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Identifying language impairment in bilingual school-aged children using one word vocabulary tests

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CHAPTER 1

INTRODUCTION AND RATIONALE

South Africa's education system is still endeavouring to recover from historical socio-political setbacks and address current language-in-education policies and practices (Heugh, 2000). While South Africa has many sound language policies in place to ensure equal opportunity for all learners, the application of these policies into practice is still lacking and a highly debated area in South African literature (Heugh, 2000). One of the central issues in the debate is that many learners are not being educated in their home language, but in their second language of English (Jordaan, 2011a). Given South Africa's diversity, English may even be a third or fourth language- leading to the umbrella term English as an Additional Language (EAL). Education through a medium of English is widely implemented in South Africa despite global and local research that supports L1 learning or supported bilingual instruction (Heugh, 2000). The child who is learning through a language they are still in the process of acquiring may present with language-learning delays when compared to their monolingual peers (Windsor & Kohnert, 2004). This results in typically developing (TD) EAL learners possibly being misdiagnosed as having a language impairment and along with this, there may be a failure to accurately identify the truly language impaired EAL learner (Paradis, 2005).

It is a challenge for the speech-language therapist (SLT) to assess ethically and accurately while keeping time and cost factors in mind. As the speech-language therapist is concerned with children in the education system who are language impaired (Jordaan, 2011a), the SLT may be tasked with differentiating between a child who is a typically-developing sequential bilingual in the process of acquiring a language and a child who presents with a language impairment, irrespective of whether they are monolingual or bilingual. While it is important to provide all learners with support to acquire the language of learning and teaching, EAL learners who are presenting with language impairments will require more intensive support than their typically developing EAL peers (Jordaan, 2011a).

The early identification of a child with a possible Primary Language Impairment (PLI) is of particular importance in the educational context due to the negative impact it may have on literacy development and academic proficiency (Jordaan, 2011a). PLI is a receptive and/or expressive language impairment that may be overlooked at the preschool level (Schwartz, 2009). In the South African context, delayed verbal language skills may not be a cause for concern or a priority for parents who may be more concerned with physical disabilities (Jordaan, 2011a). However, it is essential that children with PLI are identified early in their schooling so that appropriate intervention and support may be given to minimize possible academic failure (Jordaan, 2011a).

Typically developing EAL learners may present with similar profiles to that of a monolingual speaker with PLI (Windsor & Kohnert, 2004). Both groups have similar language and academic concerns such as poor vocabulary knowledge and development, poor literacy skills and difficulty learning concepts taught in the classroom (Windsor & Kohnert, 2004, Linan-Thompson & Ortiz, 2009). As a result, EAL learners may be incorrectly diagnosed as requiring support for language impairment while they are in fact typically developing EAL learners. Alternatively, EAL learners with genuine language impairment may not be referred for support as a teacher may think a child is struggling academically purely because they are an EAL learner. As assessment of bilingual learners is challenging, so is access to relevant assessment measures, especially in South Africa. Hence many SLTs have difficulty with accurate assessment to inform intervention. The development of tools to assist with identification of PLI in EAL learners is therefore a top priority to help streamline identification, assessment and intervention.

One such tool proposed in literature is assessing bilingual learners in both languages and using a technique known as composite scoring to gain information about a bilingual child's total conceptual vocabulary (Pearson, Fernandez & Oller, 1993). Assessing a bilingual learner in one language only may not give an accurate portrayal of the child's lexicon (Hemsley, Holm & Dodd, 2006). Previous studies (e.g. Hemsley et al., 2006) conducted overseas comparing the vocabulary of bilinguals to monolinguals have shown that bilingual children score consistently and significantly lower on receptive and expressive vocabulary measures when assessed in a single language. However, when composite scoring is used to assess total conceptual vocabulary, the vocabulary of a bilingual child is shown to be comparable to that of a monolingual child. Composite or conceptual scoring was developed

by Pearson, Fernandez and Oller (1993) and involves assessing a child in both L1 and L2 and combining the total number of items correctly identified or labelled (Hemsley et al., 2006). A number of studies (e.g. Hemsley, Holm & Dodd 2010; Kan & Kohnert, 2005; Pearson et al., 1993) have shown that composite scores are often greater than the individual language scores and that when using composite scoring, the bilinguals score comparatively to their monolingual peers. Hemsley and colleagues (2010) also noted that composite scoring can be used to identify a bilingual child with a language delay versus a language disorder as a child with an underlying language deficit will score poorly on both languages. To date, this method and research has not been duplicated in the South African context. Thus, research to explore the possible use of this promising method of assessment is required to assesses its theoretical and practical significance in the South African context, where there is a need to differentiate between typically developing EAL children and those with a possible language impairment.

Internationally, a clear knowledge of the literature and research into bilingualism is needed to apply to clinical practice (Jordaan, 2008). Thus it is important to be continuously adding to the body of literature about bilingualism and PLI especially within the complex South African context. By using composite scoring for receptive and expressive vocabulary tests, more information can be obtained on the differences between English monolingual learners and EAL learners in South Africa. Furthermore, the accuracy of these vocabulary measures to identify language impairment as opposed to the language delay of the typically developing EAL learner will be investigated further.

The scope of this study is the identification of children with primary language impairment in the multilingual and multicultural South African environment. More specifically, this study aims to compare the vocabulary of English monolingual and IsiZulu/English bilingual speakers with the aim of differentiating between bilingual learners who are in the process of acquiring language typically and those who present with possible language impairment.

CHAPTER 2

LITERATURE REVIEW

This literature review will focus on a variety of theoretical issues and consequent practical implications relevant to the study conducted. A review of the past and current education system in South Africa as well as the difference between language policy and practice will be used to set the context for the study. A review of language development for academic success and the typical development of bilingualism will be followed and contrasted with an in-depth look at Primary Language Impairment (PLI), with a special focus on vocabulary. The highly debated assessment of bilingual learners will be reviewed as well as the role of speech-language therapists (SLTs) in the education system globally and in South Africa.

2.1. South Africa: Multilingualism and the Education System

To comment on the state of the South African Education system today, one must first understand the history that helped shape the current situation. From 1961-1993, a socio-political system known as Apartheid was in place in South Africa. Under apartheid the ideology of racial segregation and racial inequality was perpetuated. The education system was segregated and under Bantu Education, the majority of children in South Africa were taught through an impoverished curriculum and in resource-constrained classrooms (Webb, Lafon & Pare, 2010).

Following the end of the Apartheid era and the adoption of a new South African Constitution in 1994, a key priority of the new government was to reform and strengthen basic education, where good-quality education would be provided to all learners as reflected in *The South African Schools Act* (Department of Education, 1996). One of the more immediate changes following the dissolution of Apartheid was the migration of learners to different schools, especially within urban areas where learners were racially integrated and classrooms became significantly more linguistically diverse (Kathard et al., 2011; Webb et al., 2010). In Gauteng particularly, there is a marked heterogeneity in the language backgrounds of learners and teachers and learners may not all speak the same home language (Jordaan, 2010). Amongst other challenges presenting themselves to the reformed South African Education system,

language in education became a clear area of concern where teachers often lacked adequate support and training (Wium, Louw & Eloff, 2010).

South Africa is a linguistically diverse country with eleven recognized official languages. Most residents in South Africa speak one or more of the official languages- isiZulu (22.7%), isiXhosa (16.0%), Afrikaans (13.5%), English (9.6%), Sepedi (9.1%), Setswana (8.0%), Sesotho (7.6%), Xitsonga (4.5%), SiSwati (2.6%), Tshivenda (2.4%) and isiNdebele (2.1%). A small percentage of the population (2%) speak a first language that is not officially recognized in South Africa such as South African Sign Language or Portuguese (Statistics South Africa, 2012). Given South Africa's linguistic diversity, the policies of the Department of Education aimed to accommodate the newly diverse classrooms and support equity amongst languages. The Language in Education Policy (LiEP) (Department of Education, 1997) was progressive in its promotion of multilingualism where the L1 is maintained and successful acquisition of additional languages is supported.

In addition to *The South African Schools Act* (Department of Education, 1996), education was further shaped by two policies, White Paper 6 on Special Needs Education (Department of Education, 2001) and the Revised National Curriculum Statement (RNCS) (Department of Education, 2002). With these two policies in place, they supported the right to inclusive education and for schools to create learning environments which benefit all learners (Kathard et al., 2011). The RNCS specifically provided curriculum guidelines, heavily emphasizing the successful development of language and literacy as a foundation for academic success. The RNCS has recently been replaced with Curriculum Assessments Policy Statements (CAPS) which was phased in over three years starting in 2012 (Department of Education, 2011). CAPS is not intended to be a new curriculum, but rather adds to the RNCS where there is an emphasis on the change in teaching content, not necessarily teaching methodology (Department of Education, 2011). In CAPS, there continues to be a heavy emphasis on the successful development of language and literacy in the foundation phase with supporting documents and resources that go into greater detail when compared to the previous RNCS guideline (Department of Education, 2011). Feedback regarding the success of CAPS to address education concerns in South Africa is still emerging.

