, structured telephone interviews, teleconferences and focus group discussions were held to gain an insight into the professional development needs within the adult Literacy, Language and Numeracy (LLN) sector. Results indicated that there might be “something of a mismatch between what is offered and what is desired by language, literacy and numeracy workers” (p. 4) and it was found that “language, literacy and numeracy specialist teachers, no matter how experienced, express a continuing hunger for professional exchange on how to better go about their language, literacy and numeracy teaching practice” (p. 5). Dymock (2007) conducted a study with 125 Australian community literacy providers, which involved questionnaires to all providers,

case studies of seven programmes and semi-structured, face-to-face interviews with 37 people, including managers, coordinators, teachers, tutors and students. He found that participants experienced a marginalisation of the community-based adult literacy sector, and that the passion and commitment exhibited by educators in the field needed to be complemented with “greater attention to initial training and professional development is essential” (p. 7).

Berghella et al. (2006) investigated the professional development needs of 45 workplace literacy educators across 15 providers in Australia. Although smaller in scale than the previous two studies, the validity of the findings was enhanced by the use of three data gathering methods: email surveys, telephone/face-to-face interviews and workshops. During the workshops some of the issues identified in the survey were discussed and further explored. It was found that there were insufficient opportunities for professional development. One of the priority areas for professional development was identified as effective language, literacy and numeracy practice (Berghella et al., 2006). As this was only one of nine priority areas identified, it is necessarily a broad generalisation. Further scrutiny of this need would have been helpful.

These three Australian studies, all of which focused on different adult literacy subsectors, from vocational, specialist and volunteer tutors to workplace and community practitioners, produced similar findings: the adult literacy sector has an underqualified, yet dedicated workforce in combination with insufficient professional development opportunities.

In Australia, it is not just in the adult literacy field where these issues have been identified, but also in primary and secondary education. A Dyslexia Working Party was formed in 2009 to “propose a national agenda for action to assist people

with dyslexia” (Bond et al., 2010, p. 2). In their report the researchers stated the sobering fact that “50% of the 34 teacher training programs in Australia devote less than 5% of the curriculum to teaching of reading” (p. 3). Their recommendations included improved teacher training and professional development programmes as well as the establishment of dyslexia-friendly schools (Bond et al., 2010).

In the UK similar findings have emerged. One of the main bodies producing research in this area is the National Research and Development Centre for Adult Literacy and Numeracy (NRDC). One of the NRDC’s most comprehensive research projects was conducted by Casey et al. (2006) and involved 79 vocational programmes and 1,916 learners. Although the main objective of the project was to explore the impact of embedded literacy, some of the study findings were particularly revealing with respect to the need for educator capability. A mixed method methodology was selected as the most appropriate research design, as the qualitative data could be used to illustrate, check and interpret the findings from the quantitative analysis, which were mainly generated through document analyses and questionnaires to learners. The qualitative data were collected through semi-structured interviews, focus groups, class observations, and document analyses and involved a wide range of stakeholders, including literacy specialists, vocational educators, learners, programme managers and department managers. Casey et al. (2006) found that in those cases where a vocational educator was solely responsible for the programme, rather than a team of vocational and literacy educators, “learners taught by non-specialists were twice as likely to be unsuccessful with LLN qualifications” (p. 22). This finding is

significant in that it demonstrates the substantial impact of the educator's capability on learner achievement.

Another large-scale research project in the UK, published by the NRDC and conducted by McNeil and Dixon (2005), exposed the need among educators to learn more about dyslexia. The study focused on the 16 to 25 age group of learners not in formal education, employment or training, the so-called 'NEET' learners, with a view to identifying the methods and practices most effective in raising the LLN skills of these young learners. The study involved 25 project visits, case studies ($n = 10$), a practitioner questionnaire ($n = 58$) and follow-up telephone interviews ($n = 36$). McNeil and Dixon (2005) concluded that most practitioners had very little specific training in literacy teaching, though they were keen to develop their skills and knowledge, and to engage in training. Vocational educators generally felt more confident teaching vocational content rather than literacy and numeracy as a result of lack of training and confidence in these areas. Another finding related specifically to learners with dyslexia: "a very high percentage of providers contacted as part of the research reported working with young adults with learning difficulties and/or disabilities, and referred to higher than average numbers of learners with dyslexia involved in the provision" (McNeil & Dixon, 2005, p. 12). No further data are reported with respect to the particular challenges this posed to the educators or how they felt they could be supported in this. This is surprising considering one of the main objectives of the project was to identify practitioners' training needs and possible strategies to address them (McNeil & Dixon, 2005). In their recommendations regarding professional development McNeil and Dixon (2005) observed that adult literacy educators are typically not highly-trained and are keen to develop their skills,

while professional development opportunities are not sufficiently accessible or targeted to the educators' specific needs. Considering the fact that educators raised the issue of having to work with higher than average numbers of dyslexic young adults, a further probe into the effect of this might have provided the basis for more specific recommendations.

2.4.2 New Zealand research findings.

New Zealand research findings are consistent with overseas experiences. In 2004 Benseman, Sutton and Lander (2005b) conducted an observational study of 15 adult literacy educators to gain an insight into their teaching strategies. The educators were observed for an average of 167 minutes over two teaching sessions and interviewed after the first observation session. The researchers uncovered significant variations in the amount of direct literacy teaching, though the general pattern was that there was a low incidence of direct literacy teaching. They found that they “did not see many deliberate acts of literacy, numeracy and language teaching” and that “teachers appeared to rely heavily on a small number of methods and did not indicate awareness of many alternatives” (Benseman et al., 2005b, p. 92). Eight of the teachers taught on a one-to-one basis and the remaining seven taught in groups of varying sizes. Seven of the 15 teachers were engaged in embedded literacy, with the others delivering intensive literacy programmes. Although the sample reflects the diversity of the sector in terms of delivery formats, skill levels and experience, this variety in teaching contexts may compromise the generalisability of the findings, particularly as a relatively small sample size was used and the duration of the observations was short. In their

recommendations Benseman et al. (2005b) called for more research in literacy teaching in integrated programmes.

One of the few New Zealand studies conducted into embedded literacy thus far was by Leach, Zepke and Haworth (2010). They were commissioned by the New Zealand Ministry of Education to conduct an inquiry into embedded literacy practice. Case studies were conducted with five providers: a Wānanga, an ITP, two PTEs and an Industry Training Organisation (ITO). The researchers found a strong emphasis on tutor training and professional development, and a need among vocational educators to be supported by specialists and to engage in ongoing professional development. An analysis of the training needs of educators was beyond the scope of the study. Some respondents in the case studies identified the issue that “some of the staff actually have literacy and numeracy issues, so to actually expect them [to do qualifications] is quite a hard concept” (p. 27). It is interesting that this issue of educators having literacy and/or numeracy issues themselves also emerged in the studies conducted in the UK by Casey et al. (2006) and McNeil and Dixon (2005).

In a survey conducted with 90 PTEs in New Zealand the large majority (88%) of participants reported having learners with dyslexia (Dymock & Nicholson, 2012). The PTEs who responded delivered a variety of programmes, including literacy and numeracy, vocational, and youth programmes. Only half of the participants (53%) indicated having the means to identify dyslexics and even less (48%) had procedures for teaching them. Less than half of the PTEs surveyed (40%) felt adequately equipped to teach dyslexic students (Dymock & Nicholson, 2012) and, consequently, the need for specific information about dyslexia was high, as indicated by 77% of survey participants.

From the studies reviewed, it will be clear that, both overseas and in New Zealand, adult literacy educators have expressed a clear need to improve their capability. On the basis of this research and in view of the distinctive needs of dyslexic learners as discussed in the previous section, the three specific areas of knowledge earlier identified, language knowledge, knowledge of reading development, and an awareness and understanding of dyslexia, will now be discussed. Reference will be made to the reasons why educators need to be knowledgeable and capable in these areas to effectively address the needs of their dyslexic learners. In my discussion I will report on studies measuring the extent of this knowledge and capability among educators.

2.4.3 Language knowledge.

Rice and Brooks (2004) and Moats (2010) discussed why it is essential for literacy educators to have a sound knowledge of language and linguistics. Adult dyslexic learners may need explicit and structured tuition in phonology, orthography, morphology, semantics and syntax and learn to understand the underlying principles of word, sentence and discourse formation (Moats, 2010; Rice & Brooks, 2004). Therefore, “the tutor’s aim must be to impart declarative knowledge (knowledge that) and to ensure that the student then transforms it into procedural knowledge (knowledge how) that can be drawn up without conscious attention” (Rice & Brooks, 2004, p. 11). Perhaps we can add to this repertoire a ‘knowledge why’, as, for example, an explanation of why a word is spelled the way it is will enhance understanding (Moats, 2009b).

In the United States Moats has conducted extensive research in the area of educators' language knowledge and presented countless arguments for policy changes to improve the preparation and professional development of literacy educators (Moats, 1994; Moats, 2003; Moats, 2009a; Moats, 2009b; Moats, 2010). She concluded that "one of the most common findings in studies of teacher knowledge is that teachers are unaware of or misinformed about the elements of language that they are expected to explicitly teach" (Moats, 2009a, p. 387). In 1994 she conducted a survey of 89 early childhood, primary, secondary and tertiary educators to assess their language knowledge and found that the educators generally had insufficient understanding of spoken and written language structure, which would hamper their ability to teach it explicitly (Moats, 1994). The sample group was diverse in composition and included reading teachers, classroom teachers, special education teachers, speech-language pathologists, teacher aides, and graduate students. On completion of the survey participants enrolled in a semester programme for graduate teachers focusing on training in phonemic awareness, relationships between spoken and written language, and analysis of spelling and reading behaviour (Moats, 1994). Their feedback was very positive and they felt their teaching would be more effective if they received proper training, commenting that the training they received was essential for teaching practice (Moats, 1994).

Carroll (2006) conducted a phonological awareness test with 212 New Zealand primary school educators. The results demonstrated a general lack of awareness with only 12% of the teachers passing the test. Carroll (2006) pointed out that "if teachers do not have adequate understanding themselves and therefore

give conflicting and contradictory models, this will only add to the confusion that some children are experiencing" (p. 47).

Nicholson (2007) replicated Moats' (1994) study with 83 New Zealand teacher trainees to measure their language knowledge. The survey included questions relating to grammar, syllabification, morphology, phonemic awareness, alphabets, spelling and word origin. Results were remarkably similar to those in the survey by Moats. Nicholson (2007) reported that many participants would not have the necessary knowledge to teach effective decoding and spelling strategies. After the survey, participants were given three one-hour lectures about language and linguistics. Participants performed considerably better in the post-test, after only three hours of focused linguistic instruction.

The studies by Moats (1994), Carroll (2006) and Nicholson (2007) largely involved primary educators. To my knowledge no studies into the language knowledge of New Zealand adult literacy educators have as yet been conducted. Judging from the results in the studies conducted by Carroll (2006) and Nicholson (2007), even if some educators have teaching qualifications, this may not necessarily mean they have adequate language knowledge. The present study will examine language knowledge in the context of adult literacy provision.

2.4.4 Knowledge of reading development.

Apart from language knowledge, research shows that knowledge of normal reading development is also essential for a sound understanding of the cognitive deficits underpinning reading difficulties, as cognitive processes used by skilled readers can serve as a point of reference when working with struggling

readers (Chall, 1983; Rayner et al., 2001; Spear-Swerling & Sternberg, 1998). Knowledge of the stages of reading development will also help assist the design of remedial strategies (Moats, 2009a; Snow, Griffin, & Burns, 2005; Spear-Swerling & Sternberg, 1998).

Moats (2010) explained that reading follows a predictable course irrespective of the speed of reading acquisition, with the reader progressing through a number of well-defined stages, from pre-alphabetic (or logographic) to early alphabetic, when they develop a conscious awareness of the internal phonological structure of words and an early realisation of the alphabetic principle (Ehri, 2005). Subsequent phases are the later alphabetic stage and the consolidated alphabetic stages (Ehri, 2005; Gough & Hillinger, 1980; Moats, 2010) when the reader further develops phonemic awareness, orthographic knowledge, fluency and vocabulary growth until finally automaticity is achieved (Pressley, 2006). Adult dyslexic learners may have an uneven and unpredictable pattern of reading skills as, over the years, they may have developed some useful skills and strategies (Shaywitz, 2003). As instruction needs to be matched as closely as possible to an individual's needs, it is vital for adult literacy educators to have a good understanding of reading development, as it will help them identify at what stage the difficulty occurs (Pressley, 2006; Rice & Brooks, 2004; Shaywitz, 2003; Tunmer & Greaney, 2008).

Several studies of the process of teaching reading in adult literacy contexts have been conducted. The research questions and method applied by Beder and Medina (2001) in their observational study of 20 adult literacy educators in eight US states closely resemble those in the study by Benseman et al. (2005b), who observed 15 educators in New Zealand, with a notable difference. Beder and

Medina (2001) selected a grounded theory method as they chose not to seek generalisation of findings, but rather to enhance understanding of the educators' instructional practices by providing examples and illustrations from their observations and interviews. With respect to educators' knowledge of reading development they found that the educators had insufficient knowledge to interpret assessment results to inform their teaching and address individual student needs (Beder & Medina, 2001). They based their conclusion on the fact that they saw little evidence of needs-oriented instruction. Instead, instruction tended to be generalised, directed to the entire class and not based on assessment results.

Benseman and colleagues came to a similar conclusion about the New Zealand educators in the study discussed earlier in this chapter: "they did not use a very wide range of teaching strategies for teaching reading in the sessions observed" (Benseman et al., 2005b, p. 90). Only a third of the teachers taught alphabets and, in the case of miscues, teachers tended to simply supply the correct word rather than use it as an opportunity to practise a relevant strategy. Assessments methods and processes varied considerably and were not always conducted by the educators themselves. Only half of the educators in the study developed an individual learning plan, which appeared to be largely an administrative requirement rather than a means to develop instructional strategies based on individual need.

2.4.5 Awareness and understanding of dyslexia.

Knowledge of language structures and normal reading development are not sufficient in attending to the needs of the dyslexic learner. Shaywitz (2003)

explained that “it is critical for ...teachers...to understand the nature of the reading problem in order to help them develop a positive sense of themselves” (p. 309). The dyslexic learner often feels marginalised and isolated through lack of awareness among peers and educators (Goldup & Ostler, 2000). They are sometimes regarded as lazy or unintelligent and labelled as slow learners (Frank & Livingston, 2002; Grant, 2010; Gilroy & Miles, 1996; Tanner, 2010). These misconceptions can lead to negative emotions and are potentially demotivating for both the learner and the educator. If learners are confident that their educator is aware of the effort they put in and the difficulties they encounter, this will enhance their sense of well-being and attitude towards learning (Gwernan-Jones & Burden, 2009; Tanner, 2010). In interviews with adult dyslexic learners, they relate how important it is for them that their difficulty is recognised and understood (Dale & Taylor, 2001, Glazzard, 2010; Gunnel Ingesson, 2007; McNulty, 2003; Tanner, 2010).

In the UK Glazzard (2010) interviewed nine secondary-aged students with dyslexia to investigate the factors that affected their self-esteem. In view of the small sample size and the absence of a quantitative analysis, no generalisations can be made, but from the students’ comments it was apparent that teachers had a significant impact on their self-esteem. One student highlighted the importance of teacher awareness and understanding: “Well, the person I think has done the most and really supported me is Mrs S. She has done the most out of the school...She knows how I feel. She’s qualified to work with dyslexic people” (Glazzard, 2010, p. 65).

Kerr (2001) conducted an in-depth, postal questionnaire with twelve experienced adult literacy educators who were fellow students of the researcher on

a MEd (literacy) course at Sheffield University in the UK (H. Kerr, personal communication, June 18, 2012). The purpose of the survey was to gain an insight into the educators' beliefs about dyslexia and how they dealt with it in their teaching practice. Kerr (2001) found that there was a considerable degree of confusion and uncertainty about dyslexia, its causes and manifestations, and what teaching approaches to adopt. Some expressed doubts as to whether it existed at all. Educators experienced feelings of disempowerment and learned helplessness when having to teach a dyslexic student. They tended to lower their expectations and dumb down the content of their lessons. The researcher aptly commented that he was *unable* to locate any research on the specific question of how literacy educators might be affected when faced with a student diagnosed as dyslexic.

Three other studies concerning educator beliefs about dyslexia focused on educators in primary and secondary education (Bell, McPhillips, & Doveston, 2011; Gwernan-Jones & Burden, 2009; Wadlington & Wadlington, 2005). The researchers' findings in these three studies are similar to Kerr's (2001), with each emphasising that the capabilities of educators are the single most important factor in the learning of students with dyslexia. Bell et al. (2011) conducted a questionnaire survey with 57 English and 72 Irish primary teachers and teaching assistants to investigate how these teachers conceptualised dyslexia. They found that some teachers were highly intuitive in responding to individual needs, but that they did not necessarily have the required knowledge or skills. Particularly the English respondents tended to describe dyslexia in terms of behaviour rather than underlying difficulties (Bell et al., 2011). The researchers concluded from this that the teachers were insufficiently informed.