Post-apartheid South Africa put a number of policies and reforms in place to address language in education but there is a general consensus that the implementation of these

policies into practice has not yet been sufficiently achieved (Alexander, 2010; Kathard et al., 2011). A number of studies have highlighted that the majority of children in South Africa today have low numeracy and literacy levels (Department of Education, 2014; Moloi & Strauss, 2005; Taylor, 2011; Taylor & Yu, 2008) and literacy and language development in South African Basic Education is recognized to be in a serious crisis (Kathard et al., 2011). While there are a number of social and economic factors affecting academic performance (Alexander, 2010; Fleisch, 2008), learning through English as an additional language has been identified as one of the major reasons for poor numeracy and literacy levels in South Africa (Alexander, 2010; Heugh, 2000). Many researchers locally and internationally have identified learning in an additional language as a reason for academic underachievement (Webb et al., 2010).

It is common for children in South Africa to be exposed to many different languages in their home and community from a young age. However, once they enter formal schooling, the majority of learners are educated in English - a second or third language (Jordaan, 2011a). As indicated above, only 8.2% of the South African population speak English as a home language. English remains a dominant language in South Africa due to its position as a 'global language' and a language for business, therefore the perception in South Africa is that English is valuable and essential for employment, status and authority (Alexander, 2010). African languages often have a stigma attached to them as a result of an association with the poorer quality Bantu Education, whereas English is perceived to provide access to social and economic advancement (Webb et al., 2010). Many parents are demanding that their children learn in English, particularly in low socio-economic communities where parents view English as a means to achieving a better life (Braam, 2004). Given the linguistic diversity of a classroom, many teachers and learners do not have the same home language and so out of necessity, the LoLT becomes English (Jordaan, 2010). Learning in an additional language without the adequate support can negatively impact upon academic success (Heugh, 2000) and educators within the classroom are often not aware of the needs of the learners in their classroom who speak English as an additional language (Meier, 2005).

It is clear that the South African Education system is in crisis (Fleisch, 2008) and while there are complex contributing factors, language-in-education policy and practices are highlighted as a major area of concern, even "one of the most obvious blind spots of the system" (Alexander, 2010, p 11). As a result, a vast majority of the debate focuses on the number of

children who are learning in English, often an additional language, who are being systematically disadvantaged (Heugh, 2000; Kathard et al., 2011). This highlights that children who are learning in English are at risk within the education system. It then stands to reason, as discussed further below, that the EAL learner with a language impairment is at an even greater risk in the South African education system and SLTs have a clear role and responsibility to support these learners.

2.2. Language for Academic Success

To be truly proficient in a language, an individual needs be fluent at the conversation level, demonstrate discrete language skills and be proficient in academic language (Cummins & Yee-Fun, 2007). When considering the school age child, one of the concepts considered to be central to school aged language learning is the development of academic language proficiency which can be defined as access to and the command of the oral and written academic registers of school (Cummins, 2000). Language is central to learning as it is required for the development of reading and writing- the basis of all other learning areas (Cummins, 2008). In line with the development of overall language proficiency, the development of academic language is one of the primary goals of education (Jordaan, 2010). As a result, underdeveloped language skills negatively impact upon the development of academic language and subsequent academic performance.

While many children acquire oral language proficiency before they enter school, there are increased language demands once a child enters school. When learners enter school, there is a salient shift from using language for social purposes to using language for academic use. The terms BICS (Basic Interpersonal Communication Skills) and CALP (Cognitive Academic Language Proficiency) are used to simplify, compare and contrast the concept of language for academic purposes and language for social purposes (Cummins, 2008; Zweirs, 2006). Cummins (2000) further contrasted these two concepts by saying that when any first language speaker begins school, they are essentially competent speakers of their language, meaning that they have acquired the most common rules of that language and how to apply those rules and knowledge to most common situations. However, schools devote a further 12 years to expanding these basic linguistic abilities (i.e. BICS) into more highly skilled areas and functions of language (i.e. CALP) (Cummins, 2000).

Academic language referred to in the term CALP includes the cognitive, linguistic and cultural aspects of academic discourse (Zweirs, 2006). As learners advance through the grades, they are required to use language in more cognitively demanding and context-reduced circumstances that differ from everyday communication (Cummins, 2000). The vocabulary and concept load expand to include many words and concepts that are rarely used in out-of-school situations. Syntax and discourse change too and become more and more different to the nature of syntax and grammar used in non-academic situations (Cummins, 2000).

The differentiation between BICS and CALP is further defined by Cummins (2000) who looked at two underlying processes used in any task- the degree of contextual support and the cognitive demands involved. The contextual support can range from being highly context-embedded in which there are many situational cues (e.g. facial expressions and gestures) to assist with comprehension of a situation- to being highly context-reduced where there are only linguistic cues. The cognitive demand can range from minimal cognitive involvement for familiar tasks, to high cognitive involvement for unfamiliar tasks. Generally, everyday communication is characterised by context-embedded and low cognitive involvement-requiring basic conversational communication skills (i.e. BICS). This is in contrast to academic tasks which are usually more context-reduced and more cognitively demanding, requiring academic language proficiency (i.e. CALP).

Due to the demanding nature of academic language as highlighted above, academic language is not acquired as easily or as naturally as the social forms of language and requires specific support and instruction (Cummins, 2000; Cummins & Yee-Fun, 2008). As a result, teachers play an essential role in the development of academic language and with appropriate support, academic language can be acquired more quickly, supporting better academic performance in the classroom for all learners (Linan-Thompson & Ortiz, 2009). However, many teachers are not sufficiently competent themselves and not trained appropriately on how to teach academic language (Kathard et al., 2011; Mroz, 2006). This is especially true in South Africa, where the pivotal role of language in education is often neglected and so teachers are not sufficiently aware and trained, leading to language difficulties across all curriculum areas irrespective of the medium of instruction (Jordaan, 2011b). Over and above concerns regarding insufficient training of teachers, many teachers within the South African context are EAL speakers themselves who are required to teach in English, potentially hampering a

teacher's ability to adequately facilitate learners learning English as a second language in the classroom (Nel & Muller, 2010).

2.2.1. The role of vocabulary in the development of academic language

Language competence and proficiency are central to academic success as literacy is a language-based activity, needing well-developed oral language skills (Linan-Thompson & Ortiz, 2009; Maynard, Pullen & Coyne, 2010). In the foundation phase of schooling the semantic processing skills and knowledge that are developed include growth in conceptualisation and knowledge of word formation processing and the ability to learn new words from context (Hoff, 2005). Semantic knowledge, including vocabulary, plays an important role in the acquisition of early literacy and comprehension skills (Biemiller, 2005; Linan-Thompson & Ortiz, 2009). One area where this is apparent is in early reading and decoding, where learners use their vocabulary knowledge to help decode an unfamiliar word to try make sense of the word in print (Maynard et al., 2010). For skilful readers, adequate decoding skills alone are not enough and vocabulary knowledge is needed for adequate reading comprehension (Biemiller, 2005). Adequate proficiency in literacy skills is one of the key areas of academic language and so the sufficient development of vocabulary is essential to support the development of academic language. This is especially true in the South African context where learners are presenting with poor literacy levels.

As mentioned previously, semantic based skills that are important for the development of academic language include a rapid growth in vocabulary and conceptualisation, growth in knowledge of word formation processes and the development of 'fast mapping' (Hoff, 2005). Fast mapping refers to the ability to learn new words from context and is important for ongoing growth and learning (Hoff, 2005). The acquisition of these skills can be supported with direct vocabulary teaching but many teachers are unaware and/or unable to support these skills because they have not been sufficiently trained (Maynard et al., 2010; Mroz, 2006), as is the case in South Africa.

2.2.2. Academic language and EAL learners

While developing academic language is challenging in the first instance, the child learning in an additional language is at an even greater risk and may have additional difficulties in sufficiently developing academic language (Scarcella 2003; Zweirs, 2006). This is because EAL learners are learning the LoLT at the same time that they are trying to develop academic

language proficiency- a higher level language skill (Cummins, 2000; Zweirs, 2006). EAL learners may be able to use English in a social or conversational context but may have difficulty using English for academic purposes such as writing an essay as conversational language does not automatically transfer into academic language (Cummins, 2008). EAL learners acquire BICS in about 2 years, while cognitive academic language (CALP) skills are acquired in a period of 4-9 years, depending on the quality of English instruction they receive (Cummins, 2000). There is evidence to suggest that learners develop academic proficiency more effectively in their home language or in a bilingual education context where both languages are used (Heugh, 2000; Meirim, Jordaan, Kallenbach & Rijhumal, 2010). In the South African context, there is minimal teaching in the home language or sufficient use of bilingual teaching and this may account for poor academic achievement seen in the linguistically diverse South African context where the LoLT is English.

As discussed above, there are a number of factors affecting the development of academic language which include, but are not limited to, teacher competency and the LoLT. While the EAL learner is at risk, the EAL learner with a language impairment has an even greater risk for developing inadequate academic language proficiency (Jordaan, 2011b). As a result, early identification of EAL learners with a possible PLI is essential to provide the appropriate support and minimize the risk of academic failure.

2.3. Bilingualism

Bilingualism may be broadly defined as competency in two or more languages where an individual has been regularly and consistently exposed to two or more languages in a variety of contexts (De Houwer, 1996). While proficiency in either language usually varies, competency in this broad sense refers to the ability to use two or more languages for oral and written communication (De Houwer, 1996; Kohnert, 2010).

2.3.1. Acquiring additional languages

The acquisition of a second language is recognized to occur at two possible times in a child's development. Simultaneous acquisition occurs when a child is exposed to two different languages from birth (Kohnert, 2010). By contrast, successive acquisition occurs when a

child acquires proficiency in one language then acquires a second (Kohnert, 2010). The majority of children in South Africa are successive bilinguals (Genesee & Nicoladis, 2009).

When considering bilinguals and bilingual language acquisition, Cummins proposed the "underlying proficiency model". In this model, the languages of bilinguals are not separate but interdependent and are served by the same underlying cognitive processes (Jordaan, 2008). Adequate stimulation of one language can benefit both as the underlying cognitive processes are stimulated (Jordaan, 2008). Cummins also proposed the linguistic interdependence hypothesis where the learning of a second language is dependent on the level of functioning in the first language and so a well developed L1 supports learning of an L2 (Cummins, 1991). Thus typically developing early-sequential bilinguals might face some of the same language, academic and social challenges as that of monolingual children with language impairment (Windsor & Kohnert, 2004).

2.3.2. Characteristics of bilingualism

There is *individual variation* seen in the language profile of bilingual learners. The acquisition and proficiency of multiple languages is affected by individual attributes (such as personality and cognitive abilities) as well as environmental or input-based attributes such as quality and quantity of exposure to the language (Cummins, 1991). There may be variability in language proficiency in the L1 and additional languages of a bilingual speaker. These variations may be due to a number of factors including: The age at which a child was introduced to each language spoken, the context or environment in which the languages were acquired, the importance attached to each language by the child's community or home environment, and intrinsic factors relating to the child's motivation and aptitude for language learning (Kohnert & Goldstein, 2005; Thordartotir, 2010).

Successive bilinguals are often more proficient in their first language and as mentioned, a well-developed L1 supports the learning of an L2 for successive bilinguals (Cummins, 1991; Kohnert, 2010). Thus, if the LoLT is not a child's L1, the L1 should be well developed and consolidated before entering school and having intensive exposure to the LoLT (Kohnert, 2010). With the increased demands and exposure to the L2 as the LoLT, a dominance shift from L1 to L2 has been noted for many EAL learners, including learners within the South African context. The L1 may plateau or regress. As a result of this dominance shift, the EAL learner's performance on different language tasks varies between the languages as there are

variations in language-learning experiences between the two languages (Kohnert, Windsor & Ebert, 2009). As a result of this, it is inaccurate to compare successive bilingual learners to their monolingual peers as results may be inaccurate (Kohnert et al., 2009).

2.3.3. Vocabulary development in bilingual children

A study by Meirim, Jordaan, Kallenbach and Rijhumal (2010) tracked the development of the processes underlying vocabulary development in foundation phase EAL learners using the semantic subtests of the DELV-CR (Seymour, Roeper & De Villiers, 2003). Their study found that when assessed in Grade 1, Grade 2 and Grade 3, all areas of semantic processes improved significantly. This suggested that exposure to English in an academic setting over a number of years can improve semantic processing skills and that explicit teaching of the processes can benefit development of some areas (Meirim et al., 2010). However, there was a large amount of individual variation in the participants, supporting the theory of individual characteristics of a child affecting language development, despite having similar language experiences (Meirim et al., 2010; Cummins, 1991). When comparing performance to English First Language (EFL) learners assessed on the DELV-CR (Alborough, 2007), the EAL learners generally performed worse than the EFL learners on most measures in Grade 1 and Grade 2 but by Grade 3, scores were comparable. This suggests that EAL learners may catch up to the EFL learners to some degree by Grade 3. Some learners in this study also showed difficulty with verb learning, one of the areas that children with PLI have specific difficulty with, adding to the notion of the over-identification of TD EAL learners as having PLI. The results of this study suggest that the EAL child is able to learn and develop vocabulary skills that are eventually comparable to the EFL learner through exposure to English and direct teaching but there is still great individual variation and risk of poor development. Thus, adequate vocabulary development in the EAL learner should be directly and explicitly stimulated and by extension, the EAL learner with PLI requires even more attention to ensure sufficient vocabulary development for academic language.

Globally and in South Africa, bilingualism continues to be an ongoing area of research to support clinical and classroom challenges. Thus, it is important to continue to add to the body of research, specifically in the context of South Africa, to add to the understanding and differentiation between TD bilingual learners and learners with a possible language impairment.

2.4. The role of the speech-language therapist in the school setting

As discussed above, proficiency in oral language, language rules and academic language is essential for academic success. As language is the medium used in the classroom for teaching and learning, this has major implications for collaborative work between SLTs and teachers (Kathard et al., 2011). A speech-language therapist in any setting has three general roles: planning team member, direct service provider and collaborative consultant or indirect service provider (Kamhi, Allen & Catts, 2001). The speech-language therapist is skilled at facilitating language learning and development and thus is in a unique position to provide support to learners in all spheres of language proficiency (Kamhi et al., 2001). The SLT in the school setting is required to identify, assess and provide intervention for learners who require additional speech and language support. In addition, the SLT has a responsibility to work collaboratively with other professionals to educate and contribute to policy-making. The speech-language therapist is responsible for being up to date with current research and theory to best inform their clinical work. There is an ongoing and established need to educate SLTs working with bilingual learners within the school environment so that they are enforcing best practice. Incorrect knowledge about bilingualism and PLI may result in unethical practices and opinions. For example, SLTs may incorrectly assume that children with communication difficulties will have difficulty learning two languages and advise against bilingual exposure, negatively affecting overall cognitive development and language acquisition (Jordaan, 2008).

Within the South African context, therapy for the school-age population is offered mainly by private practitioners at a cost to parents. This typically occurs within a pull-out model that mostly benefits only individual learners who can afford to pay for therapy (Kathard et al., 2011). There is very little support for public schools as a whole and learners who cannot afford to pay for private therapy. The role of the SLT in South Africa and within the education context is still emerging. SLTs in South Africa are still faced with the challenge of demonstrating the links between language, literacy and learning as well as their role in supporting general education through the medium of language. There is a need for research and development of interventions that align with teachers and curriculum demands (Kathard et al., 2011).

There is a need to differentiate between the typically developing bilingual child who is still in the process of acquiring languages and the bilingual child presenting with a PLI. Identification of PLI in bilingual children is challenging as dynamic and sensitive assessment measures are lacking, especially within the South Africa context. Bilingual children, who are compared to monolingual peers, may also be identified as having a language impairment even when they are typically developing as they are in the process of acquiring the language of learning and teaching. Thus, there is a need to investigate and develop assessment materials that help differentiate between typically developing bilingual learners and bilingual learners with language impairments to assist with faster and more accurate identification, assessment and intervention at a young age. This study proposed to investigate the use of one word vocabulary tests as a sensitive tool for identifying possible language impairment in bilingual children.

2.5. Primary Language Impairment (PLI)

Children who are able to effectively use environmental input to acquire language are considered to have intact language-processing systems (Windsor & Kohnert, 2004). These may be children who are monolingual or bilingual and who demonstrate typical acquisition of language and later literacy skills (Windsor & Kohnert, 2004). By contrast, children with primary language impairment (PLI) have disrupted language-processing systems in the presence of typical development in other areas which causes delayed and/or disordered language learning (Windsor & Kohnert, 2004). This is irrespective of whether the child is developing as a monolingual or bilingual speaker. PLI is the most common type of developmental language disorder and as a result, the most studied for practical and theoretical purposes (Kohnert et al., 2009). The term "primary language impairment (PLI)" has recently replaced "specific language impairment" to better reflect the subtle non-linguistic processing weaknesses that co-occur with the language deficits (Kohnert et al., 2009). It is estimated that approximately 7% of children present with some degree of PLI in the United States (Tomblin, Records, Buckwalter, Zhang, Smith & O'Brien, 1997). No prevalence data is available for the South Africa context.

Early identification of PLI is essential to prevent later concerns with the development of and proficiency in academic language. Early identification of PLI in bilingual learners is therefore

even more critical as academic language proficiency is already at risk because of learning in an additional language (Jordaan, 2011b).

2.5.1. Causes of PLI

PLI can be defined more specifically as a disorder of receptive and/or expressive language in the absence of any other possible cause of language impairment (Schwartz, 2009). A child with PLI typically has hearing within normal limits, an intact neurological system and a normal non-verbal IQ (Schwartz, 2009). PLI does not appear to be caused by socio-economic and environmental factors (Kohnert et al., 2009). To date, no definitive cause of PLI has been identified. While two of the main theories on the cause of PLI are discussed below, many of the theories regarding the cause of PLI do not account for all the characteristics seen in the profile of an individual with PLI (Hoff, 2005). However, there is agreement that children with PLI have disordered cognitive and perceptual processing mechanisms to process language (Bedore & Pena, 2008). Studies have suggested that there is a genetic component to PLI and a having a family history of language or learning impairment is a risk factor (Bishop, 2006; Kohnert et al., 2009; Schwartz, 2009).