Gwernan-Jones and Burden (2009) conducted a survey with 408 English primary and secondary trainee teachers to investigate their attitudes towards dyslexia as well as their perceived competence in teaching future dyslexic learners. “Only a small proportion of the newly qualified teachers had any clear ideas as to exactly how to provide help and support to dyslexic pupils” (Gwernan-Jones & Burden, 2009, p. 80) and the vast majority of the participants (90%) expressed a desire for more training in dyslexia. A proportion of the participants ($n = 87$) took the survey twice, once before the teacher training year and once after. Respondents were significantly more confident that they could support a dyslexic learner after they had received the training, which was composed of a Post Graduate Certificate in Education (PGCE).

Wadlington and Wadlington (2005) conducted a similar study in the US with 250 primary, secondary and special education teachers, teacher trainees and faculty members. The researchers used a ‘Dyslexia Belief Index’ containing 34 survey items to measure educators’ beliefs. Both quantitative and qualitative analyses of the results uncovered a significant number of misconceptions about dyslexia. Participants reported that they were unprepared to work with dyslexic learners. Some expressed strong feelings of frustration and helplessness and felt incompetent in addressing the needs of dyslexic learners. A total of 88% of participants indicated a wish to learn more about dyslexia.

The findings of these four studies, by Kerr (2001), Bell et al. (2011), Gwernan-Jones & Burden (2009) and Wadlington and Wadlington (2005), suggest that many educators are not adequately prepared for the task of teaching learners with dyslexia. They also reveal a distinct need among educators for targeted training and professional development on dyslexia.

To my knowledge, this specific research focus on educator awareness and understanding of dyslexia has not been replicated in New Zealand. Tunmer, Chapman, Nicholson and colleagues have produced the largest body of research on dyslexia in New Zealand, arguing for recognition, inclusion and changes in the educational philosophies underpinning literacy assessment, instruction and remediation in New Zealand schools (e.g., Chapman, 2001; Chapman et al., 2003; Nicholson, 1997; Tunmer et al., 2004; Tunmer & Chapman, 2007; Tunmer et al., 2008; Tunmer & Greaney, 2008; Tunmer, 2010). They urge that educator understanding and awareness of dyslexia is a major contributing factor of effective literacy education. One of the few studies in the New Zealand context relating to adult dyslexia I have been able to locate was conducted by Rowan (2010a). In her pilot study for future postgraduate research she conducted four case studies with dyslexic university students in order to gain an insight into their experiences at New Zealand secondary schools. The students reported “teacher and system ignorance of their learning difficulties and needs” (p. 71) and “limited knowledge by themselves and Aotearoa/New Zealand educationalists of what dyslexia is” (p. 78). Although the scope of this study was small, as the findings were based on one-hour, semi-structured interviews with four participants, Rowan was able to achieve more depth in her subsequent thesis (Rowan, 2010b) which investigated the impact of dyslexia on the students’ educational experiences and their transition to university.

Rowan’s (2010a; 2010b) studies focused on the learner perspective. It will be equally useful to provide an insight into the educator perspective in order to create a more balanced overview.

The work of Tunmer and colleagues mostly relates to dyslexia in children and although a large proportion of their findings is relevant to the adult context to some extent, there still remains a huge gap in the research on adult dyslexia in New Zealand. In view of the adult literacy issue which has been identified in New Zealand, this lack of New Zealand research on adult dyslexia and the needs of both learners and educator is a pressing matter, which the present study will address.

2.5 Perceived Versus Actual Knowledge

Research suggests that there often is a discrepancy between what educators think they know and what they actually know about teaching literacy (Bell, Ziegler, & McCallum, 2004; Bos, Mather, Dickson, & Chard, 2001; Cunningham, Perry, Stanovich, & Stanovich, 2004). Bell et al. (2004) explained that there “should be a positive relationship between cognition (one’s knowledge) and metacognition (knowing about one’s knowledge)” (p. 556). If this is not the case, then educators who lack adequate knowledge, may not be aware of the fact they are unprepared and may not recognise their need for professional development. In a study with 208 adult literacy educators in a south-eastern state in the US, Bell et al. (2004) assessed their knowledge of research-based reading instruction, using a survey they compiled. Participants attended a professional development conference during which they volunteered to partake in the survey. The survey consisted of a knowledge test containing 40 multiple-choice questions, and 40 Likert scale questions to assess perceived knowledge on topics including reading development, principles of reading instruction, alphabets, phonological

awareness, fluency, vocabulary and comprehension. The researchers found that participants only scored an average of 48% in the knowledge test. In addition, there was a clear mismatch between perceived and actual knowledge, with a general tendency among participants to overestimate their knowledge.

In a similar study with 722 kindergarten to third grade teachers in California Cunningham et al. (2004) observed a distinct lack of knowledge across several important areas theoretically linked to beginning reading instruction. They also found that the participants tended to overestimate their knowledge.

These studies by Bell et al. (2004) and Cunningham et al. (2004) investigating the correlation between perceived and actual educator knowledge were conducted in the US. I have not been able to locate similar New Zealand studies.

2.6 Summary

In an emergent field which is as diverse and unregulated as adult literacy education, the needs of both educators and learners are of vital importance. The literature reviewed suggests that, if we are to meet the needs of adult dyslexic learners in New Zealand, their educators will need to be trained in the competencies required to address and remediate their specific difficulties and to have access to a sustained programme of professional development. Both in New Zealand and overseas, research has indicated a pressing need for adult literacy educators to be provided with extensive pre-service and in-service support, training and professional development (Benseman et al., 2005b; Berghella et al., 2006; Bingham et al., 1998; Dymock, 2007; Gwernan-Jones & Burden, 2009;

Mackay et al., 2006; Smith & Hofer, 2003; Wadlington & Wadlington, 2005). Research suggests that professional development is effective in improving teacher confidence and skill (Moats & Foorman, 2003; Moats, 1994; Nicholson, 2007; Spear-Swerling & Brucker, 2003; Wadlington & Wadlington, 2005).

However, as “the knowledge base is not learned casually or easily” (Moats, 2009b, p. 379) it is vital to ensure that the professional development is designed and structured to meet the specific needs of the educators, in terms of its content, duration, frequency, accessibility and the mode of delivery (Mackay et al., 2006; McNeil & Dixon, 2005; Smith & Hofer, 2003; Wickert & McGuirk, 2005).

While several New Zealand studies have established that some adult literacy educators “need considerably more training and professional development in key teaching skills” (Ministry of Education, 2005, p. 11) and that they feel ill-prepared and less than confident in teaching struggling readers (Leach et al., 2010), no studies have been identified which focus specifically on the professional development requirements of adult literacy educators to address the needs of adult dyslexic learners.

The purpose of the present study is to gain an understanding of New Zealand adult literacy educators’ present levels of confidence in teaching dyslexic learners and measure their level of need for professional development to improve their capability. Furthermore, it aims to identify the specific areas educators feel they need to develop further. The study will also measure educators’ knowledge, both perceived and actual, as this will provide a deeper insight into professional development needs. Lastly, the present study will examine the question of whether professional development in dyslexia is effective in meeting the educators’ needs.

2.7 Research Questions

In response to the literature reviewed above I have developed the following five research questions for the present study:

1. Do New Zealand adult literacy educators have a need to engage in professional development to improve their capability in meeting the needs of dyslexic learners?
 - If so, what is the extent of this need?
 - What are the specific professional development needs of adult literacy educators: Which particular areas of expertise do they feel they need to develop further?
 - What modes of delivery do they prefer?
2. How confident do New Zealand adult literacy educators feel in meeting the needs of dyslexic learners?
 - Do they feel disempowered because they lack the knowledge needed to inform their teaching and assist dyslexic learners?
3. What are the perceived levels of knowledge of New Zealand adult literacy educators in relation to dyslexia?
 - What is their perceived level of language knowledge?
 - What is their perceived level of knowledge of reading development?
 - What is their perceived level of awareness and understanding of the concept of dyslexia?

4. What are the actual levels of knowledge of New Zealand adult literacy educators in relation to dyslexia?
 - What is their actual level of language knowledge?
 - What is their actual level of knowledge of reading development?
 - What is their actual level of awareness and understanding of the concept of dyslexia?
 - Is there a discrepancy between their perceived and actual knowledge?

5. Does targeted training or professional development in dyslexia result in New Zealand adult literacy educators' improved ability and increased confidence in addressing the needs of their dyslexic learners?

These research questions led to the development of the methodological approach for the present study. This approach will be described in Chapter 3.

CHAPTER 3

METHOD

3.1 Introduction

This chapter presents the methods, measures and procedures used in the study. In selecting the research paradigm most relevant to the research focus I adopted a reflexive approach and considered where the study fits within the framework of educational research. Guillemin and Gillam (2004) stated that reflexivity "comprises taking two steps back from the subject of the research...the first step posing the 'What do I know?' question and the second step asking the 'How do I know?' question" (p. 274), referring to the ontological and epistemological considerations.

Johnson and Omwuegbuzie (2004) explained that the research question is most fundamental. My research questions are founded on the hypothesis that there is a need among adult literacy educators to improve their capability to address the needs of their dyslexic learners. My aim is to verify this hypothesis by conducting a survey. It would appear that this positions my study firmly within the positivist paradigm. However, "the researcher must attempt to understand the complex and often multiple realities from the perspectives of the participants" (Lodico et al., 2010, p. 14) and the type of the knowledge which is sought goes beyond a mere confirmation of a hypothesis. A deeper insight into the perceptions, experiences and beliefs of educators is needed. Thomas (2009) proposes an eclectic approach by using the best aspects of a variety of methods, as these may complement each other.

In view of this a mixed methods approach was adopted for two main reasons: both quantitative and qualitative data were required to answer the research questions and triangulation of results was essential to verify convergence of results.

An online survey was selected as the most appropriate method of generating the quantitative data for a variety of reasons. First, an online survey constituted the most practical way to approach a large population, geographically spread throughout New Zealand. Second, a survey could generate both quantitative and qualitative data. The objective was for the combined data, generated through a range of closed and open-ended questions in a questionnaire, to create a richer perspective. Third, a survey provided the most effective means of administering a knowledge assessment with a large number of respondents, which was required to measure the actual levels of knowledge of the adult literacy educators.

In order to triangulate the survey findings and enhance the credibility of the findings post-survey, semi-structured interviews were conducted with four participants. The data generated in the interviews were used to cross-check, corroborate and illuminate the evidence collected in the survey.

3.2 Participants

3.2.1. Survey participants.

A total of 558 email invitations to participate in the survey were sent to staff members of Tertiary Education Organisations (TEOs) in New Zealand

involved in the delivery of intensive, embedded, or workplace literacy programmes. One hundred and thirty-seven replies were received, resulting in a response rate of 24%. The sample was largely composed of adult literacy educators ($n = 84$). The remainder of participants included managerial staff members ($n = 26$), learning support tutors ($n = 12$), and those no longer in a managerial or educational role ($n = 2$). As 80% of the managers reported having had teaching experience, the vast majority of participants (94%) were or had been employed in a teaching or tutoring capacity. Figure 1 provides an overview of participants' current positions.

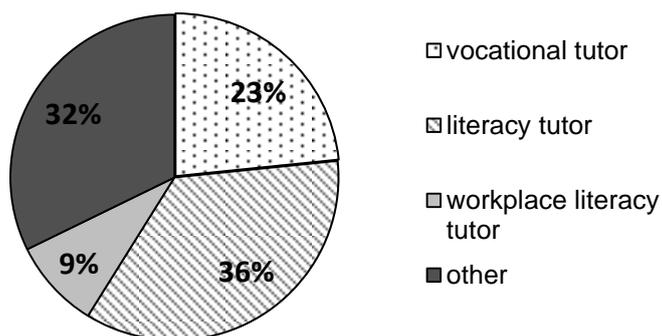


Figure 1. Current position of participants within their organisation. $n = 124$. 'Other' includes managerial positions, learning support tutors, retired, and positions not related to teaching.

Of the participants who responded to the gender question, there were 95 female participants (77%) and 29 male (23%). The age band most represented was 50-59 ($n = 54$; 44%), with 26 participants (13%) aged younger than 40 and 107 participants (87%) aged over 40.

The majority of participants ($n = 100$; 81 %) were of NZ European or European ethnicity. There were 20 Māori and Pasifika participants (16%) and 2 Asian (2%). The vast majority of participants ($n = 115$; 94%) were in paid employment, with 8 participants (6%) reporting working on a voluntary basis. Participants were employed in a range of settings. Most were employed at PTEs ($n = 85$; 69%) and ITPs ($n = 30$; 24%) with the remainder ($n = 9$; 7%) reporting being retired, self-employed, or employed at Wānanga, other tertiary education providers (OTEPs), ITOs, private companies, or universities. Sixty-two participants (53%) reported being in full-time employment and 56 (47%) part-time.

The participants had a diverse range of qualifications with 72 participants (58%) holding a degree or postgraduate qualification, 8 (6%) holding graduate diplomas of teaching, 13 (10%) holding a Certificate in Adult Education and Training and 23 (18%) holding a National Certificate in Adult Literacy and Numeracy Education (NCALNE). The study period of the certificate level qualifications ranged from one semester to one year. Other qualifications included the Certificate in Adult Literacy Tutoring offered by Literacy Aotearoa and non-teaching qualifications in business, trades and social work. Two participants reported having no qualifications. Figure 2 provides an overview of participants' qualifications.

Participants reported a wide range of teaching experience with most ($n = 66$; 53%) having 10 or more years' teaching experience. The majority of participants engaged in an instructional role taught programmes at foundation or certificate level ($n = 72$; 59%). Figure 3 shows the levels of programmes taught by participants.

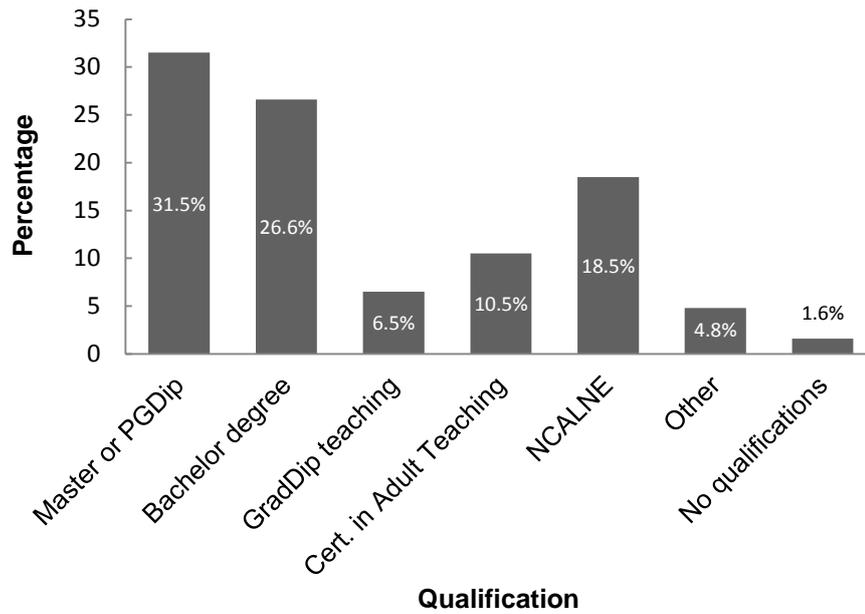


Figure 2. Distribution of participants' highest level of qualification. $n = 124$

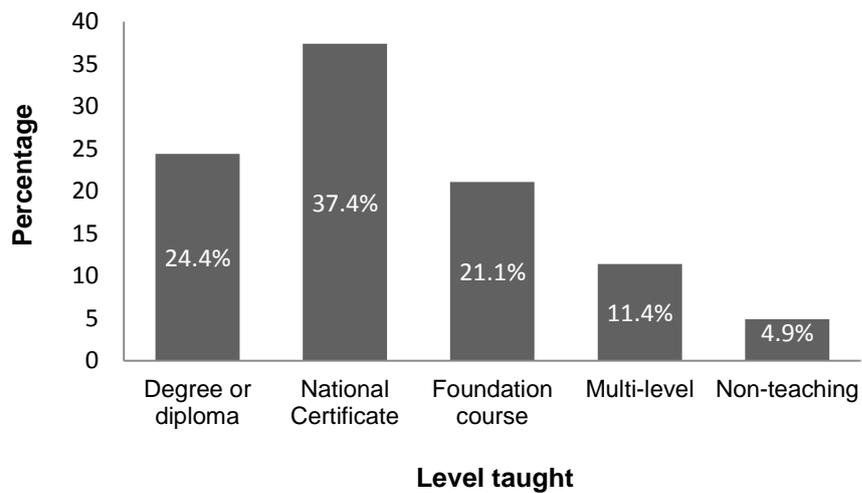


Figure 3. Level of courses taught by participants. $n = 123$

For the purpose of measuring the effectiveness of professional development, a distinction was made between two subgroups: those participants who reported having engaged in dyslexia-related training or PD ($n = 58, 42\%$)

and those who reported not having engaged in dyslexia-related training or PD ($n = 79$; 58%). The type of dyslexia-related training or professional development reported by those who had engaged in it included a two-day workshop on dyslexia presented by the National Centre of Literacy and Numeracy for Adults (NCLANA) ($n = 22$); presentations on dyslexia by a variety of speakers ($n = 15$); workshops presented by different providers ($n = 13$); Specific Learning Disabilities (SPELD) teacher training courses ($n = 8$); and a university paper on dyslexia or reading difficulties ($n = 5$).