According to the cognitive processing theory, PLI is caused by deficits in cognitive processing skills such as attention, speed of processing incoming information, working memory and problem-solving (Owens, 2004; Schwartz, 2009). Children with PLI have been found to have slower linguistic and non-linguistic processing on both expressive and receptive tasks than that of their TD peers (Miller, Kail, Leonard & Tomblin, 2001). These deficits may then result in a child with PLI having difficulty with effective language learning (Miller et al., 2001). In line with this theory, it is proposed that if a child with PLI was learning an additional language, they would experience language delays when compared to TD monolingual peers as well as monolingual peers with a language impairment (Paradis, 2007) as they are exposed to double the amount of linguistic information in the same time-frame as their monolingual peers as well as having slower and disorganised processing. This disordered and slower cognitive processing is then thought to be the reason for a manifestation of PLI.

By comparison, the linguistic representation theory proposes that in children with PLI, it is the internal representations of language that are disordered (Bedore & Pena, 2008). Children with PLI have delayed and disordered linguistic development. This is especially noticeable in

their difficulty in using grammatical morphemes such as past tense *–ed* correctly (Paradis, 2007; Schwartz 2009). Many linguistic structures are language specific and so the different representations of language impairment and variable ability seen in bilingual children may support this theory (Paradis, 2007).

Leonard, Eyer, Bedore and Grela (1997) propose that it is an interaction between cognitive processing and linguistic representation, where a mismatch in skills leads to ineffective language learning. Linguistic development is disordered in children with PLI as they require more time to process information and so may have difficulty with subsequently generating accurate linguistic representations such as for small grammatical morphemes (Leonard et al., 1997).

2.5.2. Characteristics of PLI

Individuals with PLI are a heterogeneous group and the number and severity of deficits vary from individual to individual. The presenting symptoms may even change in the same individual at different stages of his/her life (Kohnert et al., 2009).

2.5.2.1. Morphology & Syntax

The use of simplified grammatical structures is often seen in children with PLI, including reduced use of verbal morphology e.g. omitting regular past tense –ed (Bishop, 2006). Often the development of morpho-syntactic structures is delayed as well as disordered (Bishop, 2006). The specific morpho-syntactic presentation changes with the child's age and can also vary depending on the languages spoken (Kohnert et al., 2009). Simple sentences and a shortened MLU are common (Bedore & Pena, 2008) in children with PLI, who as a group, tend to have difficulty understanding and producing grammatically complex sentences (Bedore & Pena, 2008; Schwartz, 2009).

2.5.2.2. Semantics

The extent to which lexical difficulties contribute towards PLI is still unclear due to the heterogeneous nature of PLI. What is known is that lexical acquisition deficits are a commonly noted characteristic of PLI in research and clinical practice (Gray, 2004; Gray, Plante, Vance & Henrichsen, 1999). Compared to typically developing peers, children with PLI demonstrate slower vocabulary growth overall (Gray, 2004). Children with PLI have difficulty learning, organizing, linking and accessing vocabulary as phonological and

semantic representations (Bedore & Pena, 2008; Gray, Brinkley & Svetina, 2012). Naming errors, word approximations and word retrieval difficulties are associated with language impairment (Bedore & Pena, 2008; Gray et al., 2012). As a result, delayed receptive and expressive vocabulary scores are common.

2.5.2.3. Pragmatics

Children with PLI have difficulty initiating and participating in conversations and thus maintaining appropriate social interactions (Marton, Abramhoff & Rosenzweig, 2005). Children with PLI are less likely to initiate conversations with their peers and are more likely to rather talk to adults (Marton et al., 2005). Children with PLI also present with delayed and disordered narratives, where narratives are lacking in important content and disorganized (Kohnert et al., 2009). Poor flexibility of language and deficits in comprehension result in inappropriate responses or misreading of the social environment (Schwartz, 2009).

2.5.2.4. Literacy

As oral language supports the development of literacy skills, children with PLI are at risk in all areas of literacy. Vandewalle, Boets, Ghesquire and Zink (2012) found children with PLI to score below typically developing peers in phonological awareness, an important predictor of later literacy success. Children with PLI have been found to have difficulty with decoding and reading comprehension (Schuele, Spencer, Barako-Arndt & Guillot, 2007). Difficulty with reading comprehension is both for basic information as relating to accurate decoding and understanding of language, as well as higher-level comprehension skills such as inferencing and predicting based on the text (Schuele et al., 2007). Written language skills are often affected due to the underlying grammatical, vocabulary and narrative deficits in verbal language.

2.4.2.5. Non-linguistic deficits

While many children with PLI have average or above average non-verbal intelligence, there is evidence that suggests that many children with PLI have difficulty with non-linguistic processing skills, suggesting that the difficulties are not exclusively language-based (Kohnert et al., 2009). Overall, children with PLI have been found to be slower or less efficient than their TD peers on a range of perceptual processing, fine motor sequencing and cognitive imaging tasks, including memory and attention tasks (Kohnert, 2010; Kohnert et al., 2009). A poor working memory greatly affects ongoing language processing and learning, thus

affecting language development in children with PLI (Kohnert, 2010). The exact nature of the relationship between language weakness and non-linguistic weaknesses in children with PLI has not yet been clearly identified (Kohnert et al., 2009).

2.5.3. Assessment

Through rigorous assessment and by process of elimination, the diagnosis of PLI in monolingual children is relatively straightforward. At the moment, PLI can only be assessed and diagnosed through behavioural measures (Kohnert et al., 2009). There are a plethora of available formal assessments suitable for first language English speakers that provide peer norms for comparison. Typically, a language score that is one to two standard deviations below peers is considered a language delay. As mentioned previously, if this language delay is present in the presence of normal motor functioning, hearing and cognitive skills, a diagnosis of PLI may be given (Kohnert et al., 2009).

2.5.4. English learners with PLI and typically developing EAL learners

Typically developing EAL children and English L1 children with PLI perform comparably on traditional language measures, albeit for very different reasons (Kohnert et al., 2009; Linan-Thompson & Ortiz, 2009). As discussed above, children with PLI have disordered and delayed language processing systems, whereas the typically developing EAL learner is still developing each language and may have distributed skills across each language (Kohnert et al., 2009; Linan-Thompson & Ortiz, 2009). One such example was a study done by Paradis (2005) where the performance in grammatical morphology of TD EAL learners and learners with PLI was compared and it was found that both populations had difficulty with grammatical morphemes. A study by Genesee, Paradis & Crago (2004) found that TD EAL learners and learners with PLI had similar weaknesses in vocabulary knowledge, particularly regarding verbs. As the language profiles of a child with PLI and a typically developing EAL child are similar, it is challenging to differentiate between a language difference and a language impairment in school aged L2 learners (Kohnert et al., 2009). As a result, PLI in EAL learners has been over-identified, under-identified and misidentified (Kohnert et al., 2009).

As demonstrated in the above section, PLI is complicated due to its heterogeneous nature and is further complicated by bilingual language development as discussed further below. The early identification and support of all learners with a possible language impairment is

essential. Thus, there is a need for ongoing research of PLI in more complicated populations such as bilingual speakers.

2.6. Primary Language Impairment (PLI) in the bilingual learner

To date, there are no epidemiological studies of PLI in bilingual children but it is generally believed to affect monolingual and bilingual children similarly i.e. approximately 7% of children (Kohnert, 2010). For bilingual children with PLI, the underlying language impairment manifests in both languages (Kohnert, 2010). As with typical bilingual learners, the relative level of proficiency in each of the languages of the bilingual child varies (Kohnert, 2010). Bilingual learners with PLI are especially challenged in language development as they are learning languages through a disordered language-processing system (Kohnert, 2010). The delayed and disordered verbal language then places the bilingual child with PLI at further academic risk as their oral language is insufficient to support the development of academic language.

2.6.1. Assessment of the bilingual learner with PLI

The accurate and reliable assessment of the bilingual child's language is an international area of research and comment and has become one of the biggest challenges facing school-based SLTs worldwide (Caesar & Kohler, 2007). Internationally, the case loads of speech-language therapists are becoming more linguistically and culturally diverse as globalisation and population movement continues (Jordaan, 2008; Van Dulm & Southwood, 2013). As mentioned previously, a clear knowledge of the literature and research into bilingualism is needed to apply to clinical practice (Jordaan, 2008) and culturally and linguistically sensitive assessment informs accurate intervention.

Over and above the differing levels and types of bilingualism highlighted in the section above many SLTs do not feel wholly confident or competent to assess bilingual children in a non-biased manner (Ceasar & Kohler, 2007). Many SLTs do not feel they are proficient enough in an additional language to ethically provide services, have not received specific training in how to perform non-biased bilingual assessments and may be policy-bound to use standardized tests that are inappropriate for bilinguals (Kritikos, 2003). There is limited research on bilingualism and PLI and a subsequent limited number of tools that can diagnose

PLI in the bilingual population (Jordaan, 2011). There is a general lack of knowledge of the development of language in EAL learners when compared to their TD peers, as well as regarding the differing language profiles and underlying causes in the typically developing and language impaired monolingual and bilingual population (Jordaan, 2011; Kohnert, 2010; Kohnert et al., 2009).

An international survey by Jordaan (2008) aimed to gather information on how speech-language therapists across the globe were working with the bilingual children on their caseload. One of the results of this survey suggested that internationally, assessment and intervention with bilingual children does not follow established theory and L1 is not being adequately supported and promoted (Jordaan 2008). Similar surveys in South Africa by Van Dulm and Southwood (2013) and Jordaan and Yelland (2003) raised concerns about speech-language therapist's abilities and confidence in providing accurate assessment and appropriate support to bilingual children in South Africa.

Following the international survey (Jordaan, 2008), the Multilingual Affairs Committee of the International Association of Logopedics revised their "recommendations for working with bilingual children" (2006). Detailed in this document is best practice for assessment of bilingual children and correlates with much of the best practice literature produced in this area. Best practice when assessing bilingual children includes not using normative data from formalised tests, use of sensitive qualitative testing to establish a baseline, using both languages during assessment and comparing the child being assessed to a typically developing bilingual peer (Multilingual Affairs Committee, 2006). As is suggested by these guidelines, the use of descriptive and dynamic assessment procedures have been recommended when assessing the bilingual child (Caesar & Kohler, 2007). Static, standardized and quantitative approaches to assessment are recognized as being inadequate to assess children who are learning additional languages (Caesar & Kohler, 2007). Tests that are developed for use in one language may not translate consistently to another language and culture, and so may be difficult to score and interpret (Caesar & Kohler, 2007). Assessing both languages is recognised as important to gain a true picture of the child's language and to identify if there is an underlying cognitive concern causing a true language impairment (Jordaan, 2008).Assessing a bilingual child in one language also does not give the child credit for linguistic knowledge in both languages (Caesar & Kohler, 2007).

While assessment of the bilingual child continues to be an area of academic interest and clinical relevance, ongoing research is required in the South African context to allow SLTs to accurately assess multi-lingual children as a starting point for providing the appropriate support, especially within the academic context. Best practice suggests that assessments and assessment tools assess both languages, do not use normative data from formalised tests and allow for peer comparison.

While not the focus of this study, it is important to note that language intervention for the bilingual child is an area of ongoing research and debate. Thordartotir (2010) highlighted that while there are very few studies from which to draw conclusions for evidence-based practise, many support interventions that focus on both languages as opposed to only one language. This supports the need for assessments to be linguistically and culturally appropriate to accurately inform and guide the intervention stage.

2.7. Assessing vocabulary: The value of composite scoring

Lexical development is relatively easy to measure and compare across languages (Hemsley et al., 2010). As there are many documented difficulties with word learning in children with PLI, vocabulary tests are widely used by speech-language therapists to screen for further assessment, identify PLI within a test battery and document vocabulary growth (Hemsley et al., 2010; Rowe, Raudenbush & Goldin-Meadow, 2012). Typically, vocabulary is formally assessed receptively ('show me…') and expressively ('what's this'?) with results being compared to the standardised scores and norms generated along with the formal assessment. However, as discussed above, using formal vocabulary tests in this manner is not appropriate for bilingual learners. Accurately assessing the vocabulary of a bilingual child for the purpose of identifying a possible PLI is challenging as bilingual children possess distributed and uneven knowledge across the two languages (Kohnert, 2010).

Composite scoring has been introduced as a way of testing lexical development across two languages, thus providing a more accurate picture of a bilingual child's overall vocabulary and lexical development. In composite scoring, the vocabulary assessment is administered in both the L1 and the L2, with points being awarded for knowledge of an item in either language. This technique was first developed and reported by Pearson and colleagues (1993)

and has proved to be an accurate measure of the bilingual lexicon as composite scores are comparable to monolingual scores. By taking both languages into account, composite scores give a clearer picture about a child's potential to understand and use language and so a child with a central language disorder may have a reduced composite vocabulary score when compared to peers (Hemsley et al., 2010).

In the study by Pearson and colleagues (1993), they aimed to meaningfully compare the lexical development of Spanish bilingual infants and toddlers to English monolingual norms. Parent reports on spontaneous vocabulary production were taken over time, creating 4 different measures i.e. English vocabulary, Spanish vocabulary, total vocabulary and conceptual vocabulary. Results indicated that when compared to the monolingual group, the bilingual group did worse in both English and in Spanish. However, when conceptual vocabulary scores were calculated for the bilingual group, there was no significant difference in the mean score compared to the monolingual group. This suggested that there was no basis to the popular belief that bilingual children are slower to develop vocabulary than their monolingual peers (Allman, 2005). Similar results have been found in replicated studies since. These include vocabulary studies using composite scoring by Allman (2005) comparing Spanish and English, Kan & Kohnert (2005) comparing Hmong and English and by Hemsley, Holm and Dodd (2010) comparing Samoan and English. In these studies, composite scores were always greater than individual language scores.

Vocabulary deficits are observed in both languages when a child has a language impairment (Bedore & Pena, 2008) suggesting that should a bilingual child's conceptual score be lower than the peer norm, a possible PLI is suspected and may warrant further assessment.

As demonstrated in this literature review, there is a need for ongoing research and practical solutions to identifying language impairment in the bilingual learner. Specifically, there is a need for research and solutions for the EAL learner in South Africa so that possible negative effects of language impairment can be minimized with appropriate support. As a result, the main aim of this study was to investigate the use of one word vocabulary testing as a valid assessment tool for the identification of language impairment in isiZulu L1 speakers with English as an additional language.

CHAPTER 3

METHODOLOGY

This chapter discusses the methods used in this study. This includes the aims of the study, design, data collection methods and data analysis procedures.

3.1. Research Aims

Primary Aim: This study aimed to investigate the use of one word vocabulary testing as a valid assessment tool for the identification of language impairment in isiZulu L1 speakers with English as an additional language.

In line with this main aim, the following sub-aims were included:

- To compare the raw scores of English first language speakers and isiZulu/EAL speakers to note if there is a significant difference in raw scores for receptive and expressive vocabulary tests.
- To compare receptive vocabulary scores of English first language speakers and the composite scores of isiZulu first language/EAL speakers.
- To compare expressive vocabulary scores of English first language speakers and the composite scores of isiZulu first language/EAL speakers.
- To further assess, describe and compare the language profile of those children who have been identified as language impaired using the DELV-CR and previous research.

3.2. Research Design

The aims of this study supported a research design that is quantitative, descriptive, cross-sectional and comparative. Quantitative research refers to the attempt to explain and/or comment on phenomena by collecting numerical data and analyzing this data using statistics (Aliaga & Gunderson, 2005). The collection and analysis of data in this manner allows for unbiased results to be obtained that can be generalised to broader populations and contexts (Schiavetti & Metz, 2006). As the primary and secondary aims of this research lend themselves to the collection and analysis of numerical data to report on significant differences and correlation, a quantitative research model was deemed appropriate.

A descriptive research design is when data is collected without any deliberate experimentation or manipulation of variables (Schiavetti & Metz, 2006), as was proposed for this study. A descriptive design allows for associations and relationships between results to be described (Hegde, 2004). A cross-sectional study is used where data will be collected at a single point in time, as opposed to a longitudinal study measuring change over time (Hegde, 2004). This study proposes to assess a large group of learners at a single point in time to measure vocabulary skills.

3.3. Participants

3.3.1. Criteria for Selection

The participants for this study were selected based on the following criteria:

- Participants were required to be generally healthy with no obvious organic impairment that may impact upon language development outside of the aim of this research i.e. cognitive, physical, hearing or visual impairments. Participants with possible unidentified language impairments were not excluded as one of the aims of the study was to identify and describe EAL learners with possible language impairment.
- Grade 2 8-year-old learners at an English medium school in Johannesburg, Gauteng were eligible. Learners of that age were chosen to ensure that they had had sufficient exposure to English in a school environment and to ensure a sufficient sample size. Children relatively early in their schooling career were chosen as this is a critical time to assess and identify the possible need for additional educational support (Genesee et al., 2004). An English-medium school in the suburbs was ideal to ensure that there would be a sufficient number of eligible participants that were first language English as well as first language isiZulu speakers. Using one site for this study was chosen to minimize the effect of contextual variables.
- IsiZulu speaking children were required to have isiZulu as a first language with English as a second language. IsiZulu was chosen as the desired first language as it is most commonly spoken both in South Africa and in Gauteng (Statistics South Africa, 2012) where the present study was conducted. A single additional language was selected to maintain homogeneity of the sample as far as possible and control for additional variables. Confirmation of isiZulu as a first language and English as a

second language was done via consent forms sent home to guardians and school records.

- Children from either gender were eligible to participate in the study. No preference was made for gender selection and distribution of gender as comparisons between the two genders was not an aim of this study. Previous research into EAL school-aged learner's language performance has suggested that there is not a significant difference in language abilities between the two genders at this age (e.g. Jordaan, 2011a; Kallenbach, 2007).