Table 1 provides an overview of the demographic characteristics of the sample.

3.2.2. Interview participants.

For the purpose of triangulation of findings, semi-structured interviews were conducted on completion of the survey with four adult literacy educators, two of whom were employed as literacy tutors and two as vocational tutors. All interview participants, two female and two male, were employed at PTEs, with all except one in paid positions. One literacy tutor had attended a two-day workshop on dyslexia delivered by the National Centre of Literacy and Numeracy for Adults (NCLANA) and the other literacy tutor had attended a one-day presentation on dyslexia by a university lecturer. The vocational tutors had not received dyslexia training or PD. Their qualifications ranged from NCALNE to Masters level and their teaching experience from 2 to 40 years (see Table 2). They were selected on the basis of proximity, suitability and availability. This is to say, all four interview participants indicated they were adult literacy educators, they voluntarily

indicated their willingness to be interviewed, and made a time available. They were all located within a 200 km radius of the researcher's residence. Table 2 provides an overview of the characteristics of the interview participants.

Table 1

Demographics

Characteristic	Percent	<i>N</i> = 137
Gender		
male	23	29
female	77	95
Age		
18-29	2	3
30-39	11	13
40-49	19	23
50-59	44	54
60+	24	30
Ethnicity		
Maori	13	16
Pasifika	3	4
NZ European	69	85
European	12	15
Asian	2	2
Other	2	2
Paid/voluntary employment		
paid	94	115
voluntary	6	8
Full-time/part-time employment		
Full-time	53	62
Part-time	47	56
Teaching experience		
0-3 years	16	20
4-6 years	11	14
7-10 years	15	18
More than 10	53	66
Not applicable	5	6
Workplace		
PTE	69	85
ITP	24	30
Other	7	9

Note. Due to rounding percentages may not add to 100%. The totals for each demographic subsection may not add to 137, as not all participants responded to each item.

Table 2

Interview Participants

Name*	Gender	Age	Position	Full-time or part-time	Adult teaching experience	Qualification	Dyslexia training
Hannah	F	60+	Literacy tutor	Part-time	1 year	BEd	yes
Carl	M	60+	Literacy tutor	Full-time	40+ years	MA (Applied)	yes
Claire	F	60+	Vocational tutor	Full-time	18 years	Nat. Cert. Adult Teaching	no
David	M	29	Vocational tutor	Full-time	4 years	NCALNE (Voc)	no

Note. $N = 4$. *Participant names are pseudonyms. F = Female; M = Male. BEd = Bachelor of Education; MA = Master of Arts; Nat. Cert. = National Certificate; NCALNE (Voc) = National Certificate in Adult Literacy and Numeracy Education (Vocational).

3.3 Measures

The survey was composed of three parts: the questionnaire (6 questions), the knowledge assessment (7 questions) and general questions related to demographics (13 questions). The way in which this tool was developed will be described below.

3.3.1 The questionnaire.

A questionnaire (see Appendix A) was designed to measure participants' perceived confidence levels in meeting the needs of dyslexic learners; their perceived training need; and perceived levels of language knowledge, knowledge of reading development, and awareness and understanding of dyslexia. Four Likert-type scale items were developed to measure levels of confidence (see Appendix A, items 3.1 to 3.4). In addition, participants were asked to rate themselves on a 4-point scale in the three knowledge areas. The questionnaire also included three multiple-choice questions to measure the extent of the need for professional development in the three areas, with the rating scale specifying 'no need', 'some need', 'moderate need' and 'high need' (see Appendix A, items 4.1 to 4.3). A Likert-type scale item was included to gather additional information regarding whether participants thought they were teaching dyslexic learners who were struggling to cope with course demands (see Appendix A, item 3.10). An open question provided opportunity for participants to elaborate on the types of difficulties encountered by dyslexic learners (see Appendix A, item 5). A multiple-choice question was included to seek information regarding the

participants' preferred method of professional development (see Appendix A, item 6). The first question in the survey asked participants whether or not they had engaged in PD in dyslexia (see Appendix A, item 1). This provided the opportunity to distinguish the two groups of participants for later comparison.

3.3.2 The knowledge assessment.

In order to measure actual knowledge in the three areas of language, reading development and dyslexia, a knowledge assessment was developed (see Appendix B). For the language knowledge assessment four multiple-choice questions were selected from tests developed by Moats (Moats, 2003; Moats, 2009a; Moats, 2010) as she has conducted extensive research in the language knowledge required by literacy educators. Question topics included the number of phonemes in a word, syllables, features of English spelling, and prefixes.

Seven true/false items were developed to assess knowledge of reading development. The statements were based on publications by Pressley (2006), Henry (2010), Shaywitz (2003), and Spear-Swerling and Sternberg (1998), as these researchers have published widely in the field of reading development and as they are recognised for their contributions to this academic field.

A combination of 13 true/false items and one open question item was used to assess awareness and understanding of dyslexia. The true/false items included some common misconceptions about dyslexia and were developed using research from a variety of sources (Gilroy & Miles, 1996; Goldup & Ostler, 2000; Grant, 2010; Ministry of Education, 2008a; Rice & Brooks, 2004; Shaywitz, 2003; Snow & Juel, 2005; Tunmer & Greaney, 2010; Vellutino et al., 2004). These sources of

information were selected on the basis of the credibility of the researchers, their publishing in peer-reviewed journals and the volume of their research publications on dyslexia. In the open question participants were asked to define dyslexia to a friend (see Appendix B, item 13). Five marking criteria were developed for this question, so that participants were able to receive a total score of 5. The marking criteria included references to reading and/or writing difficulties; phonological processing deficits; letter-sound relationships; unexpected literacy difficulties in view of intelligence and exposure to evidence-based instruction; and the neurological foundation of dyslexia.

In order to cross-check the model answers for the knowledge questions, the assessment was submitted to two senior lecturers with specialisations in the field of reading, dyslexia and linguistics. The cross-check resulted in a general agreement on the model answers.

3.4 Procedure

Ethical approval for the study was received from the Faculty of Education Research Committee at the University of Waikato (see Appendix C). One of the ethical considerations for the study was access to participants. The target population consisted of tertiary educators engaged in teaching or embedding literacy at TEOs throughout New Zealand. A random sampling technique was employed to select a random sample of TEOs from a database containing 658 email addresses of ITPs, ITOs, PTEs and Wānanga. In total, 329 TEOs were selected. In addition, 229 tertiary educators, including vocational tutors, workplace tutors and literacy specialists, were invited to participate. This resulted

in a total of 558 participants receiving email invitations. The majority of the 229 educator email addresses were generated through a database of NCLANA workshop participants. As two groups of respondents were required, one of which was to have engaged in dyslexia PD, I included in this latter group 65 participants of a two-day workshop on dyslexia which I delivered in 4 locations in New Zealand in 2011, as part of my role as Literacy Developer for NCLANA.

Other ethical considerations included informed consent, confidentiality, potential harm to participants, their right to decline and withdraw, and cultural and social considerations. These were addressed in the following ways.

Firstly, the considerations of informed consent, confidentiality, the right to decline and withdraw, and potential harm were addressed in the invitation emails (see Appendix E), the attached information sheet (see Appendix D) and the personal communications at the start of each interview.

An invitation email was sent the 558 TEOs and educators, which included an information sheet and a hyperlink to the survey. The information sheet (see Appendix D) included an explanation of the purpose of the study and its potential implications, the contact details of myself and my supervisors, a statement to the effect that a summary of the findings and the model answers for the knowledge assessment could be requested, and a notification that submission of the survey implied consent to participate and precluded withdrawal from the survey. In the invitation email (see Appendix E) participants were informed of their right to decline to participate and assured of the fact that the survey was anonymous and that they could not be personally identified. This was an important factor, as participants were asked to report on their levels of confidence and their perceived knowledge. In addition, they were invited to take part in a knowledge assessment.

In order to prevent any feelings of stress or embarrassment in the case of poor assessment scores or lack of confidence it was emphasized that all responses were anonymous and could not be traced back to individual participants.

At the commencement of each of the four face-to-face interviews participants were informed of the purpose of the study and the interview, their right to withdraw, to decline to answer any questions, and to complain. They were also asked for their permission for the interview to be recorded and were assured of their anonymity.

Secondly, the cultural and social considerations were addressed by offering to provide any clarification regarding the concept or the definition of dyslexia, as not all social and/or cultural groups may be familiar with either of these. As participants were likely to include people from different cultural, ethnic and/or social backgrounds to my own, an inclusive approach was adopted, by ensuring the language in all communications with participants was clear, unambiguous and appropriate. In order to verify this, the wording in the survey, emails, information sheet and interview questions was checked by 4 people. Their feedback led to minor adjustments being made.

The online survey was created through LimeSurvey, an online web survey tool (www.limesurvey.org). A draft of the online survey was pilot tested with a sample of 13 respondents. They commented on the survey format, the time taken to complete the survey, the clarity of the instructions, and the difficulty level of the questions. This proved to be a valuable procedure, as it helped refine the survey layout and eliminate potential ambiguities in the wording of the questions. As a result of the pilot process the wording of some survey items was adjusted

and the demographics component of the survey was moved from the initial to the final section.

The survey was active for 2.5 weeks, with a reminder emailed to participants after one week. On completion of the survey the knowledge assessment was marked using the model answers. Both quantitative and qualitative methods were used to analyse the data. The ‘Statistical Package for the Social Sciences’ (SPSS), version 20, was used for the statistical analyses of the data. Factor analyses were run to identify the factors measured in the questions relating to perceived confidence and perceived knowledge. The results of the factor analyses will be reported in the next section of this chapter. Independent samples t-tests were conducted to test the hypothesis that there was a significant difference between the two samples, that is the participants who had engaged in dyslexia training and those who had not. The results of the t-tests will be reported in the following chapter.

The “postcoding” technique was selected for the open-ended survey questions (items 5, 13 and 26). Cohen, Manion and Morrison (2004) presented two methods for coding open-ended questions: precoding, where the researcher “assigns the content of responses to predetermined coding categories” (p. 284), or postcoding, where the researcher scans the responses and subjects them to content analysis, developing categories which reflect the nature of the responses. A coding frame was developed for each of the three items by performing a frequency tally of similar responses and assigning codes to these, which were then regrouped into categories. A network analysis (Thomas, 2009) was performed to identify how the data were connected and how they related to the research questions. This provided the basis for interpretation of the data.

In the invitation email participants were requested to express their willingness to participate in post-survey interviews. A total of 28 offers to be interviewed were received, four of which were selected on the basis of their location within a 200 km radius of the researcher's base. This enabled the researcher to conduct face-to-face interviews of 30-45 minute duration.

Interview questions were developed (see Appendix F) and piloted with two educators. The questions were designed to seek information about the types of difficulties learners were experiencing, the perceived confidence of the educators, and their need for professional development. The four post-survey interviews were recorded and transcribed, and the transcripts were returned to the four participants for the purpose of member-checking. The intention of this process was to provide participants with the opportunity to verify the content of the transcripts and to offer any clarification of their comments.

Subsequently, qualitative content analyses of the verified interview data were conducted by coding the data according to the constant comparative method (Thomas, 2009). This involved an initial reading of all data while highlighting any important and/or recurring comments. These "temporary constructs" (Thomas, 2009) were listed and used as a reference for the second reading of the transcripts, when all the data were checked and recorded against the temporary constructs. During the second reading any temporary constructs which were not sufficiently supported by the data were eliminated while those which were well-supported were recorded as "second order constructs". During the third reading these second order constructs were refined by verifying that they captured the essence of the data. They were then labelled as themes. The final stage in the process was to

reflect on how the themes were linked and how they related to the research questions.

3.5 Factor Analysis

Exploratory factor analyses were run on the numerical results of the survey using principal factor axis extraction with direct oblimin rotation. The eigenvalue, which must exceed 1.0, the shape of the scree plot and the factor loadings determined the extraction of the factors and the number of retained items. Two measures were used to determine the appropriateness of conducting the factor analyses: Bartlett's test of sphericity and the Kaiser-Meyer-Olkin measure of sampling adequacy (KMO-MSA).

Bartlett's test of sphericity, which estimates the homogeneity of variance between the items, was significant. This supports the fact that the items included in the factor analysis met the requirement of equality of variances.

The KMO-MSA values vary between 0 and 1, with values above .6 indicating that the data supported a factor analysis to be conducted. The factor analyses were run with cross-loading suppression set at .32 (or 10% shared variance), the recommended cut-off point by Costello and Osborne (2005). Primary loadings above .5 are considered to be strong (Costello & Osborne, 2005).

The factor analysis was run for items 3.1 to 3.8 (see Appendix A). It was expected that items 3.1 to 3.4 (PC1, PC2, PC3 and PC4, Table 4) would emerge as one factor relating to the participants' perceived confidence levels and that items 3.5 to 3.8 (PK1, PK2, PK3 and PK4, Table 3) would emerge as one factor relating to the participants' perceived knowledge. The factor analysis revealed two factors

with eigenvalues higher than 1 (see Appendix G) (KMO-MSA = .69; Bartlett $p < .001$). The pattern matrix indicated that items 3.3 and 3.4 (PC3 and PC4) loaded on to factor 2 and the scree plot confirmed two factors. The decision was made to remove items 3.1 and 3.2 (PC1 and PC2) due to cross loadings with factor 1, and the factor analysis was rerun (KMO-MSA = .70; Bartlett $p < .001$) (see Appendix G). One factor was extracted, with items 3.5, 3.6, 3.7 and 3.8 (PK1, PK2, PK3 and PK4) loading onto factor 1, returning an eigenvalue of 3.22 and 36.99% of variance explained. Items 3.3 and 3.4 (PC3 and PC4) loaded onto factor 2, returning an eigenvalue of 1.37 and 22.79% of variance explained. The retained and removed items for the two factors are listed in Tables 3 and 4. Based on the item wording (Tables 3 and 4) a decision was made to classify factor 1 as perceived knowledge and factor 2 as perceived confidence.

Table 3

Perceived Knowledge (factor 1)

Items retained	
PK1	I have a good understanding of dyslexia
PK2	I am aware of the causes of dyslexia
PK3	I have a good understanding of reading development
PK4	I have enough language knowledge

Note. PK = perceived knowledge

Table 4

Perceived Confidence (factor 2)

Items retained	
PC3	I sometimes struggle to find a way to assist dyslexic learners
PC4	I need to improve my capability in meeting their needs
Items removed	
PC1	I feel confident in meeting the needs of dyslexic learners
PC2	I feel prepared in meeting their needs

Note. PC = perceived confidence

A reliability analysis on factor 1 returned a Cronbach's alpha coefficient of reliability of $\alpha = .7$ and a reliability analysis on factor 2 returned a Cronbach's alpha coefficient of reliability of $\alpha = .58$.

3.6 Conclusion

This study involved an online survey followed by semi-structured interviews. In this chapter a rationale was provided for the selection of these research methods, the survey and interview participants were described, and the procedure adopted to conduct the study was defined. The results will now be presented in Chapter 4.

CHAPTER 4

RESULTS

4.1 Introduction

The main purpose of this study was to investigate the need among adult literacy educators for professional development in order to improve their ability to respond to the needs of dyslexic learners. In addition, the objective was to measure the participants' perceived confidence, their perceived and actual levels of dyslexia-related knowledge, and the effectiveness of targeted training or PD in dyslexia. Two methods were selected to generate the data, an online survey and semi-structured interviews. In order to measure the effectiveness of PD the survey participant group was divided into two subgroups: those who had engaged in dyslexia training or PD ($n = 52$) and those who had not ($n = 75$). The survey contained both closed and open-ended questions. The responses to the closed questions were subjected to a quantitative data analysis and the responses to the open-ended questions to a qualitative data analysis. The term 'training' tends to be used for initial teacher or tutor training, and the term 'professional development' (PD) is generally used for ongoing education during one's teaching practice. In presenting and discussing the results of the present study the term 'training' has occasionally been used to include both interpretations.

For the post-survey, semi-structured interviews four adult literacy educators were selected, two literacy tutors and two vocational tutors (see Table 2). The literacy tutors had received some dyslexia training or PD, whereas the vocational tutors had not. The interviews were transcribed and coded according

to the constant comparative method. This data analysis resulted in the development of themes, which were used to illustrate and triangulate the survey results.