3.3.2. Sampling procedure

A non-probability, purposive sampling strategy was used. Participants in this study were purposefully selected from an English-medium school in Johannesburg, Gauteng.

The proposed study was presented to the Gauteng Department of Education for approval to carry out the study, which was granted (Appendix D). Following this, the principal at the identified school was approached to request the school's participation in the study (Appendix A), following which consent was given. Following this, teachers were given information regarding the study and to assist with the identification of suitable participants. An information sheet and consent form (Appendix B) was sent home with selected learners who matched the participant criteria. Learners only participated in the study if a parent/guardian had returned the consent form stating that they would allow their child to be a participant. There was an initial poor response rate from Grade 2 learners and so research parameters extended to then include Grade 3 learners who were still 8 years old and the same procedure regarding teacher and parent letters was followed. The researcher explained the study in a child-friendly manner to the learners who had returned completed consent forms and if the learners gave assent (Appendix C), they were then included in the study.

Of the 72 response forms received from the identified desired participants, eight participants were excluded for reporting different home languages to the school records of English or isiZulu. Four participants were excluded as they would be older than the required age range at the time of data collection.

3.3.3. Description of participants

Learners who are first language English speakers *(n=30)* and learners who are first language isiZulu with EAL (n=30) were selected. Participants who did not have a first language of either English or isiZulu were excluded from the study. Participants who speak English as a first language were also selected as a monolingual comparison group for the bilingual isiZulu EAL learners. Table 1 below shows a summary of the composition of the sample.

Table 1: Summary of composition of participants

	Number of learners	**Mean Age of Learners**	**Number of male learners**	**Number of female learners**
L1 English Learners	30	8.39 months	15	15
L1 isiZulu Learners	30	8.49 months	14	16
Total	60	8.44 months	29	31

There was an even distribution of male and female children in this study (31 females and 29 males). While only Grade 2 learners were previously proposed, this was extended to include Grade 3 learners who were still 8 years old to increase the available sample size. As mentioned above, selected learners in Grade 2 and Grade 3 from an English-medium school in Johannesburg, South Africa participated in this study.

3.3.4. Description of study site

The study was conducted at a single former model-C, English-medium school in the northern suburbs of Johannesburg, Gauteng. The research site, in this case a school, was carefully selected to ensure that there were sufficient numbers of monolingual English speakers as well as bilingual EAL learners who have isiZulu as their L1. Learners attending the school are from the surrounding suburbs where their parent's either live or work. The socio-economic status of its learners is varied and is classified as a quintile 5 school. This means that while the school receives some funding from the government, the school also charges school fees as determined by a governing body. The majority of teachers at the school are first language English speakers. There is a variety of first languages reported for the learners of the school. These include, but are not limited to, English, Afrikaans, Sesotho, Sepedi, SiSwati, Xitsonga, Setswana, isiXhosa, French and Portuguese. This suggests that in any given classroom, there is great linguistic diversity and that teachers may be limited in their ability to code-switch to

support learning in an additional language. English is the most common reported home language at the school.

There was a trend noted where many parents had officially stated 'English' as a home language on the school records but have another language such as isiZulu or Sesotho as a home language. This may possibly be due to a misconception that parents have that if they do not state English at the home language, the child may not be accepted into the school as reported by a Johannesburg teacher in Kallenbach's study (2007).

3.4. Research instrumentation

The following tests were used in this study:

- Expressive One-Word Picture Vocabulary Test 4 (EOWPVT-4) (Martin & Brownell, 2011a).
- Receptive One-Word Picture Vocabulary Test 4 (ROWPVT-4) (Martin & Brownell, 2011b).
- Adapted isiZulu expressive one word vocabulary test based on the EOWPVT-4.
- Adapted isiZulu receptive one word vocabulary test based on the ROWPVT-4.
- Diagnostic Evaluation of Language Variation- Criterion Referenced Edition (DELV-CR) (Seymour, Roeper & De Villiers, 2003).

The EOWPVT and ROWPVT were chosen based on their use in previous research into vocabulary in bilingual individuals and was shown to be sensitive to identifying subtle vocabulary differences in both monolingual and bilingual children (Allman, 2005; Pearson et al., 1993). The DELV-CR was selected as the test to use to further holistically describe the language of children possibly identified as having language impairments. The DELV-CR was selected as it was designed to minimize cultural and linguistic bias (Seymour et al., 2003). The DELV-CR has been used in a number of studies in South Africa and has been shown to be a reliable test to use for assessment in this context (see Jordaan, 2011; Kallenbach, 2007; Meirim et al., 2010). Further details on each test chosen are described below.

3.4.1. Vocabulary Measures: EOWPVT-4 and ROWPVT-4

The ROWPVT and EOWPVT have been used extensively in research and are considered to be reliable and consistent measures of vocabulary (Allman, 2005). These vocabulary tests were also chosen above others as they have been both formally and informally translated into a number of languages as part of research, suggesting suitability for adaptation into other languages with due caution. For example, Allman (2005) used the English and Spanish standardized versions of the EOWPVT to compare English and Spanish monolinguals and bilinguals. Dionysios and colleagues (2009) adapted both tests into Greek for the school-aged Greek population and found the tests to be sufficiently sensitive. Chiang and Rvachew (2007) used the English EOWPVT and an adapted French version to assess vocabulary of bilingual children in Canada. The ROWPVT and EOWPVT have not yet been used extensively in research in South Africa and so the validity of their use in South Africa is commented on in the results section.

The ROWPVT-4 is a formal language assessment tool used to assess an individual's ability to identify objects, actions and concepts based on a word when given a choice of four illustrations (Martin & Brownell, 2011b) *e.g. "show me aquatic"*. This targets the understanding of words without context. The answers are then marked as correct or incorrect and tallied to provide a raw score. There is space available on the response forms to write which item the child pointed to for later detailed item analysis. Cueing, prompting and picture clarifications are not allowed (Martin & Brownell, 2011b). Some adjustments were made to test items to make them more culturally appropriate to the South African context e.g. replacing 'baseball' with 'tennis'. Linguistically equivalent words were used to ensure that the integrity of the test was not compromised. Table 2 below demonstrates which English words were adjusted to better suit the South African context.

Table 2: English ROWPVT items adapted for the South African population

Item number	ROWPVT prompt "Show me…"	Adjusted prompt "Show me…"	nature of change	reason
21	Bear	frog	Response	Bears are not native to South Africa and so may be a source of bias. Frogs are common in South Africa.
26	cookie	biscuit	prompt	"Cookie" is not commonly used in South Africa. "biscuit" is more accurate for the picture correlation
45	basketball	tennis	response	Basketball is not a sport that is prevalent in South Africa. Tennis is played at most schools in South Africa.
100	burners	plates	prompt	Burners are more commonly referred to as plates in South Africa.

The EOWPVT-4 is a formal language assessment tool used to assess an individual's ability to use one word to name objects, actions and concepts when presented with illustrations (Martin & Brownell, 2011a) *e.g. "what is this?" or "what is he doing?"*. Only prompts specified in the scoring manual were used for each item to elicit a response from a participant e.g. "what's this?" for a singular object and "what's one word for all of these" for a group of objects such as fruit. Additional cueing was used if the participant was not attending to the correct part of an illustration e.g. labelling 'sky' for the illustration of 'cloud' due to inattention to the arrow pointing to the cloud. Additional cueing was not used if an item was labelled incorrectly e.g. labelling a cloud as 'rain'. Additional cueing was also given if the participant responded with a sentence or a phrase, where a single word was required. Misarticulations were not marked as incorrect but were noted. Where applicable, a variety of responses were acceptable and listed on the response form e.g. rug/carpet/mat. There is space available on the response form to write the participant's response and mark as correct or incorrect. Responses are then tallied to provide a raw score. One adjustment was made to the list of acceptable responses (Accepting *'mielie'* for 'corn') to make it more culturally appropriate to the South African context.

In both tests, repetition of the target word is allowed and neutral feedback is given after each response. The participants were not told the correct answer if they got an item wrong to protect future testing performance, specifically for the isiZulu participants. Both the ROWPVT and the EOWPVT are individually-administered tests and were developed to be used on ages 2-80+ years (Martin & Brownell, 2011a, b). Thus these tests are suitable to assess the expressive and receptive vocabulary of 8 year olds for the purpose of this study. If using both tests formally, there are basal and ceilings that are guided by age and number of correct/incorrect responses. For the purpose of this study, basal and ceilings were not used as the raw data collected in this study would not be compared to the normative data that accompanies the tests. Participants were administered all items up to item number 110 when assessed in English. This self-imposed ceiling was chosen using the average raw scores achieved by 8 year olds according the ROWPVT and EOWPVT formal data.

3.4.2. Adapted isiZulu vocabulary tests

In order to assess the L1 isiZulu population, the existing English ROWPVT and EOWPVT were adapted into isiZulu. The method of testing one language at a time and using two separate tests i.e. an English test and an isiZulu test was supported by a recent study by Anaya (2013) who found that for both TD and language impaired children, testing one at a time resulted in higher scores and a more accurate conceptual vocabulary score. This was in contrast to using one test and prompting for responses in either or both languages at the same time. Anaya (2013) found that scores are then negatively affected by the demands of code switching between the two languages.

Adaptation and administration was done with the aid of isiZulu-English bilinguals within the speech pathology and education fields. The English words were given to one researcher to independently translate into isiZulu. Another researcher was then asked to back-translate the isiZulu words into English to test for validity. This process was repeated twice and acceptable words and variations were deliberated by all parties. While translating and back-translating may provide well-translated materials, cultural and linguistic equivalence must also be considered (Pena, 2007). Care was taken to ensure that the words were linguistically equivalent e.g. “slumber” was not adapted in “sleep” in the isiZulu version. The isiZulu versions were not piloted prior to use in this study. Appendix G contains the adapted isiZulu versions of the EOWPVT and ROWPVT used.

Some of the English words in the ROWPVT and EOWPVT did not have true or direct isiZulu translations and so were not included in the isiZulu portion of the assessment. It was felt by the researcher that replacing the words (e.g. satellite) with a word that could be translated into isiZulu was not viable due to the possible difficulty with finding linguistically equivalent words that matched the original design of the test. It was felt that replacing the more complex words might affect the validity of the original design of the EOWPVT and ROWPVT.

The adapted isiZulu tests were administered by two trained first language isiZulu speakers who were familiar with school-aged children and vocabulary assessments. Both assistants are first language isiZulu speaking with high English proficiency. One assistant is an isiZulu teacher in an English medium school. The second assistant is a speech-language therapy student at the University of the Witwatersrand. Both assistants were trained through detailed explanation of the aims, procedures and parameters of the study by the researcher. The assistants then were required to observe the researcher administer the English tests as well as perform a mock isiZulu assessment before beginning the data collection. The testing was supervised by the researcher.

Scoring and prompting was the same as with the English EOWPVT and ROWPVT. The only noted prompting differences was for the expressive portion where children required inconsistent prompting to give an item the true isiZulu name, rather than the '*imifakela'* or slang where a word is adapted from another language e.g. "*itrain*" for "train" where "i*sitimela*" is the correct vocabulary to use. This is discussed further within the results. Scoring was done by the isiZulu-speaking research assistants in collaboration with the researcher to ensure consistency.

3.4.3. Language scale: DELV-CR

The Diagnostic Evaluation of Language Variance- Criterion Referenced (DELV-CR) is a formal language assessment tool that assesses the processes underlying language development by assessing phonology, syntax, semantics and pragmatics (Seymour et al., 2003). The DELV-CR was developed to use on children between 4.0 years and 9.11 years (Seymour et al., 2003) and is therefore suitable to use on 8 year old learners in this study. The DELV-CR was developed to focus on underlying language processes that are important especially in the development of academic language and so is suitable to assess language and consequences for academic language development (Seymour et al., 2003). As learners move

through the grades and language becomes more cognitively demanding, a subsequent improvement in the learner's vocabulary and concept load, syntactic features and discourse skills are needed (Cummins, 2000). The DELV-CR has been found to be sensitive to assessing these areas of concern through the different subtests used (Kallenbach, 2007). Further description of the sub-tests administered can be found below:

3.4.3.1. Syntax sub-test

The syntax sub-test from the DELV-CR aims to assess if a learner's linguistic knowledge of the underlying system of rules governing language is age-appropriate. Specifically, the understanding of grammatical relationships in passive sentences, questions and articles is assessed (Seymour et al., 2003).

Wh- Questions: In the '*Wh-questions'* section, a learner's ability to understand three main aspects of wh-questions is assessed: the ability to answer questions with *wh*- question forms (e.g. *who* drank *what*?), the ability to understand questions that have an embedded clause (e.g. what did Tommy say he drank?) and the ability to understand a question that contains multiple clauses (e.g. when did Mary say how the vase broke?) (Seymour et al., 2003).

Passive items: In this sub-test, understanding of the construction of passive sentences is assessed (e.g. the ball was rolled by the boy). Understanding of passive sentences is highly dependent on grammatical knowledge (Seymour et al., 2003). Thus this subtest provides insight into grammar development and awareness of sentence structure.

Articles: this subtest assesses a learner's ability to understand the rules of grammar as they relate to correct article use such as 'the' and 'a' (Seymour et al., 2003). The child is told a story and is then required to answer a question that elicits the use of an article.

3.4.3.2. Semantics sub-test

This sub-test/domain assesses a learner's semantic development in terms of their word organisation and retrieval, quantification and fast-mapping skills (Seymour, et al, 1993).

Verb and preposition contrasts: This sub-tests aims to assess a learner's understanding of verbs with similar meanings and the understanding of different types of prepositions (Seymour et al., 2003). This provides valuable information about a child's ability to organise

and retrieve words from their lexicon, an essential skill for school-aged children (Kallenbach, 2007).

Quantifiers: This sub-test evaluates a learner's understanding of the word 'every' and the way in which the word can alter the meaning of a sentence (Seymour et al., 2003). This information is valuable as quantifiers play an important role in reasoning skills and problem solving (Kallenbach, 2007).

Fast-mapping: Fast-mapping is a skill that appears to be especially pertinent to vocabulary-learning as it refers to the ability to infer a connection between a word and its referent (Seymour et al., 2003). In this sub-test, a learner is required to infer the meaning of a new word using syntactic cues and morphological markers (Seymour et al., 2003).

3.4.3.3. Pragmatics sub-test

This sub-test assesses a learner's ability to use language appropriately in social contexts, a skill that includes the ability to interpret implicit meaning and make appropriate social inferences (Seymour, et al, 1993). The pragmatic skills assessed in this section are critical for all children's success in the beginning stages of their formal education, specifically for the attainment of proficient reading skills (Kallenbach, 2007).

Communicative role-taking: this section assesses the ability to identify which speech acts should be used in a particular social situation, giving important information on knowledge of communicative intent. This subtest requires a child to take another person's point of view to speak about a communication act or incident that has occurred in two pictures (Seymour et al., 2003).

Short Narratives: As the development of narratives is important in school-aged years for the development of appropriate academic language, this subtest assesses a learner's ability to comprehend narratives (Seymour et al., 2003).

Question asking: This subtest assesses a learner's ability to formulate specific questions in order to gain specific information or details using appropriate question forms. The child is presented with a picture that is missing a component and they are required to ask the correct question to reveal the missing component e.g. a picture is shown accompanied by 'the nurse

is feeding somebody'. The child is then prompted to ask a 'who' question to determine who the 'somebody' is (Seymour et al., 2003).

The DELV-CR was selected as it was designed to address cultural and linguistic bias by providing a valid measure of language processes in all dialects of English by using linguistically and culturally appropriate items (Seymour et al., 2003). As a result of this effort to reduce cultural and linguistic bias, the DELV-CR is suggested to be suitable for use in South Africa. The DELV-CR has been used in studies in South Africa and has been shown to be a sensitive measure of language processing in South African children (e.g. Jordaan, 2011a; Kallenbach, 2007; Marshall, 2013; Meirim et al., 2010,). These studies suggested that the DELV-CR provides detailed information about language processing skills in EFL and EAL learners. These studies also provided mean scores to which scores in this study can be compared, adding to the discussion of validity of use of the DELV-CR in the South African context. Jordaan (2011a) found that TD EFL learners obtained similar results to the formal DELV-CR age-equivalent scores.

In the current study, learners who were identified as being at-risk for language impairment based on their composite vocabulary scores were assessed with the DELV-CR to avoid misdiagnosis and provide additional information about the learner's language profile. The learners were assessed on the syntax, semantics and pragmatics subtests. They were not assessed on the phonology subtest as speech production accuracy and errors (i.e. articulation and phonology errors) were not the focus of this study. Each child was assessed individually by the researcher on a different day to the vocabulary assessments with the assessment lasting around 35 minutes per learner. Instructions and stimuli provided with the DELV-CR were used as is. Scoring was as per the DELV-R manual where if the learner provided the correct answer, a score of 1 or 2 was allocated for that item (sub-test dependant). If the answer they provided was incorrect, a score of 0 was given for that item. Scores for the semantics, syntax and pragmatics subtests were tallied and totalled for analysis. Scores were then analysed and performance commented on in relation to the typical language profile of a learner with PLI as well as results from previous studies.

3.5. Procedure

This study had three phases for data collection as reflected briefly in Figure 1 below:

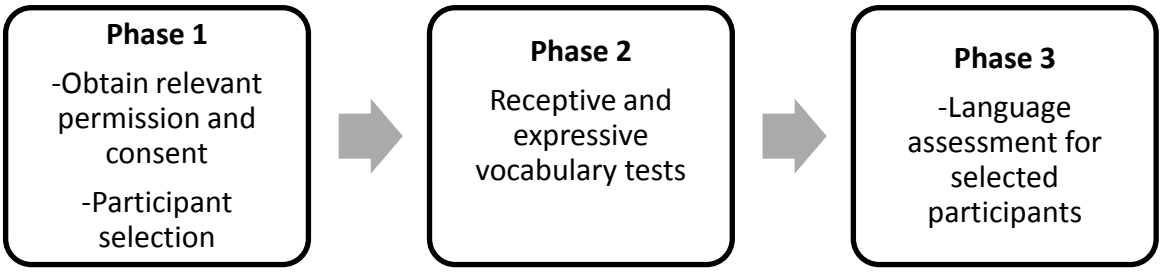


Figure 1: Research design

Phase 1:

- Application for permission from the Gauteng Department of Education
- Ethical clearance from the HREC (non-medical) at the University of the Witwatersrand
- Consent from school principal
- Consent from parents/caregivers
- Assent from learners
- Participant selection

Phase 2:

- For English Monolinguals: EOWPVT-4 and ROWPVT-4.
- For L1 isiZulu speakers: EOWPVT-4 and ROWPVT-4 (English version) and adapted isiZulu expressive one word vocabulary test and receptive one word vocabulary test.