The data collected from the survey and the interviews will be presented in three separate sections. The first section will present the quantitative analysis of the survey results grouped under the themes of each of the five research questions. Reference will be made to the descriptive statistics (see Table 5), the correlation matrix (Table 6), and the independent samples t-test results (see Tables 7, 8) which were developed for the data analysis. In the second section the analysis of the responses to three open-ended survey questions will be presented. In the third section the qualitative analysis of the interview data will be presented. A detailed description of the four interview participants will be given and their responses will be summarised. A summary of the results will conclude this chapter.

4.2 Quantitative Analysis of Survey Results

In this section the quantitative analysis of the survey results will be presented. First, the descriptive statistics will be presented, then the correlations between the variables, and lastly the analysis of the data pertaining to each of the five research questions.

4.2.1 Descriptive statistics.

Table 5 displays the descriptive information for the measures included in the survey. For each of the eight variables Table 5 includes the mean, standard

deviation, skew and kurtosis. N is presented as $N = 127-137$ because not all participants responded to every survey question. The mean represents the mean level of knowledge, confidence, or training need of all participants. For perceived knowledge, perceived confidence, and perceived training need, the mean is measured on a 4-point-scale. For actual knowledge, the means are measured on a scale of 18 for dyslexia knowledge, a scale of 7 for reading development knowledge and a scale of 12 for language knowledge.

Skew and kurtosis are reported in Table 5 to provide an indication of the way in which the scores were distributed. The skew represents the level of symmetry of the distribution of the data. A positive skew indicates a right-handed tail, and a negative skew indicates a left-handed tail. The skew for all variables was < 3 , so both the right-handed and the left-handed tails were within acceptable levels (Kline, 2005). The kurtosis reflects the level of 'peakedness' or 'flatness' of the data in comparison with a normal distribution. The only kurtosis which was not within the usual levels, that is < 3 (Kline, 2005), was for perceived confidence. This will be explained later in this chapter.

The factors of perceived language knowledge, perceived knowledge of reading development, and perceived understanding and awareness of dyslexia have been combined into one variable, perceived knowledge, based on the results of the factor analysis.

The survey results will be summarised in detail in sections 4.2.3 (perceived training need), 4.2.4 (perceived confidence), 4.2.5 (perceived knowledge), 4.2.6 (actual knowledge), 4.2.7 (efficacy of training in dyslexia), and 4.3 (open-ended survey items).

4.2.2 Correlations.

Table 6 displays the Pearson product-moment coefficients (Pearson's r) between all variables. Most correlations between variables were significant, with many showing moderately strong correlations, exceeding $r = .32$. The strongest correlation was measured between training need for language knowledge and training need for reading development. The correlations presented in Table 6 will be explained in this chapter.

Table 5

Descriptive Statistics

Variable	Mean	<i>SD</i>	Skew	Kurtosis
Perceived knowledge ^a	2.84	.59	.32	.89
Perceived confidence ^a	2.09	.76	1.85	4.95
Perceived training need language ^a	2.51	1.10	.28	-.83
Perceived training need dyslexia ^a	2.90	.95	-.00	-.83
Perceived training need reading development ^a	2.80	1.04	-.04	-.79
Actual dyslexia knowledge ^b	7.37	2.69	.37	-.02
Actual knowledge of reading development ^c	4.99	1.16	-.75	.88
Actual language knowledge ^d	7.04	3.17	-.60	-.42

Note. a = measured on a 4-point scale; b = score out of 18; c = score out of 7; d= score out of 12; $N = 127-137$.

Table 6

Correlation Matrix

Variable	1	2	3	4	5	6	7
1. Perceived confidence							
2. Perceived knowledge	.11						
3. Training need language knowledge	.01	-.17					
4. Training need dyslexia	-.05	-.33***	.49***				
5. Training need reading development	-.18*	-.35***	.67***	.57***			
6. Actual knowledge reading development	.08	.09	-.20*	-.15	-.17		
7. Actual knowledge dyslexia	-.06	.25**	-.16	-.26**	-.09	.25**	
8. Actual language knowledge	.00	.09	-.31***	-.30***	-.34***	.21*	.40***

Note. $N = 127-137$. * $p < .05$. ** $p < .01$. *** $p < .001$.

4.2.3 Need to engage in training or professional development.

A clear need to engage in training or professional development is identified with mean results for perceived training need, on a scale of 4, of 2.51 for language knowledge, 2.90 for dyslexia and 2.80 for reading development (see Table 5). The average level of the training needs in the three knowledge areas is 2.73 ($N = 136-137$). A large majority of participants ($n = 122$; 89%) indicated they would engage in professional development to improve their capability (see Appendix A, item 3.9). All but one participant ($n = 136$; 99%) agreed that more training should be given to educators about dyslexia (see Appendix A, item 3.11).

Figure 4 shows the level of the perceived training need for each of the three knowledge areas.

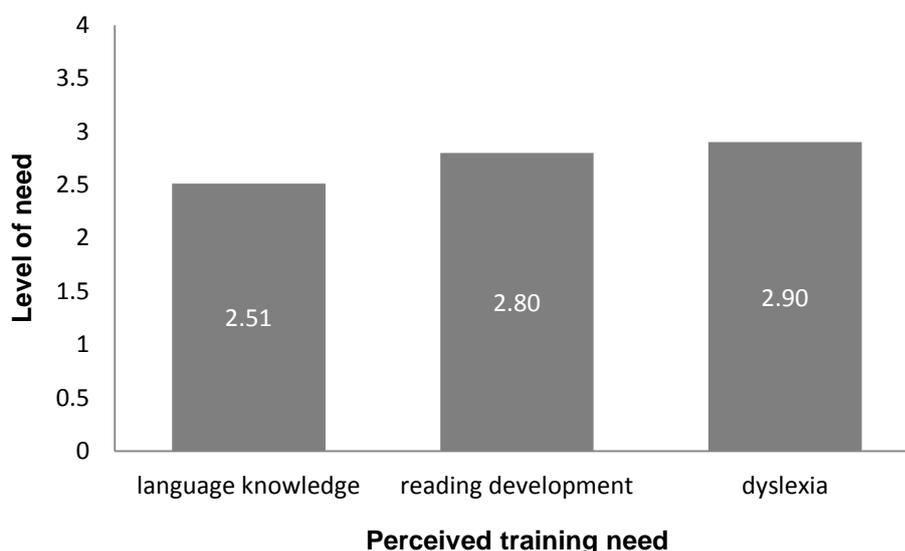


Figure 4. Mean levels of perceived need for training or professional development in language knowledge, reading development, and dyslexia. 1 = no need; 2 = some need; 3 = moderate need; 4 = high need. $N = 136-137$.

There are moderately strong correlations between the perceived training needs in the three knowledge areas. The Pearson product-moment correlation coefficients (Pearson's r) for each variable exceed $r = .32$ (see Table 6). Therefore, if, for example, the training need for dyslexia knowledge is high, the training needs for knowledge of reading development and language knowledge will also tend to be high. The strongest correlation is between training need for reading development and for language knowledge.

Survey participants were asked to indicate their preferred methods of professional development in dyslexia. Figure 5 provides an overview of the methods preferred. The majority of participants ($n = 73$; 53.3%) indicated that workshops are their preferred method. Relatively equal numbers of participants reported resources ($n = 24$; 17.5%), online support ($n = 20$; 14.6%) and training within their organisations ($n = 20$; 14.6%) as the preferred method.

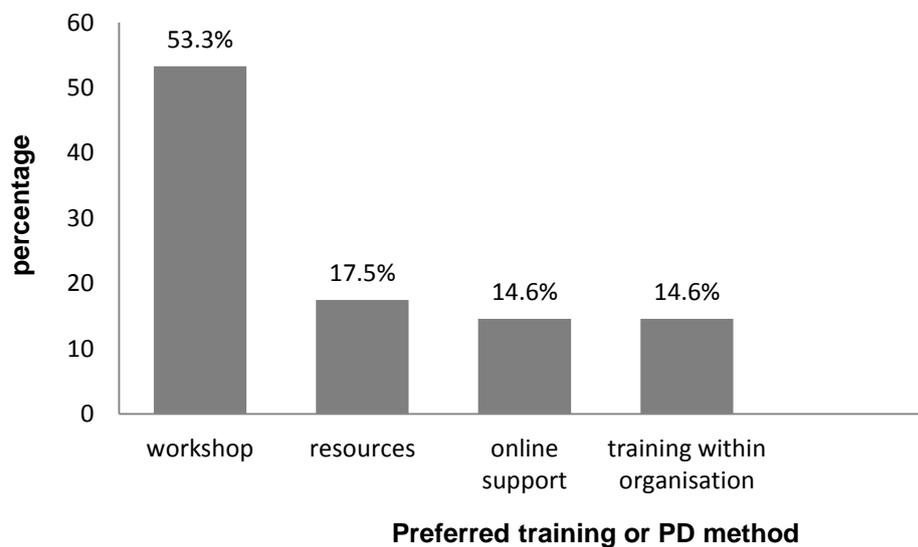


Figure 5. Preferred method of professional development in dyslexia. $N = 137$.

4.2.4 Perceived confidence.

Confidence levels are moderately low. The mean level of confidence is 2.09 out of 4 (see Table 5). The kurtosis for perceived confidence (4.95) indicates a relatively narrow distribution of scores. The majority of participants (63.5%) reported not feeling confident in meeting the needs of dyslexic learners. There are negative correlations between perceived confidence levels and perceived training need in reading development ($r = -.18$) and dyslexia ($r = -.05$) (see Table 6). These negative correlations signify that, as perceived levels of training need among participants increase, their perceived confidence levels tend to decrease.

4.2.5 Perceived levels of knowledge.

The mean perceived level of knowledge is 2.84 out of 4 (see Table 5). A total of 67% of participants ($n = 92$) reported having sufficient language knowledge, 71% of participants ($n = 97$) reported having a good understanding of reading development, 46% of participants ($n = 63$) reported being aware of what causes dyslexia and 77% of participants ($n = 105$) reported having a good understanding of what dyslexia is. The area in which participants perceived they had least knowledge is awareness and understanding of dyslexia.

There are moderately strong correlations between perceived knowledge and training need for dyslexia ($r = -.33$) and between perceived knowledge and training need for reading development ($r = -.35$) (see Table 6). This means that as the perceived knowledge increases, the training need tends to diminish. This tendency is strongest for perceived knowledge of reading development.

4.2.6 Actual levels of knowledge.

The mean percentage score in the knowledge test (37 questions) was 52%, indicating insufficient mean knowledge in areas relevant to the teaching of adult dyslexic learners. The mean level of language knowledge is 7.04 out of 12 (percentage score 58%), compared to 4.99 out of 7 (percentage score 71%) for knowledge of reading development, and 7.37 out of 18 (percentage score 40%) for dyslexia knowledge (see Table 5). Figure 6 shows the mean levels of actual knowledge in the three areas, as calculated from the knowledge test scores.

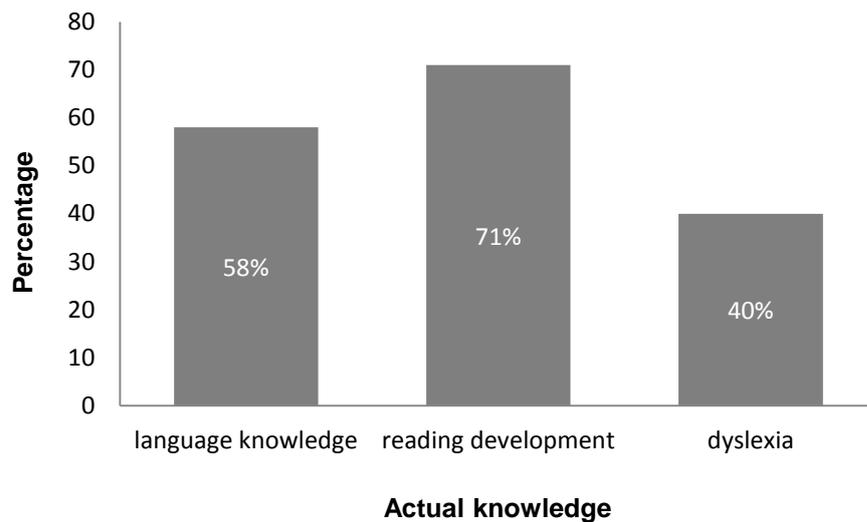


Figure 6. Actual levels of knowledge: mean percentage scores in the knowledge test for language, reading development and dyslexia. $N = 127 - 137$.

The lowest test scores are for understanding and awareness of dyslexia. The correlation between perceived knowledge and actual knowledge was weak: with Pearson r values of .25 for dyslexia knowledge, .09 for knowledge of reading development and .09 for language knowledge (Table 6).

Perceived knowledge (2.84 out of 4) is higher than actual knowledge (52%) indicating a mismatch between what educators believe they know and what they actually know.

4.2.7 Efficacy of training in dyslexia.

Independent samples t-tests were conducted to compare the mean actual knowledge scores of those participants who had engaged in dyslexia training and those who had not. The t-test results demonstrate a significant difference between actual knowledge levels of the two groups (Tables 7, 8). The survey results indicate that training in dyslexia is effective in improving the actual knowledge levels of participants in each of the three knowledge areas.

An independent samples t-test for actual dyslexia knowledge was conducted. Levene's test supports equality of variances ($p = .60$). The t-test indicated that there was a significant difference in the scores for actual dyslexia knowledge from participants with dyslexia training ($M=8.96$, $SD=2.59$) and participants with no dyslexia training ($M =6.27$, $SD=2.16$; $t(125) = 6.36$, $p<.001$). A mean difference of 2.69 was obtained.

An independent samples t-test was also conducted for actual reading development knowledge. Levene's test supports equality of variances ($p = .10$). The t-test indicated that there was a significant difference in the scores from participants with dyslexia training ($M =5.29$, $SD=0.98$) and participants with no dyslexia training ($M =4.79$, $SD=1.24$; $t(125) = 2.43$, $p<.05$). A mean difference of 0.50 was obtained.

The final independent samples t-test was for actual language knowledge. Levene's test supports equality of variances ($p = .06$). The t-test indicated that there was a significant difference in the scores from participants with dyslexia training ($M = 7.67$, $SD=3.52$) and those with no dyslexia training ($M = 6.57$, $SD=2.83$); $t(135) = 2.03$, $p < .05$. A mean difference of 1.10 was obtained. In Tables 7 and 8 the independent samples t-test results are displayed.

Table 7

Independent Samples T-test: Group Statistics

Variable	<i>n</i>	Mean	<i>SD</i>
Actual dyslexia knowledge			
with dyslexia training	52	8.9615	2.58928
no dyslexia training	75	6.2667	2.16441
Actual knowledge reading development			
with dyslexia training	52	5.2885	.97692
no dyslexia training	75	4.7867	1.24437
Actual language knowledge			
with dyslexia training	58	7.6724	3.51932
no dyslexia training	79	6.5696	2.83152

Note. $N = 127 - 137$.

Table 8

Independent Samples T-test for Dyslexia Training

Measure	<i>F</i>	<i>t</i>	<i>df</i>	Mean Difference
Actual dyslexia knowledge	.28	6.36**	125	2.69
Actual knowledge reading development	2.68	2.43*	125	0.50
Actual language knowledge	3.48	2.03*	135	1.10

Note. Levene's test not significant, equality of variances assumed. * $p < .05$, ** $p < .001$
 $N = 127 - 137$.

In Figure 7 the differences in actual knowledge are shown between the participants who have and those who have not engaged in dyslexia training.

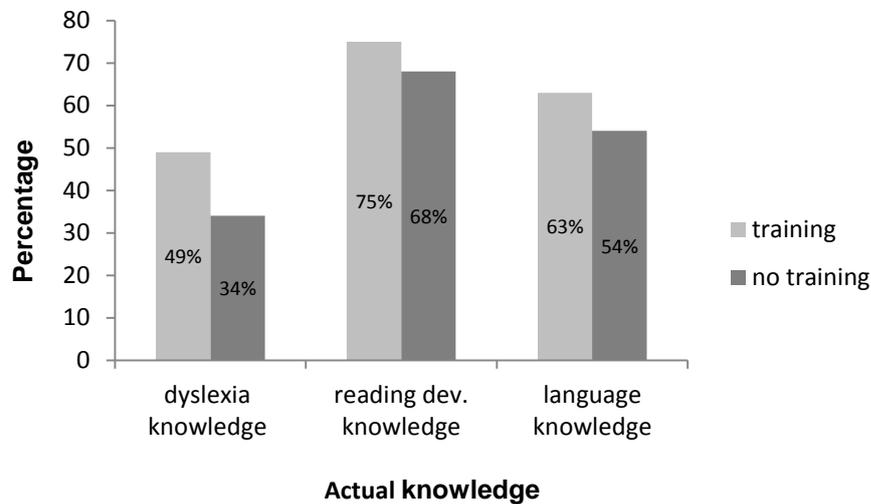


Figure 7. Mean levels of actual knowledge for those participants who have and those who have not engaged in dyslexia training. $N = 127 - 137$.

In each of the three knowledge areas the subgroup of participants who had received training in dyslexia had significantly better scores than the group who had not received training. The mean scores for the two subgroups are presented in Table 7. Based on the t-tests the mean differences in scores were 2.69 for dyslexia knowledge (on a scale of 18), 0.5 for knowledge of reading development (on a scale of 7) and 1.10 for language knowledge (on a scale of 12). This demonstrates that training in dyslexia is most effective for the improvement of dyslexia knowledge, that is the awareness and understanding of dyslexia.

Confidence levels for the group trained in dyslexia were lower than for the group who had not received training, as is shown in Figure 8. Perceived levels of knowledge of the trained group exceeded those of the untrained group. These discrepancies will be discussed in Chapter 5.

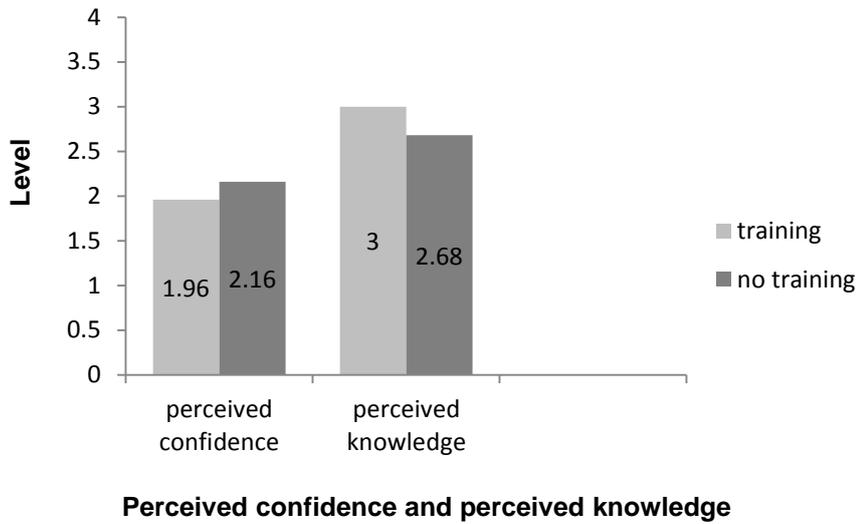


Figure 8. Mean levels of perceived confidence and perceived knowledge for those participants who have and those who have not engaged in dyslexia training. $N = 127 - 137$.

4.3 Analysis of the Open-ended Survey Item Results

In survey item 5 (see Appendix A), participants were asked to give examples of the difficulties experienced by their dyslexic learners. One hundred and thirteen participants responded to this question. The most reported difficulties included spelling ($n = 32$; 28%), reading comprehension ($n = 28$; 24%), writing skills, sentence construction and form filling ($n = 21$; 18%), word recognition and decoding ($n = 20$; 17%), slow processing speed and fluency ($n = 15$; 13%), emotional issues and engagement ($n = 13$; 11%), lack of confidence and self-esteem ($n = 13$; 11%) and memory difficulties ($n = 10$; 8%). Some participants ($n = 17$; 15%) commented on the difficulties they have with identification and diagnosis of dyslexia. One educator observed, “I am not qualified to identify if

they are dyslexic or not” and another asked, “How do I know if the reading problems of an adult have a dyslexic origin?” Some educators commented on the negative experiences of some of their learners, which resulted in a lack of motivation to engage in the learning process: “There is an expectation that the teaching is not going to be effective. Nobody has helped them to date, so why should this learning experience be any different?” Another educator commented:

Those with dyslexia don’t have much faith in teachers as they have been either ignored, pushed out of class and treated like idiots their whole lives. When they meet a well-meaning but under-educated teacher, they doubt that much can be done for them. This makes them difficult to teach as we don’t have their confidence.

An issue reported by 8 participants (7%) is the fact that learners don’t understand their difficulties and tend to think they are “dumb”: One educator commented that they “feel inadequate around others”; another that, “they have a tendency to hold back and not tell trainers, they say they are dumb”; and another educator reported that learners ask themselves “why they are not able to do things that come easily to others?”

In the survey participants were asked to define dyslexia to a friend (see Appendix B, item 13). A total of 115 participants responded to the question. As explained in Chapter 3, the maximum score for the question was 5. No participants had scores of 4 or 5; 9 participants (7.8%) had a score of 3; 26 participants (22.6%) had a score of 2; 49 participants (42.6%) had a score of 1; and 31 participants (27%) had a zero score. Fifty-two participants (45%) included

a reference on reading and/or writing difficulties, 20 participants (17%) referred to letter reversals and jumbling of words and 17 participants (14%) mentioned the role of the brain.

Some definitions of dyslexia and dyslexics focused on the behavioural aspect of dyslexia, like “someone who reads backwards” or “they are right to left, bottom to top people”; others on the cognitive aspect: “a trick of the eye”; and on the biological aspect: “someone whose brain interprets in a wider range than ‘normal’ people.” Three participants reported being dyslexic themselves. One of these comments:

I have dyslexia and it may take many forms. For me it is knowing in my mind how to pronounce a word or read it but not being able to do so. My perception of letters is different and I often think I am writing the right word when in fact I am not.”

Another participant with dyslexia recounted his/her experience while completing the survey: “feeling very panicked by such things as the above dyslexia survey.”

In the last survey item (see Appendix A, item 26) participants were given the opportunity to add any further comments. Thirty-eight participants provided comments, 21 of whom (55%) indicated an interest in engaging in training, including areas such as “knowing what to do” and “diagnosing dyslexia”. Five participants (13%) commented on the fact that they feel unable or unqualified to identify dyslexia. This included three participants who teach ESOL learners, who were unsure whether the learning difficulties experienced by these learners were

caused by dyslexia or other factors. Four vocational tutors (10%) reported not receiving sufficient support. One commented “they [literacy support staff] have plenty of work to do and I feel it is up to me.” One participant indicated a general need among educators to learn more:

I have conducted professional development surveys to find out what people working with learners want to know. Many begin by saying nothing, they are just fine, until you ask them if they want to know about dyslexia. Almost every educator or training advisor knows that they don’t know enough about this and they are actually interested in knowing more. Specifically people want to know how to help and what not to do with a dyslexic student.

Another participant summed it up as “there is a clear need for dyslexia training, and people know it.”

Some comments related to perceived confidence and knowledge: “it can be frustrating not being able to help them effectively, due to my own lack of skills” and “I feel I am selling them short, because I haven’t got the knowledge to help them enough.”

The most common comment with respect to training or professional development was that educators need practical, hands-on training to assist them in teaching their dyslexic learners. One commented that:

Each time we teachers have attended a course on dyslexia, it has been theoretical. We ask questions about what we can do in the classroom, but

are fobbed off or directed to courses that no one can afford. I, with my workmates, am desperate for some hands on activities, direction, books, DVDs, online 'anything'.

Another commented that “we need practical, hands-on, advice to help teach dyslexic learners.”

4.4 Qualitative Analysis of the Interviews

Following the completion of the survey four semi-structured interviews were conducted. Below, the interview participants will be introduced, with pseudonyms used for each participant, and their responses will be summarised. Subsequently, an overview of the themes which emerged in the interviews will be provided.

4.4.1 Hannah.

Hannah is a literacy tutor who works at a PTE on a voluntary basis. She did her primary teacher training in the 1970s, and after having taught at a primary and an intermediate school for a few years she returned to her nursing career and worked as a tutor in nursing. When she retired a few years ago, she decided to enrol in a teacher training course at a local Migrant Resource Centre, where she currently teaches three second language learners. She then realised she needed “more knowledge” which led her to take up a position at a PTE as a voluntary

literacy tutor. Over the past year she has taught a learner there on a one-to-one basis. Her learner left school at the age of 13. Hannah describes her literacy difficulties as follows: She lacks decoding strategies, does not sound out words, but guesses at words or tries to rely on her visual memory; when she started her tuition she did not know all the letters of the alphabet; she perceives words as one unit and does not look at the separate sounds or letters within the word; she has very poor onset-rime and phonemic awareness and is unable to rhyme words; she demonstrates an inconsistency in her ability to read and spell words in that she may read or spell a word correctly, while a few minutes later she has forgotten how to read or spell the word; she has a slow processing speed, a poor working memory and poor reading comprehension.

After teaching her learner for a few weeks, Hannah realised her learning difficulties were profound: “I thought I’m in trouble here, I’m really going to need some extra help.” Other staff at the PTE offered advice, but Hannah felt that, although they were “well-intentioned” they had unrealistic expectations of Hannah’s learner: “They don’t know about my student...what I’m saying about ... is quite contrary to the belief they always have of her.” Hannah “didn’t know where to go for help”. She decided to look online and found a website which had some useful information. She also attended a series of workshops delivered by a university lecturer. “He talked about dyslexia. All the others are well-experienced teachers. It left me a bit in the dark... It made me realise that there was an awful lot I did not know about dyslexia.” Based on the information she was given in the workshops Hannah realised that she needed to take a different approach with her learner. Again she turned to websites to source information and resources.

Hannah comments she needs more knowledge in all the three knowledge areas. The main thing she would like to learn is what structure to apply in her teaching, where to start and what sequence to follow from there. She comments that “workshops would be good”, but would also appreciate resources and websites.

4.4.2 Carl.

Carl has a full-time position as a literacy/ESOL tutor at a PTE. His teaching career spans over forty years. He has taught in primary and secondary education and, in the last decade, has specialised in teaching literacy, numeracy and ESOL to adults.

He has taught many dyslexic learners over the past few years, and focuses on one in particular, who had a “severe degree of dyslexia.” Carl describes the persistent nature of this learner’s difficulties: “He’d had a number of years going through difficulties like this. I did have contact with him over a period of years – his difficulties still remained. So there was no quick fix. And that particular problem stayed with him during the days and weeks that he was with me.” This learner had major difficulties with phonological awareness. For Carl the main issue was providing his learner with the individual attention he needed while in a class of people who did not need it. “Focusing in on him when the whole class was there became a bit of an embarrassment to focus on specific phonemes, saying this is /t/, this is /əʊ/ and so on when others didn’t need that instruction.” Carl resorted to giving the learner mini-lessons during break times and after class.

He stresses that he found it much easier teaching a dyslexic learner in a one-to-one situation, which is an opportunity he had a few years ago.

Carl attended workshops in dyslexia, which he found very helpful: “the sounds of the letters and how they could be grouped and how they could be blended. All of that did help me tremendously. The confidence that I gained from being able to refer to sounds accurately and how the sounds are produced. That learning gave me more confidence.” What Carl has found helpful in his teaching of dyslexic students is building a personal relationship with them, which is based on trust.

Carl is confident he has sufficient language knowledge, but would like to learn more about reading development and dyslexia. He is particularly interested in expanding his knowledge about the biological foundation of dyslexia and brain development: “The workshops I’ve been to have helped, but from what I’ve seen there’s a lot more to dyslexia. I would like to understand more about what is going on inside their minds...the actual scientific aspect is missing.” He has recently enrolled in a university paper to address this need.

4.4.3 Claire.

Claire is a vocational tutor at a PTE, where she teaches the National Certificate in Early Childhood Education and Care. She is engaged in embedding literacy and numeracy in her delivery. After teaching in early childhood centres for a number of years she moved to teaching adults eight years ago. Her learners are 16 or 17 years old, most of whom have “disengaged from education in

mainstream high schools”. They have a wide range of literacy and numeracy abilities, with the main issue being reading comprehension and writing:

What they need help with is really understanding what they’re reading. Sometimes it’s getting the thoughts from their head onto the paper. That’s the difficult bit. They know what they sort of want to say, but to have a pen in their hand and to be thinking and writing is the difficult bit.

Over the past few years Claire has had a number of dyslexic learners in her class. One of her current learners is severely dyslexic. When she first started the course, approximately 18 months ago, she had major difficulties reading and writing: “when she first came in, I had to really read it to her and explain it to her...she was terrified. I mean, just seeing printed words on the page...if she came across a big word she didn’t understand, it just scared her silly. Even her writing, she would sit and she couldn’t even think of an answer.” What Claire found helpful was giving her lots of one-to-one attention: “with this student it’s been a lot of one-on-one...I would get her to talk and then I would write down what she said.” Thanks to the individual assistance and the structured embedding approach the learner has made remarkable progress: “She is now reading independently, and her writing, her writing has so improved. She can write from two or three words to a whole paragraph and more.” Progress, however, was slow: “It’s just that one-on-one, that slow, slow movement, but it does happen. It’s been a slow progression, but she is a totally different student to what she was when she first came in.”

Claire feels fairly confident in her teaching of dyslexic learners, because of the teaching experiences she has had over the years. Years ago, she had a little boy in her preschool who “really struggled” when he started school. He was assessed as having dyslexia. “He was in a large class and the teachers had no idea what dyslexia was. They didn’t know how. It was just a nightmare for this little boy. He just didn’t want to go to school and his mother...rang me up in desperation and said she didn’t know what to do.” Claire offered to help and gave him two sessions per week after school. “I didn’t really know how...I haven’t really done a lot of training...but I just sort of instinctively did it...it’s just instinctive, it happens, you know...the interesting thing was that he would struggle with the simplest words, the ‘is’ and the ‘the’.”

Although she feels quite confident in her teaching, she feels she does not have enough knowledge of language, reading development or dyslexia and she comments that training in these areas would be really helpful. She rates her training need as relatively high and the main area she would like to improve is “understanding what it is that hinders these people from being able to function the way other people do...having that background knowledge of what is actually happening in there...so as when you come to teach them you know why you are doing what you are doing. You are then more aware of how you can actually help them.” She feels strongly about raising the awareness of dyslexia:

I think a lot of people are not really aware of dyslexia. People actually didn’t believe in it for a long time and they thought it was just rubbish. Making tutors aware that there is this disability, if you want to call it that. That there are students who have it to certain degrees. And they can help

them. These are the poor students who have come through and have always been told they're dumb and stupid. And now they've got this mental picture of themselves as being dumb and stupid and incapable of doing anything. And it's making tutors aware that they don't carry on that message to them. That they are capable, but it's just going to take a little bit longer and it's just going to be a little bit more effort on the tutor's part working closely with the student.

4.4.4 David.

David has been teaching for 4½ years. He teaches the Certificate in Practical Construction Skills, level 2, at a PTE. As a vocational tutor he teaches embedded literacy and numeracy. It is a 'Youth Guarantee' programme, so his learners are 16 or 17 years old. On completion of the programme they have the opportunity to enrol in a level 4 pre-employment carpentry course or they can start an apprenticeship. David explains how his programme has high literacy and numeracy demands for a level 2 qualification. On average, learners spend one-third of the time in the workshop, engaged in practical activities, with the remaining two-thirds being spent on the theoretical work in the classroom. There is "a lot of reading and writing involved" and the building vocabulary contains many "very technical words and many, many specialist words."

David tries to prepare his learners for the level 4 course, the literacy and numeracy demands of which are even higher. He comments, "Some have struggled a bit...but I guess it's a step up from a level 2 to a level 4...there is quite a big gap there. And some of them do struggle with comprehending more

difficult texts.” The main difficulty for his learners is reading comprehension: “The main problem my students have is certainly comprehension.” Most of David’s learners have come directly from High School, where they often “haven’t done very well.” David explains how their expectations are often unrealistic when they enrol:

They think they’re coming in for a course that’s going to be a cakewalk. And as soon as they hit some of those first units...they start to struggle. It’s pretty full on. These guys usually haven’t even completed their NCEA level 1 certificate. And they’ve generally been the sort of guys that sit at the back of the class and don’t really listen much to the teacher. They haven’t really picked up on much.

To assist and support his learners David does “a lot of one-on-one work with them” as well as “extra literacy and numeracy activities throughout the work that sort of helps them.” He recalls one learner who “really struggled. He made excuses, said he was lazy, said he just didn’t want to read words. But really he had a problem. He wasn’t able to read the text. But he was very clever, very intelligent.” As there was no specialist literacy tutor within the PTE, this learner was sent to an external organisation for literacy tuition. Although the time-frame available for this tuition was too short,

It really, really helped that young man. He went on to the next course. Passed that with flying colours as well. I think he passed that within four months and that’s a forty-week course. He was a changed man. He came

in and didn't want to read and I honestly don't think he would have passed the Pre-employment Carpentry Course if he hadn't gone to the literacy course. He would have given up on himself. I think that, if anything, they gave him the confidence to see that he could actually do it. And that's important. I think it's the most important thing.

Since he became a tutor David has achieved the NCALNE certificate and he has attended a number of literacy and numeracy workshops, both in-house and through external providers. He feels he has sufficient vocational background knowledge to teach his learners, but would like to further develop his knowledge about teaching literacy: "I can help them within our field. So I can help them to understand what they need to know to get through the course...learners with specific literacy problems are a struggle. I don't have the skills." He is keen to do more training: "Any training that improves that, gives me more skills, more tools, is helpful." The two main areas he would like to learn more about are reading comprehension and dyslexia: "More knowledge of dyslexia. I don't know enough about that. I don't know all the signs to look for. I don't know exactly how to help, to be honest." He explains that it might be helpful to view dyslexia from a learner's perspective:

I would like to know exactly what our learners are going through. It's not easy, I imagine, having a learning difficulty. And a lot of these students, especially my students, hide it. If they have a deficit, they don't want to put up their hand and say 'I need help', because they want to save face in front of their mates. They don't want to look like they don't know what

they're doing. Because they see themselves as being dumb. And they're not.

4.4.5 Interviews: Perceived confidence and perceived knowledge.

The more experienced educators, Claire and Carl, feel more confident than David and Hannah, who have had less teaching experience. Both Claire and Carl comment on the fact that experience in teaching a dyslexic learner helped improve their confidence in teaching other dyslexic learners. All four interview participants report having insufficient knowledge to cater for the needs of their dyslexic learners, in varying degrees. For both Hannah and Carl it was the professional development they engaged in which made them realise that they needed more knowledge.

4.4.6 Interviews: Learner difficulties and motivation.

Claire and David both teach young adults, aged 16 or 17. They both perceive the majority of their learners as “disengaged” (Claire) or “dropped out” (David) from mainstream education. David finds it challenging to motivate them: “Getting them excited about learning, about reading, is important. But it’s really difficult.” Hannah and Carl list phonological awareness, decoding, spelling, syllabification and reading comprehension as the main difficulty for their dyslexic learners. For Claire and David it is reading comprehension which stands out as the main difficulty. All four participants comment on the persistent nature of dyslexia and the length of tuition time required for them to make significant progress.

4.4.7 Interviews: Educator strategies to assist learners.

For all four participants one-to-one attention is the principal strategy in their teaching of dyslexic learners. Carl, David and Claire find it challenging to fit this into their daily routine. Hannah and Carl consider teaching phonological awareness and phonics to be helpful for their learners. Carl stresses the importance of building a good rapport with his dyslexic learners. Hannah, Carl and Claire mention that “taking things slowly” (Hannah) is important as dyslexic learners need time to process information. Hannah describes how “making it real” is one of her main strategies in motivating her learner. She tries to relate the content of her lessons and learning material to the interests and life experiences of her learner and finds that this is quite effective. David referred one of his dyslexic learners to specialist help, which was not available within his organisation.

4.4.8 Interviews: Professional development needs.

Participants were asked to classify the level of their dyslexia-related professional development need on a scale from 1 to 10, with 1 signifying ‘no need’ and 10 signifying a ‘very high need’. Hannah rated her need at 8, Carl at 5-6, Claire at 4-5, and David as a ‘high training need’. A similar correlation between perceived levels of training need and perceived confidence levels can be observed as became apparent for the survey participants. The two educators with relatively high levels of perceived training need (Hannah and David), reported relatively lower levels of confidence than the other two participants, while those with lower levels of training need (Carl and Claire), reported feeling more confident. All

four participants reported a need for professional development in dyslexia, reading development and language. Hannah would like to learn what structure to apply in her teaching, the best sequence in which to teach different concepts. Carl is interested in learning about the neurological foundation of dyslexia. Claire and David are most interested in professional development in the background of dyslexia, how to identify it in learners and the causes of dyslexia. David would also like to learn how to teach comprehension.

4.5 Summary

In this chapter the results of the survey and the post-survey interviews were presented. The quantitative analysis of the survey results identified moderately low confidence levels combined with a high training need. The highest training need was for understanding and awareness of dyslexia. The preferred method of training delivery was workshops. A discrepancy was identified between perceived and actual knowledge, with a tendency for participants to overestimate their knowledge.

Moderately strong correlations were observed between confidence levels and training need; between the three perceived training needs; and between perceived knowledge and training need.

Statistically significant differences were identified between the survey participants who had received dyslexia training and those who had not. Those who had received training in dyslexia performed better in the knowledge test for each of the three knowledge areas. Their perceived knowledge was also higher

than for the group with no training. Their perceived level of confidence was lower.

In the open-ended survey questions participants reported spelling, reading comprehension, writing skills, word recognition and decoding as the main difficulties observed in dyslexic learners. Only a small percentage of participants was able to provide an accurate definition of dyslexia. In their responses to open-ended questions, participants indicated a high training need, with many commenting that they felt unable or unqualified to recognise or diagnose dyslexia in their learners.

Two literacy tutors and two vocational tutors were interviewed. The literacy tutors had engaged in some training in dyslexia, while the vocational tutors had not. They reported having taught dyslexic learners and all four participants indicated a distinct need for more knowledge, particularly in the area of dyslexia.

An interpretation of the results, and their potential implications in view of the research discussed in the literature review, will be presented in the next chapter.

CHAPTER 5

DISCUSSION

5.1 Introduction

The findings of the present study, as presented in Chapter 4, demonstrate that adult literacy educators have a need to engage in professional development in dyslexia and feel insufficiently confident in teaching dyslexic learners. Actual levels of dyslexia-related knowledge were low and a distinct difference was observed between the actual knowledge of educators who had received dyslexia training and those who had not, indicating that training or PD in this area is effective. This chapter aims to discuss the findings related to each of the five research questions in view of the research discussed in the literature review, and to consider the practical implications and limitations of the study. It will conclude with suggestions for future research, a summary and conclusion.

5.2 Do New Zealand Adult Literacy Educators Have a Need to Engage in Professional Development to Improve Their Capability in Meeting the Needs of Dyslexic Learners?

In the present study participants express a relatively high need to engage in professional development. For survey participants the mean level of this need (on a four-point scale) ranges from 2.51 for language training, and 2.80 for training in reading development, to 2.90 for dyslexia training, with a total of 89% of survey participants expressing a need to engage in professional development. All four

interview participants indicate a clear need for PD. Each expresses a keenness to develop their skills and knowledge with respect to dyslexia. Similar results have been found in the studies by Mackay et al. (2006), Berghella et al. (2006), McNeil and Dixon (2005), Leach et al. (2010), Gwernan-Jones and Burden (2009), and Wadlington and Wadlington (2005). In their survey with 408 British primary and secondary trainee teachers, Gwernan-Jones and Burden (2009) found that 90% of participants expressed a desire for more training in dyslexia. In a similar study with 250 trainee teachers and faculty members in the US, 88% of participants indicated a desire to engage in dyslexia training (Wadlington & Wadlington, 2005).

5.3 How Confident do New Zealand Adult Literacy Educators Feel in Meeting the Needs of Dyslexic Learners?

The findings of the present study suggest that adult literacy educators feel less than confident in meeting the needs of these learners. Survey participants' mean confidence levels were measured at 2.9 on a four-point scale, with 63.5% of participants reporting not feeling confident in teaching dyslexic learners.

These findings are consistent with the results of the survey conducted with 90 New Zealand PTEs (Dymock & Nicholson, 2012), where more than half of the participants surveyed (60%) reported not feeling adequately equipped to teach dyslexic students. The confusion regarding the concept of dyslexia, its indicators, causes, and methods of remediation, which Kerr (2001) observed in his interviews with twelve British adult literacy educators, was also expressed by both survey and interview participants in the present study.

In the study by Wadlington and Wadlington (2005) 88% of survey participants felt unprepared for teaching dyslexic students. The feelings of disempowerment, helplessness and frustration expressed by some participants in the studies by Kerr (2001) and Wadlington and Wadlington (2005) were similarly conveyed by a number of participants in the present study.

5.4 What Are the Perceived Levels of Knowledge of New Zealand Adult Literacy Educators in Relation to Dyslexia?

Chapter 2 included a discussion of the types of educator knowledge needed to meet the needs of dyslexic learners, such as an awareness and understanding of dyslexia; language knowledge; knowledge of reading development; strategies for explicit, direct instruction in basic skills within a balanced approach; and the creation of a dyslexia-friendly environment. In the present study both survey and interview participants reported moderate levels of perceived knowledge, although lower perceived knowledge levels were reported in the area of awareness and understanding of dyslexia. Whereas 67.1% of survey participants reported having sufficient language knowledge, and 70.8% reported having sufficient knowledge of reading development, only 46% of survey participants reported having sufficient awareness and understanding of dyslexia. In the open-ended survey questions participants commented on their difficulties identifying dyslexia in learners through a lack of knowledge of dyslexia. All four interview participants perceived their knowledge of dyslexia as insufficient, with similarly low levels of perceived knowledge in language and reading development.

Only one interview participant, Carl, reported having sufficient language knowledge.

In the survey the mean perceived level knowledge was 2.84 out of 4. A mean of 2 would signify that educators disagree that they have sufficient knowledge, a mean of 3 would signify that they agree they have sufficient knowledge (see Appendix B, items 3.5 to 3.8). On a scale of 4 the midpoint score is 2.5. Therefore, a mean score of 2.84 indicates a moderate level of perceived knowledge.

Similar results were obtained in the study by Bell et al. (2004), who measured the perceived knowledge of 208 US adult literacy educators. Areas of knowledge included alphabets, fluency, vocabulary, and comprehension. Perceived knowledge levels were measured using 40 Likert scale items on a five-point scale. Therefore, the total possible score was 200. As the midpoint of the Likert scale was 3, the midpoint score was calculated at 120 (40 items x midpoint score of 3). Perceived knowledge levels were found to be moderate, with a mean score of 120.67, indicating that participants felt they had a moderate level of knowledge in the four knowledge areas.

5.5 What Are the Actual Levels of Knowledge of New Zealand Adult Literacy Educators in Relation to Dyslexia?

Dymock and Nicolson (2012) explained that “to cater for students with dyslexia tutors need some knowledge about what dyslexia is, the ability to identify students with dyslexia, and an understanding of how to teach reading and writing” (p. 98). One of the objectives of the present study was to measure the

actual knowledge of the 137 survey participants. Knowledge was measured in the three areas of language, reading development and dyslexia. Test scores revealed a low level of dyslexia knowledge (40%) a moderately low level of language knowledge (58%) and a moderate level of knowledge for reading development (71%). None of the survey participants was able to accurately define dyslexia.

These findings are consistent with the research findings discussed in Chapter 2. In their survey involving 90 PTEs in New Zealand, Dymock and Nicholson (2012) found that only 53% of participants indicated an ability to identify dyslexics. Wadlington and Wadlington (2005) found that the large majority of the 250 US educators in their study had a “poor understanding of dyslexia” (p. 27), with between 51.2% and 98% of participants, depending on the question, having misconceived ideas about a variety of aspects of dyslexia.

In the study by Moats (1994) the 89 US educators surveyed were found to have insufficient levels of language knowledge. Moats (1994) identified “wide gaps in teachers’ background knowledge” (p. 94). The percentage of participants with sufficient knowledge in a certain area ranged from 10 to 20% for phonic knowledge to 27% for phoneme and morpheme awareness. Nicholson’s administration of the same language test to 83 New Zealand teacher trainees resulted in a total mean score of 24%. When Carroll (2006) tested the phonological awareness of 212 New Zealand primary educators, 12% passed the test.

The vital importance of recognising the signs of dyslexia in a learner and being aware of a dyslexic learners distinctive needs have been discussed in Chapter 2. These learners’ needs can only be adequately addressed if their educators are knowledgeable. The actual knowledge levels of the New Zealand

adult literacy educators in the present study highlight a concern that New Zealand adult literacy educators may lack the level of knowledge required to identify dyslexia in their learners and meet their specific needs.

The discrepancy which tends to exist between perceived and actual knowledge, as discussed in Chapter 2 (Bell et al., 2004; Bos et al., 2001; Cunningham et al., 2004), was evident in the present study to a large extent. There was a high discrepancy between the educators' perceived levels of knowledge and their actual knowledge. The mean score in the knowledge test was 52%, whereas on a scale of 4, the mean level of perceived knowledge is 2.84.

Bell et al. (2004) investigated the correlation between educators' perceived and actual knowledge levels. The 208 US adult literacy educators in their study had a mean score of 48% in the knowledge test, which assessed the "knowledge of teaching adult reading skills" (p. 545). They consistently self-evaluated their knowledge of the respective content areas as higher than their actual scores. The fact that this tendency is observed in the present study indicates that New Zealand adult literacy educators may not have an accurate perception of their dyslexia-related knowledge, with an inclination to overestimate this knowledge.

5.6 Does Targeted Training or Professional Development in Dyslexia Result in New Zealand Adult Literacy Educators' Improved Ability and Increased Confidence in Addressing the Needs of Their Dyslexic Learners?

For the purpose of measuring the effectiveness of training or professional development in dyslexia the survey participant group was divided into two subgroups: those who had engaged in dyslexia training or PD and those who had not. Although the dyslexia training participants reported having engaged in varied

from a one-day workshop to a university paper at Masters level, t-test results indicated a significant difference between the two subgroups.

Test scores for each of the three knowledge areas were higher for the trained group than for the untrained group. This finding suggests that targeted training or PD in dyslexia is effective in raising educators' awareness and understanding of dyslexia. The most substantial difference in test scores was observed in the area of dyslexia knowledge, with a mean test score of 49% for the trained group compared to 34% for the untrained group.

In Chapter 2 a number of studies were identified which measured the effectiveness of professional development. The educators in the study by Moats (1994) engaged in a semester course on language knowledge on completion of the survey. The vast majority of educators (85% to 93) reported the information in the course to be "highly useful or essential in their teaching" (p. 97). The study participants included reading teachers, classroom teachers, special education teachers, speech-language pathologists, teacher aides, and graduate students. Ninety-one percent of the participants felt that "such a course should be required for all teachers who are charged with teaching reading, writing, or language" (Moats, 1994; p. 97). In New Zealand, Nicholson (2007) arrived at similar results. The participants in his study engaged in three post-survey, one-hour lectures on language. Participants' language knowledge was tested before and after the training. The total mean pre-test score was 24% with none of the participants achieving a pass level. The total mean post-test score was 57%, with 69% of participants achieving a pass level. This indicates that even a limited programme of training or professional development can have a considerable impact on educator knowledge.

It can be surmised that training or professional development enables educators to create a more realistic impression of their dyslexia-related knowledge, which accounts for the fact that both the perceived and actual levels of knowledge of the trained group were higher. Although this explanation of the higher perceived knowledge displayed by the trained subgroup is based on speculation, it is borne out by research. Bell et al. (2004) examined the differences between perceived knowledge levels of two groups of US adult literacy educators. One group consisted of certified educators, those who had received training and those with relatively more experience. The other group consisted of educators who were not certificated and had not received training. The findings of the study demonstrated that the trained group of educators were better able to judge their level of knowledge than the untrained group (Bell et al., 2004).

At the same time, however, through their engagement in professional development educators may come to realise how much there is to learn about dyslexia and that more training will be needed for them to be effective in their teaching of dyslexic learners. In the present study, for instance, the interview participants Hannah and Carl both realised they needed more knowledge after having engaged in PD. This may be an explanation of the fact that, in the present study, confidence levels were lower in the trained subgroup. Through their enhanced understanding of the challenges of teaching dyslexic learners, their confidence levels can be lower, because they have a more informed view of the knowledge required. In addition, as the training most of the trained participants had attended consisted of a single dyslexia workshop, the lower confidence levels in this group may indicate that it takes more than a single workshop to raise educators' confidence in teaching dyslexic learners. In the study by Gwernan-

Jones and Burden (2009) participants did feel more confident on completion of training: the 87 British participants took part in the dyslexia survey twice: towards the beginning and end of a year-long postgraduate teacher training course. Mean scores showed that they felt significantly more confident in teaching a dyslexic learner in the second survey than in the first survey. The fact that distinct results were obtained in this study suggests that more research may be needed into the effectiveness of PD in terms of educator confidence.

5.7 Practical Implications

One of the main implications of the present study concerns the training and professional development opportunities for adult literacy educators. This implication will be discussed below in relation to the NCALNE qualification; embedded literacy and numeracy; the currently available training opportunities; and the issues which need to be considered in developing further training opportunities.

The study results provide a strong indication that a considerable proportion of the adult literacy educators who participated in the study are not sufficiently prepared to meet the needs of their dyslexic learners. They tend to lack the background knowledge required to inform their teaching, have unrealistic perceptions of their knowledge, feel less than confident in teaching dyslexics, and have a high need for professional development. There is a tendency for educators, particularly those with no education in dyslexia, to overestimate their knowledge. This can hamper their learning (Bell et al., 2004; Cunningham et al., 2004; Spear-Swerling & Brucker, 2005). Cunningham et al. (2004) explained that “people

learn information more readily when they are relatively more calibrated as to their current level of knowledge, because they can focus on areas where their knowledge is uncertain” (p. 143). They consider a lack of calibration of knowledge a cause for concern, because “it is critical that people know what they do not know” (p. 162).

It is probable that neither the needs of adult dyslexic learners are being met, nor those of their educators, as a result of educators’ lack of confidence and knowledge. Building a more informed, better educated, adult literacy education workforce could help address the serious issues we are facing in New Zealand. As discussed in Chapter 1, nearly half of New Zealand adults lack the literacy skills which are essential to function effectively in our modern economy (Tertiary Education Commission, 2012a). A literacy achievement gap has been identified in our primary schools, with unacceptable numbers of children failing to achieve adequate literacy levels, as discussed in Chapter 1. Many of these children will eventually enrol in tertiary programmes where literacy is taught or embedded. “The number of learners in courses with embedded literacy and numeracy in levels one to three has grown five-fold from 12,000 in 2010 to more than 65,000 in 2012” (Tertiary Education Commission, 2012a, p. 25). The educators who deliver these programmes will need the expertise required to meet these learners’ literacy and numeracy needs.

One of the implications of the study findings is that a review of the National Certificate in Adult Literacy and Numeracy Education (NCALNE) may be helpful to ascertain whether it provides sufficient training in preparing educators for the task of teaching dyslexic learners. As discussed in Chapter 1, it was developed as a foundation literacy and numeracy educator qualification for

tertiary educators in 2005 (NZQA, 2012a) and appears to be the minimum requirement for adult literacy educators, including vocational tutors, and the qualification generally offered to educators entering the field (Leach et al., 2010; Tertiary Education Commission, 2009a; Whatman et al., 2010). Although this attempt to establish a minimum literacy teaching qualification is a step in the right direction, NCALNE may be insufficiently substantial to prepare educators for the challenging task of teaching and embedding literacy (Industry Training Federation, 2009). Of the two NCALNE levels, NCALNE (Educator) and NCALNE (Vocational/Workplace), even the first, which is the more comprehensive, focuses more on general issues, such as adult teaching and learning principles, planning and delivering activities, and best practice instruction, including Mātauranga Māori (Tertiary Education Commission, 2009a), than on the specific areas of knowledge needed to assist and support struggling readers. In itself, the content provides useful background information, but the qualification cannot be deemed to be comprehensive. It may suffice as an initial orientation in the field of adult literacy education. At best, however, it can only serve as a general, broad foundation and it does not provide the depth and breadth of knowledge required to adequately inform one's literacy teaching and design appropriate, responsive, instructional programmes. By no means will the NCALNE qualification prepare educators for the demanding and challenging task of meeting the needs of dyslexic learners, as it does not include any training in linguistics or the specific teaching skills and strategies needed to cater for the needs of these learners. An educator summed it up as "For me the NCALNE is a piece of paper to keep the ivory tower people happy because I have a literacy qualification, but the...cluster work was actually far more useful and valuable for me" (Leach et al., 2010, p. 26).

The TEC intends to “investigate the viability of requiring educators in foundation-level education to hold an adult literacy and numeracy educator qualification, for example the NCALNE, as a condition of TEC funding” (Tertiary Education Commission, 2012a, p. 31). Given the limitations of this qualification, it is doubtful that it serves as an appropriate “minimum baseline qualification” (Tertiary Education Commission, 2012a, p. 34). If educators are to be better prepared for the task of teaching learners with dyslexia or other high literacy needs, the NCALNE will need to be supplemented or followed up by more substantial, targeted training and professional development.

The introduction of embedded literacy and numeracy into vocational programmes was one of the main initiatives of the New Zealand government to address the needs of learners with literacy and/or numeracy needs. Research demonstrates that embedded literacy results in higher course success rates, improved literacy achievement, a considerably higher retention rate and a more positive attitude towards literacy (Casey et al., 2006). It seems like embedded literacy could be a panacea for struggling dyslexic learners who may have become disinterested in learning. The TEC expects embedded literacy and numeracy to be “business as usual” in all programmes at NZQF levels one to three (Tertiary Education Commission, 2012c). Although the TEC assumes that “ITPs, Wānanga, ITOs, PTEs and Community Education providers have built their capacity over the last few years” (Tertiary Education Commission, 2012c, p. 16) to deliver embedded programmes, the results of the present study and those of previous studies (Leach et al., 2010; MacKay et al., 2006; McNeil & Dixon, 2005) suggest it is doubtful that all educators feel confident about teaching literacy as part of their delivery, especially when dealing with struggling readers. Research has

demonstrated that a close collaboration between vocational educators and literacy specialists is essential, as well as ongoing professional development of vocational educators (Berghella et al., 2006; Casey et al., 2006; Dymock, 2007; Humphrey & Mullins, 2002; Leach et al., 2010; NIFL, 2007; Owen & Schwenger, 2008; Sturtevant, 2004; Wickert & McGuirk, 2005). In reality, these conditions are not always met. In the New Zealand case study on embedded literacy reviewed in Chapter 2 Leach et al. (2010) found that some vocational educators had doubts as to their role or capability. One reported that “if they [students] have literacy issues I send them to an external organisation because it is not our policy to support students with numeracy or literacy issues” (p. 21). Concerns were expressed regarding meeting the needs of learners with learning difficulties: “...but certainly the high needs people...that is not the job of a vocational tutor. A vocational tutor can’t do specialised work” (Leach et al., 2010, p. 22) and “when tutors could see that ten students had a weakness here and five had a weakness there...they would struggle to know what to do with it...It will be like ‘what the hell do I do?’” (p. 23). In the case study Leach et al. (2010) identified a distinct need for professional development: “there is a hunger and a thirst from staff to learn more” (p. 25).

The question, therefore, remains whether vocational educators can be expected to attend to the literacy needs of all learners, including those with reading difficulties, particularly if they are not supported in their teaching by a literacy specialist. Some express strong doubts as to their ability to do so (Beder & Medina, 2001; Leach et al., 2010; Mackay et al., 2006). Dymock and Nicholson (2012) explained that vocational educators typically have specialist knowledge in their content area and lack the expertise in teaching reading and writing. In itself embedded literacy is a commendable initiative as it will make

literacy support available to more learners. However, it will fail to meet the needs of adult dyslexic learners if vocational educators are not sufficiently trained and supported.

The currently available training and professional development opportunities in dyslexia are limited. The University of Waikato offers an undergraduate paper on dyslexia and a postgraduate paper on reading difficulties. Massey University offers postgraduate courses on literacy learning difficulties. The National Centre of Literacy and Numeracy for Adults (NCLANA) offers a two-day workshop on dyslexia. Some participants of the present study mention presentations by Ros Lugg and Neil MacKay as well as workshops and courses organised by SPELD and the Seabrook McKenzie centre. The extent of these PD opportunities is not likely to meet demand, particularly because the majority are only of one- or two-day duration. Until recently limited resources on dyslexia were available to educators. In 2012 two resources for adult literacy educators were published: a book by Dr Sue Dymock and Professor Tom Nicholson (Dymock & Nicholson, 2012) and video clips accompanying the book (National Centre of Literacy and Numeracy for Adults, 2012). More print and online resources could be developed in New Zealand to assist educators in their ongoing professional development.

Adult literacy educators in New Zealand are typically not well-prepared for the challenging task of catering for the needs of adult dyslexic learners. If further training opportunities are to be developed to build their capability a number of issues will need to be considered. First, it is imperative to consider what type of training constitutes adequate preparation and to identify the specific areas of knowledge required to equip educators with the means to develop the

particular skills, knowledge and strategies needed for effective teaching practice. This will be further discussed later in this chapter. Training standards may need to be developed. The majority of survey participants in the present study (58%) had qualifications at degree or postgraduate level. Some had qualifications in Adult Education and Training (10%) or held the NCALNE certificate (19%). In fact, only a small minority (6%) held no qualification or a qualification unrelated to teaching. In spite of the fact that they were, to a certain extent, educated and qualified to teach, their confidence levels were low, their training need was high and actual knowledge levels were inadequate. This suggests that, although they were educated, they were not sufficiently prepared. The content areas to be included in professional development, and the depth and breadth of instruction, will require careful investigation to ensure the professional development encompasses the content required by educators.

Second, an assessment may be required of current educator knowledge. The findings of Bell et al. (2004) indicated that there is a “need for direct assessment of teacher knowledge when planning in-service training experiences” (p. 561), because educators may not accurately assess their levels of knowledge. If professional development provided for educators is to target specific educator need, a close examination of this need may be required.

Third, Moats (1994) suggested that “the reasons for teachers’ insufficient knowledge include the difficulty of the subject matter, the time required to learn it, and the absence of specific standards for training” (p. 99). She explained that “the requisite content knowledge is a time-consuming, challenging process” (Moats, 1994, p. 96). This highlights the need for a careful consideration of the most effective method and duration of delivery. A sustained, ongoing programme

of professional development may be required in combination with a more substantial entry-level qualification.

5.8 Limitations

A number of limitations of the study should be noted. As the sample size is relatively small ($N = 137$ for the survey; $N = 4$ for the interviews) a certain degree of reservation may be in order with respect to the generalisability of the findings. Also, it is likely that the TEO staff members who decided to participate in the survey were motivated to take part on the basis of an interest in dyslexia or professional development. Although the 329 TEOs who were invited to take part in the survey were randomly selected, the remaining 229 adult literacy educators who were approached were not randomly selected and had all engaged in a PD workshop. This may indicate that the sample may not be fully representative of the target population, as educators who have a heightened interest in dyslexia and/or PD may be different, in terms of perceptions and knowledge, from educators who do not have a heightened interest.

Three factors with respect to the survey design and the internal validity of the study will need to be acknowledged. First, a 4-point scale was used for the Likert scale items instead of the usual 5-point scale. The instrument allowed five options, but the fifth option was used as a 'not applicable' option, as this was needed for those participants who were not currently teaching. The 4-point scale necessitated the fact that participants did not have the option of selecting a neutral answer, which may have affected their responses to a certain extent.

The second factor concerns the knowledge assessment. The 33 tasks represent a fraction of the knowledge required to teach dyslexic learners. A differently designed assessment may well have resulted in dissimilar test scores.

The third factor is related to the differentiation of the two subgroups. In deciding which subgroup participants were assigned to, a certain measure of subjectivity had to be applied if insufficient data were provided regarding the specific training participants had engaged in. In addition, the participants in the 'trained' subgroup had engaged in a wide variety of training. If they had all participated in the same training, different results for the effectiveness of training or professional development might have been produced. However, an effort was made to reduce this potential effect by the implementation of t-tests, the result of which indicated that there was a significant difference between the two subgroups.

Lastly, although, during the interviews, every effort was made by the researcher to act as a neutral medium and to refrain from asking leading questions, a certain degree of bias cannot be fully eliminated. In order to increase the reliability of the findings, the interviews were recorded and transcribed. A copy of the analysed data was sent to all interviewees to provide them with the opportunity to add or revise comments in order to increase accuracy. Two interviewees made use of this opportunity and made minor adjustments to the transcriptions.

5.9 Future Research

The majority of the research identified as relevant to the present study has been conducted overseas. There is a paucity of New Zealand research on adult

dyslexia (Rowan, 2010a) and the professional development needs of tertiary educators (Dennie, 2008). Although the present study may have made a small contribution to the gathering of relevant research data, much more research is needed to create an evidence-based overview of the issues surrounding adult dyslexia in New Zealand and the professional development needs of adult literacy educators. In their report on the factors contributing to the success of New Zealand tertiary learners, the Priority Learners Educational Attainment Working Group (2012) highlighted the fact that the effectiveness of the public investment in literacy, language and numeracy education needs to be fully understood and that the identification of the best ways of raising the literacy and numeracy skills of New Zealand adults needs to start from a strong evidence base.

The professional development need among both survey and interview participants in the present study was high, with the vast majority expressing a need for more PD. Although it was established that the need for dyslexia PD was higher than for PD in reading development and language knowledge, more research is needed to identify the specific areas of knowledge adult literacy educators need to develop further. If PD is to be targeted to the educators' needs, a thorough assessment of their perceived needs is essential. It is not merely the perceptions of adult literacy educators which need to be taken into account when developing professional development or training programmes, but also research results regarding the nature and extent of knowledge required by educators to be effective in meeting the needs of adult dyslexic learners. A fairly broad generalisation was the basis of the present study, in that knowledge of reading development, language knowledge, and an awareness and understanding of dyslexia are considered to be requisite areas of knowledge for adult literacy

educators. A review of relevant research may help identify the more specific knowledge required.

In addition, more information is required regarding the most effective methods of professional development delivery, both in terms of value and efficacy for the participants and the time and cost involved. Although the results of the present study indicate that workshops are the preferred delivery mode, they constitute a relatively costly practice. Continued research into this area may identify equally successful methods, or combination of methods, which are more cost-effective. This research could include a review of the literacy and numeracy teaching qualifications at certificate and diploma levels, including NCALNE, with a focus on identifying opportunities of enhancing the robustness of these qualifications and their relevance and usefulness to educators, by including training on the awareness and understanding of dyslexia, language knowledge, reading development, and appropriate instructional strategies.

Embedded literacy has been introduced into New Zealand tertiary education to help address the literacy and numeracy needs of tertiary learners. As it is a relatively new concept in New Zealand, ongoing research will be needed to identify the approaches and practices adopted, evaluate their effectiveness and investigate any concerns that remain (Tertiary Education Commission, 2012a). Of particular importance in this respect are the incentives for vocational educators to engage in professional development. Wickert and McGuirk (2005) found that “for a range of reasons, including availability and relevance, there is little incentive to undertake more than the minimum training” (p. 44). This raises the question of how these educators can be motivated to engage in training and highlights the

need for PD to be readily available, accessible and relevant (Wickert & McGuirk, 2005).

The effectiveness of training or professional development in dyslexia-related knowledge, and the impact it has on a range of variables, will continue to be an area for ongoing research. In particular, research will be needed to measure the correlations between educator PD and training on the one hand and learner retention, learner achievement and progress, educator confidence, educator knowledge (both perceived and actual), and enhancement of teaching strategies on the other hand.

Lastly, the objective for the improvement of PD in dyslexia needs to be considered. It is ultimately the needs of the adult dyslexic learners themselves which are of prime importance. The programme for adult dyslexics in Australia, as discussed in Chapter 2, could serve as a model for introducing a similar programme in New Zealand, as it appears to be very effective (Tanner, 2010). Tanner (2010) explained that the purpose of this Australian programme is twofold: to inform adult dyslexic learners about dyslexia, that is what dyslexia is and how it may affect them, and to assist these learners in developing their skills in order to enhance their vocational opportunities. Tanner was actively involved in the programme as an educator; she subsequently interviewed a number of the learners enrolled in the programme and recounted her experiences in teaching and interviewing them (Tanner, 2009a; 2009b; 2010). She was struck by the depth of emotion the interviews evoked in her as the interviewees recounted their experiences as dyslexics. In addition, the results of the interviews and the programme evaluations demonstrated that educators can have a huge impact on the confidence of adult dyslexic learners and their sense of wellbeing. One

participant's comment was that "you and what you said and did in the course had a big impact on my life...you gave me proof...the proof there that I wasn't dumb" (Tanner, 2009b, p. 72).

Offering a similar programme in New Zealand could have a tremendous impact on the lives of dyslexic learners, and make a significant contribution to addressing our adult literacy issue and raising public awareness of adult dyslexia. In addition to offering a specialised programme for adult dyslexic learners, a teaching package could be developed for adult literacy educators to incorporate into their existing intensive literacy, vocational or workplace literacy programme, with the purpose to inform and educate their learners about dyslexia.

The educators would require professional development to enable them to deliver the package, answer their learners' questions and expand their own knowledge of dyslexia. Offering these programmes across New Zealand's tertiary education provision would undoubtedly create a considerable boost for the awareness, understanding and remediation of adult dyslexia. A feasibility study could help identify the potential implications and effects of developing and introducing these programmes.

5.10 Summary

Dyslexic learners whose needs have not been fully met in primary or secondary education may enter tertiary programmes with insufficient literacy skills to cope with the demand of their course content. Some enrol in intensive or workplace literacy programmes to gain the literacy skills and strategies they lack to secure employment or engage in further training. Others opt for a vocational

programme. Their tertiary educators are faced with the challenge of meeting these learners' educational, social and emotional needs. More often than not, through a succession of negative experiences at school, these learners have disengaged from learning, they lack confidence and self-esteem, and have failed to acquire basic literacy and numeracy skills and strategies. The challenge faced by educators is huge. This has become apparent in the present study. The majority of study participants did not feel confident in meeting the needs of adult dyslexic learners, they had a high need for professional development and training, insufficient knowledge, and unrealistic perceptions of their knowledge.

If educators are to assist their dyslexic learners in achieving their goals and overcoming their difficulties, they will need to be better supported in their teaching and provided with improved training and professional development opportunities. The results of the present study suggest that professional development in dyslexia is effective in enhancing educator knowledge. More research will be required to identify the most effective ways of developing and implementing these professional development programmes. This may include research into the specific areas of knowledge required by educators; an assessment of their professional development needs; research into embedded literacy practice and support systems for vocational tutors; research into the effectiveness of educator PD in terms of learner achievement and educator confidence; and a feasibility study of a programme for adult dyslexic learners and a teaching package for educators, which could enhance learner and educator knowledge and confidence, and raise public awareness.

5.11 Conclusion

From my personal experience as an adult literacy educator and professional development facilitator I concur with Dymock (2007) in that educators working in this field tend to be passionate and committed in their work and the support they afford their learners. In our efforts to address the New Zealand adult literacy issue, it needs to be acknowledged that educators are our most valuable resource. Dymock and Nicholson (2012) explained that “tutors in the tertiary settings can be an agent for change by finding out about dyslexia and adjusting their teaching” (p. 130). They are committed to further develop their expertise and should be supported in continuous, professional learning. The findings of this study indicate that their needs for training and professional development can no longer be ignored. Ultimately, it will be the learners who will reap the benefits.

The New Zealand government has demonstrated a firm commitment to raising the standard in adult literacy and numeracy education and in creating improved learning opportunities. These objectives can only be achieved if adult literacy educators are knowledgeable, well-prepared and adequately supported.

Therefore, if educators are to meet the needs of learners with high literacy needs it is vital that the professional development of adult literacy educators continues to be one of the government’s main priorities. In the present climate of increased accountability and concrete outcomes, funds will need to be available to train, assist and support our adult literacy educators, even if this means a reduction in student places. Although it is clear that, due to “reduced future operating expenditure” (Tertiary Education Commission, 2012a, p. 9), the TEC is

obliged to “prioritise its investments in tertiary provision to maximise sector performance and ensure maximum returns to learners and governments” (Tertiary Education Commission, 2012a, p. 9), the training and professional development of the adult literacy workforce should be a major priority, as an investment in these areas will have a beneficial effect on all stakeholders, including learners, educators, training providers and government. The study findings suggest that an investment is justified, as targeted training and PD in dyslexia resulted in improved knowledge in each of the three knowledge areas.

The government has identified seven priorities for the 2010 – 2015 period in their tertiary education strategy (Tertiary Education Commission, 2010b): increasing the number of young people (aged under 25) achieving qualifications at levels four and above; increasing the number of Māori students enjoying success at higher levels; increasing the number of Pasifika students achieving at higher levels; increasing the number of young people moving successfully from school into tertiary education; improving literacy, language, and numeracy and skills outcomes from levels one to three study; improving the educational and financial performance of providers; and strengthening research outcomes. At the heart of each of these seven priority outcomes is the capability of tertiary educators.

If an investment is to be made to promote a professional adult literacy workforce by establishing a sustainable professional development infrastructure, with a standardised qualifications framework and clearly defined career pathways within the sector, then the starting point should be the educators themselves, as any such development has to be responsive to their needs.

If we are to create an inclusive learning and teaching environment where the needs of all adult learners with dyslexia are met, it is imperative that we build

the capability of our adult literacy educators and provide them with the knowledge and support they need, as they are one of the most important factors in raising our New Zealand adult literacy levels.

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APPENDIX A

QUESTIONNAIRE

Professional Development Needs

If you are not currently teaching, please answer the questions as best you can or tick the N/A (not applicable) box.

[1.]Have you ever engaged in training or professional development in dyslexia?

no

NCLANA (National Centre of Literacy and Numeracy for Adults) Dyslexia workshop in 2011

university paper on dyslexia or reading difficulties

other training in dyslexia:

[2.]Have you ever attended any other literacy professional development workshops?

no

yes. Please specify:

[3.]Please rate how strongly you agree or disagree with each of the following statements.

Please choose the appropriate response for each item:

	strongly disagree	disagree	agree	strongly agree	N/A
I feel confident in meeting the needs of dyslexic learners.	<input type="radio"/>				
I feel prepared in meeting their needs.	<input type="radio"/>				
I sometimes struggle to find a way to assist them.	<input type="radio"/>				
I need to improve my capability in meeting their needs.	<input type="radio"/>				
I have a good understanding of what dyslexia is.	<input type="radio"/>				

	strongly disagree	disagree	agree	strongly agree	N/A
I am aware of what causes dyslexia.	<input type="radio"/>				
I have a good understanding of reading development.	<input type="radio"/>				
I have enough language knowledge to assist dyslexic learners (e.g.: spelling rules, letter-sound relationships, word structure).	<input type="radio"/>				
I would engage in professional development to improve my capability.	<input type="radio"/>				
I have dyslexic learners who find it hard to cope with course demands.	<input type="radio"/>				
I feel more training should be given to educators about dyslexia.	<input type="radio"/>				

[4.]If you were to engage in professional development (PD), please indicate your PD needs.

Please choose the appropriate response for each item:

	no need	some need	moderate need	high need	N/A
language knowledge	<input type="radio"/>				
background knowledge of dyslexia	<input type="radio"/>				
knowledge of reading development	<input type="radio"/>				

[5.]Can you give examples of the difficulties encountered by (some of) your dyslexic learners?

Please write your answer here:

[6.]If you would like to learn more about dyslexia, which method(s) would you prefer?

- PD workshop
- online support
- training and mentoring within my organisation
- resources, like books and DVDs
- other. Please specify:

General questions

[14.]Are you male or female?

- male
- female

[15.]What is your age group?

- 18-29
- 30-39
- 40-49
- 50-59
- 60+

[16.]What is your ethnicity?

- Māori
- Pasifika
- NZ European
- European
- Asian
- Other

You may tick more than one box.

[17.]What is your current position?

- vocational tutor
- literacy tutor
- workplace literacy tutor
- Other:

[18.]Are you in paid or voluntary employment?

- paid
- voluntary

[19.]Are you in full-time or part-time employment?

- full-time
- part-time

[20.]Where are you employed?

- Private Training Establishment (PTE)
- Polytechnic (ITP)
- Other:

[21.]What level do you teach or have you taught?

- degree
- diploma
- National Certificate level 4 or higher
- National Certificate level 1-3
- Course at foundation level
- Other:

You may tick more than one box.

If you don't teach, please tick 'other' box.

[22.]What are your qualifications?

- Master or Postgraduate degree

- Bachelor degree
- Graduate diploma of teaching
- National Certificate in Adult Education and Training
- National Certificate in Adult Literacy and Numeracy Education (NCALNE or NCALE)
- Other:

You may tick more than one box.

[23.] How many years of teaching experience do you have?

- 0-3
- 4-6
- 7-10
- more than 10
- N/A

[24.] Do you have dyslexic learners in your course(s)?

- no
- yes
- not sure
- N/A

[25.] Is there a literacy specialist at your organisation to support staff in their embedding of literacy?

- no
- yes
- any comments?:

[26.] Below you can make any further comments, provide clarifications or ask questions. If you don't have anything to add, click 'submit' and then you have finished the survey.

Please write your answer here:

Thanks very much for completing this survey. I appreciate the time and effort you have taken. Please email me if you are willing to participate in a 30-60 minute interview. My email address is avlamoen@gmail.com.

APPENDIX B

KNOWLEDGE TEST

Knowledge Questions

Your answers are anonymous and cannot be traced back to you.
It's very important that you do not look up the answers to the questions.

[7.]How many speech sounds or phonemes are there in the following words?

Please choose the appropriate response for each item:

	1	2	3	4	5	6	don't know
cat	<input type="radio"/>						
does	<input type="radio"/>						
know	<input type="radio"/>						
thrill	<input type="radio"/>						
shook	<input type="radio"/>						

[8.]How many syllables do you hear in each of the following spoken words?

Please choose the appropriate response for each item:

	1	2	3	4	5	6	don't know
ham	<input type="radio"/>						
enough	<input type="radio"/>						
recreational	<input type="radio"/>						
walked	<input type="radio"/>						
continuity	<input type="radio"/>						

[9.]Which of the following is a feature of English spelling?

- A silent 'e' at the end of a word always makes the preceding vowel long.
- Words never end in the letter 'j' or 'v'.
- When two vowels go walking the first one does the talking.
- All of the above.
- Don't know

Tick one box only.

[10.]Which of the following words has a prefix?

- taller
- bookmark
- construct
- social
- well-known
- don't know

Tick one box only.

[11.]For the following statements choose 'TRUE', 'FALSE' or 'don't know'.

Please choose the appropriate response for each item:

	TRUE	FALSE	don't know
Good invented spelling is associated with skill in learning to read.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Repeated readings of easy text are a good way to increase reading fluency.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
We learn written language in the same way as we learn spoken language.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Reading comprehension develops naturally and cannot be taught.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The type of vocabulary that is typically stronger in beginning readers is oral vocabulary.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

- | | TRUE | FALSE | don't know |
|---|-----------------------|-----------------------|-----------------------|
| Learning to read requires instruction. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| You need to be able to sound words out to become a fluent reader. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

[12.]For the following statements choose 'TRUE', 'FALSE' or 'don't know'.

Please choose the appropriate response for each item:

- | | TRUE | FALSE | don't know |
|---|-----------------------|-----------------------|-----------------------|
| Letter reversals are one of the signs of dyslexia. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Most poor readers have dyslexia | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Dyslexia is a persistent and chronic condition. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Dyslexia occurs more often in boys than in girls. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Dyslexia tends to run in families. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Eye training is an effective treatment for dyslexia. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Dyslexics often have strengths in thinking and reasoning. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Poor spelling and poor fluency are often signs of dyslexia in adults. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Dyslexics are usually slow learners. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| The main cause of dyslexia is poor reading comprehension. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| For dyslexic learners language immersion is more effective than explicit instruction. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Dyslexics are liable - more than others - to mispronounce words. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| A person with dyslexia is likely to have an excellent working memory | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

[13.]If a friend asked you what dyslexia is, how would you define it?

Please write your answer here:

APPENDIX C

RESEARCH ETHICS APPROVAL

Dean's Office
Faculty of Education
Te Kura Toi Tangata
The University of Waikato
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THE UNIVERSITY OF
WAIKATO
Te Whare Wānanga o Waikato

MEMORANDUM

To: Annette Van Lamoen
cc: Dr Sue Dymock
Dr Nicola Daly
Carl Mika

From: Associate Professor Linda Mitchell
Chairperson, Research Ethics Committee

Date: 10 May 2012

Subject: Supervised Postgraduate Research – Application for Ethical Approval (EDU031/12)

Thank you for submitting the amendments to your application for ethical approval for the research project:

Adult dyslexia in New Zealand: Are we meeting the needs of educators and learners?

I am pleased to advise that your application has received ethical approval.

Please note that researchers are asked to consult with the Faculty's Research Ethics Committee in the first instance if any changes to the approved research design are proposed.

The Committee wishes you all the best with your research.

Associate Professor Linda Mitchell
Chairperson
Faculty of Education Research Ethics Committee

APPENDIX D

INFORMATION SHEET

The purpose of the study is to investigate whether there is a need among tertiary educators to improve their capability in meeting the needs of dyslexic learners. I also aim to identify the specific areas of expertise educators would like to develop further.

As some of the educators selected for this study have engaged in Professional Development in dyslexia I will be able to investigate whether that PD is effective in improving educator capability.

My research may contribute to the development of PD programmes for tertiary educators and result in improved support for adult dyslexic learners.

Your participation in this study will give you the opportunity to reflect on your PD requirements and opportunities to improve your expertise.

This study has been approved by the Faculty of Education Ethics Committee at the University of Waikato. The findings of the study may be disseminated in oral presentations, seminars, conferences or journal articles, but you will not be identified in any publication. Data will be kept confidential and cannot be traced back to you.

If you wish to be emailed the model answers for the test and a summary of the findings of this research once it has been completed, please advise me by email.

You are welcome to contact my supervisors, Dr Sue Dymock and Dr Nicola Daly, should you wish to discuss any aspect of this research with them. You will find their contact details below.

Clicking on the 'submit' button means that you give your consent to participate in this survey. After your survey has been submitted you will not be able to withdraw your responses.

Researcher

Annette van Lamoen
Email: avlamoen@gmail.com
Phone: 027 364 7296

Supervisors

Dr Sue Dymock
Email: sdymock@waikato.ac.nz

Dr Nicola Daly
Email: nicolad@waikato.ac.nz

APPENDIX E

INVITATION TO PARTICIPATE

Kia ora,

My name is Annette van Lamoen and I would like to invite you to complete an online survey.

As part of my Masters thesis at the University of Waikato I am conducting research into the Professional Development (PD) needs of tertiary educators in the field of adult dyslexia. You will find more information in the attached information sheet.

Your participation in this survey is voluntary.

The survey will take about 15 minutes to complete.

There are three sections. The first section contains questions about your professional development needs. The second section is a knowledge test. The third section contains general questions.

Your responses will be entirely anonymous, so I will not be able to see who has participated in the study.

If you encounter any problems or if you require any clarification regarding the concept of dyslexia, you are welcome to phone or email me. My contact details are below and I am happy to answer any questions you may have.

After the survey has been completed, I may be conducting interviews with a randomly selected sample of survey participants who live within a radius of 200 km of Hamilton. Please contact me if you are willing to be interviewed after the survey.

Thanks very much for your co-operation.

Kind regards,



Annette van Lamoen
Email: avlamoen@gmail.com
Phone: 027 364 7296

APPENDIX F

POST-SURVEY INTERVIEW QUESTIONS

1. What type of organisation do you work for (e.g., PTE, ITP, Wānanga)?
2. What course(s) do you teach?
3. How long have you been teaching?
4. Could you tell me about the learners you teach?
5. Do any of your learners have reading difficulties? If so, what type of reading difficulties?
6. Do you have dyslexic learners in the course(s) you are teaching?
7. Could you give some examples as to why you think they might be dyslexic?
8. Are they experiencing any difficulties coping with the coursework? If so, what difficulties?
9. How confident do you feel in teaching your dyslexic learners? Could you give some examples to support this?
10. Do you feel the need to improve your capability in meeting the needs of your dyslexic learners?
11. If so, what areas would you like to improve?
12. Have you engaged in any professional development on literacy or dyslexia?
13. If so, did the PD improve your capability and confidence in teaching dyslexic learners?

APPENDIX G

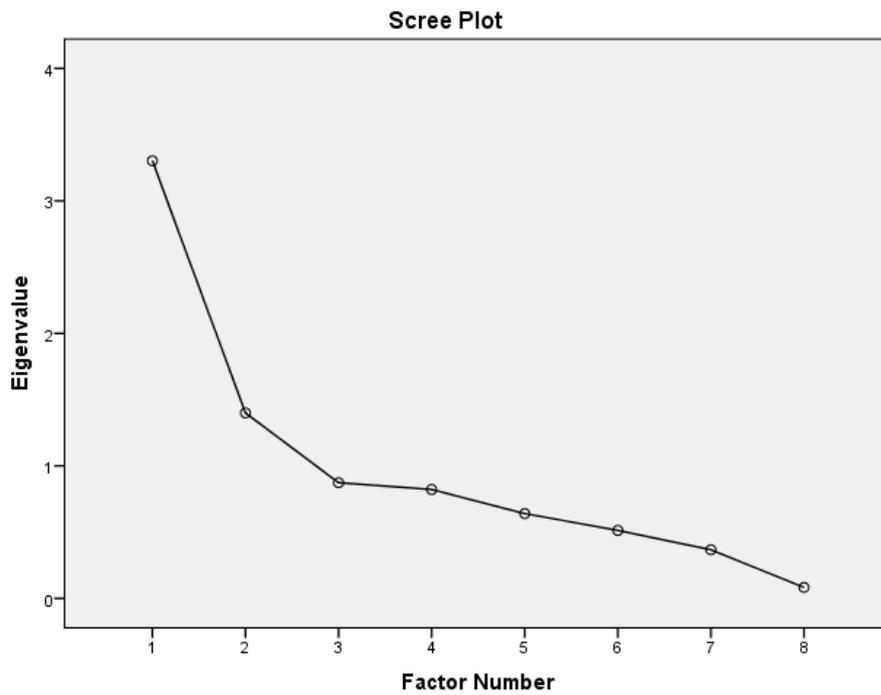
FACTOR ANALYSES

F1. Pattern matrix and scree plot 1 for: Confidence and perceived knowledge

Pattern Matrix^a

	Factor	
	1	2
Confidence 1	.709	.437
Confidence 2	.674	.350
Confidence 3		.702
Confidence 4		.461
Perceived dyslexia knowledge 1	.685	
Perceived dyslexia knowledge 2	.633	
Perceived reading development knowledge	.580	
Perceived language knowledge	.517	

a. Rotation converged in 5 iterations.



F1. Pattern matrix and scree plot 2 for: Confidence and perceived knowledge

Pattern Matrix^a

	Factor	
	1	2
Confidence 3		.610
Confidence 4		.678
Perceived dyslexia knowledge 1	.771	
Perceived dyslexia knowledge 2	.662	
Perceived reading development knowledge	.555	
Perceived language knowledge	.487	

a. Rotation converged in 3 iterations.

Scree Plot