Phase 3:

- DELV-CR for learners who had been identified as being at risk for language impairment
- Appropriate referral if necessary.

Once consent and assent were obtained, each participant was tested at the school with minimal disruption to the participant's academic schedule. The measures were performed by the researcher as well as isiZulu/English bilingual assistants who were trained on the appropriate collection methods. The expressive and receptive portions of the assessments

took 30 minutes to complete. EFL learners were only assessed in English. The isiZulu EAL learners completed the English assessments on one day and the isiZulu assessments on another day. Raw scores were then calculated and captured to allow for peer comparison. Collating the raw scores obtained, a standard mean was established. It is important to note that this is a standard mean based on peer scores and not on the standard norms as published with the EOWPVT-4 and ROWPVT-4. Participants in the study who scored one or more standard deviations (SD) below the peer mean were assessed with the DELV-CR to provide further information regarding their language. Here, the DELV-CR was used to describe, in detail, the child's semantics, syntax and pragmatic skills. The DELV-CR was used to provide further insight into the possible diagnosis of PLI and to minimize the chances of over-identification.

3.6. Ethical considerations

Ethics is integral to every study and when research involves contact with human participants, ethics approval is essential to safeguard the wellbeing of the participants (O'Leary, 2004). This is especially important when working with a vulnerable population such as children, as this study does.

At the proposal stage, this study was submitted to the Human Research Ethics Committee (non-medical) at the University of the Witwatersrand for approval which was granted (Appendix E). The Gauteng Department of Basic Education (GDE) was approached for permission to collect raw data from a selected school in Gauteng (Appendix D). Following this, approval to conduct the study was obtained from the selected school to allow for learners to participate.

Informed consent was obtained from parents/guardians. The information and consent letter (Appendix B) were sent home to inform parents/guardians about the nature of the study and the participation requirements. Emphasis was placed on the voluntary nature of the study and that all information and data gathered will be kept confidential. If parents/guardians gave consent for a child to participate in the study, they were required to return a signed consent form. Suitable learners who returned signed consent forms were selected for the study. Informed assent (Appendix C) was obtained from the learners whose parents/guardians had

given consent. Participation in this study was entirely voluntary and there were no negative consequences to declining to participate or withdrawing from the study.

The information gathered and shared in the course of this study is considered privileged. Anonymity was ensured as the name and identifying particulars of the school and participants in the study will not be revealed at any stage of data collection, analysis or presentation of results. Raw data collected will only be handled by authorized personnel. Test papers used in the process of obtaining raw data will be locked away in the research supervisor's office following data collection. Once this study has been completed, the results will be made available to the school and GDE, at a pre-arranged meeting.

Learners that were identified as having additional language needs as a result of this study were discussed with the relevant teachers and parents/caregivers to discuss an appropriate referral. The site where the study was conducted has access to free speech-language therapy services provided by the University of the Witwatersrand Speech-Language Therapy students, as well as a private speech-language therapist based at a remedial school adjacent to the study site. The details of two other private speech-language therapists in the area were also given.

3.7. Reliability and validity

Reliability and validity are two essential constructs in good research (Schiavetti & Metz, 2006). Reliability is the measure of consistency where the same results would be obtained by different researchers or circumstances (Schiavetti & Metz, 2006). Validity refers to the accuracy of a test measuring what it intends to measure (Schiavetti & Metz, 2006). External validity in this study was addressed by having an adequate sample size of 30 monolingual and 30 bilingual learners. A sample size of this amount was selected for its statistical power. A different sample of the population (n=10) was scored by an examiner administering the test and the researcher observing to assess inter-rater reliability. There was 100% match in scoring in these instances. All the isiZulu scoring results were reviewed by a second L1 isiZulu speaker and there was 100% agreement between scores on all 60 isiZulu assessments. Raw data collection entries were checked independently to ensure accurate data collection. A small sample size (n= 10) were scored twice with 100% agreement between the two tests,

resulting in a Pearson correlation co-efficient of 1, suggesting test reliability. Table 3 below reflects results of the reliability checks.

Table 3: Reassessments on vocabulary tests

Participant	Receptive English		Expressive English		Receptive isiZulu		Expressive isiZulu	
	test 1	test 2	test 1	test 2	test 1	test 2	test 1	test 2
E7	101	101	98	98	-	-	-	-
E8	98	98	94	94	-	-	-	-
E21	101	101	95	95	-	-	-	-
E22	98	98	97	97	-	-	-	-
E25	99	99	101	101	-	-	-	-
Z8	82	82	76	76	64	64	28	28
Z11	85	85	95	95	64	64	13	13
Z16	-	-	-	-	78	78	39	39
Z19	-	-	-	-	80	80	66	66
Z21	-	-	-	-	73	73	46	46

3.8. Data Analysis

Within- and between -group comparisons were used to evaluate the data collected. Statistical analysis of each measure was done by a qualified statistician. Raw data was also analysed to provide descriptive statistics such as the mean, and standard deviation. The following comparisons were done using independent sample t-tests:

- Comparison between monolingual and bilingual receptive English scores
- Comparison between monolingual English and bilingual English-IsiZulu receptive composite scores
- Comparison between monolingual and bilingual expressive English scores
- Comparison between monolingual English and bilingual English-IsiZulu expressive composite scores

Within group comparisons were made using the paired sample t-tests to compare the receptive and expressive isiZulu and English scores in the bilingual group and the English receptive and expressive scores in the English group. Some of the items tested in English in the EOWPVT and ROWPVT could not be carried over into the isiZulu adaptation of the tests. As a result, in order to accurately compare measures, raw scores were converted into percentages when comparing the isiZulu results with English results. The Pearson correlation coefficient was used to determine correlations between measures. There are internal validity implications to assessing the correlations between the different vocabulary assessments and groups. EAL learners who fell 1+ SD below peer group mean on the composite score were further assessed on the DELV-CR. All of the statistical correlations between and within groups were deemed significant if the probability of rejecting the null hypothesis was <5%. The null hypothesis was then rejected if the difference or correlation was not significant ($p<0.05$).

CHAPTER 4

RESULTS AND DISCUSSION

The main aim of this study was to determine if using composite scoring of conceptual vocabulary in one-word vocabulary tests could be used to identify possible language impairment in EAL learners. This chapter reports on the data analysis done to address this main aim and the sub-aims of the research.

The results of this study are presented in the following sequence:

- Within-language comparisons: Receptive and expressive scores in each language
- Between group comparison: Comparing the EFL and EAL English scores
- Across language comparison: Comparing the EAL composite score to EFL score
- Description of learners with language impairment

4.1. Within-group comparisons

4.1.1. Comparison between receptive and expressive vocabulary scores

After each participant had been tested and scored on the test, raw scores were reviewed and then entered onto an excel spread sheet. The mean and standard deviation (SD) were calculated for each language in each group as reflected in table 4 below. Mean raw scores have been converted to percentages for ease of comparison.

Table 4: Mean and standard deviation for receptive and expressive measures

	number of observations (n)	mean (percentage)	standard deviation	minimum score	Maximum score
Monolingual English Receptive *(possible total =110)*	30	100 (90.9%)	4.05	90	108
Monolingual English Expressive *(possible total =110)*	30	98.1(89.2%)	4.58	90	107
Bilingual English Receptive *(possible total =110)*	30	91.6 (83.3%)	5.33	82	102
Bilingual English Expressive *(possible total =110)*	30	86.1(78.3%)	8.95	58	97
Bilingual isiZulu Receptive *(possible total =88)*	30	71.5 (81.3%)	6.69	59	80
Bilingual isiZulu Expressive *(possible total =102)*	30	41(39.2%)	14.23	10	66

T-tests were run to determine the significance of the differences between expressive and receptive scores and the results are reflected in table 5 below.

Table 5: Results of t-tests comparing the receptive and expressive vocabulary measures obtained by each group.

Comparison	t-statistic	p-value	degree of freedom	significance
Monolingual receptive and expressive English scores	2.33	5.4185%	29	Not significant
Bilingual receptive and expressive English scores	3.812	0.001%	29	Significant
Bilingual receptive and expressive isiZulu scores	14.280	0.000%	29	Significant

Figure 2 below illustrates the mean percentage receptive and expressive scores for each single language. Here “L1 English” refers to the English monolingual group, “L2 English” refers to the English scores for the bilingual EAL learners and “L1 isiZulu” refers to the isiZulu scores of the bilingual EAL learners.

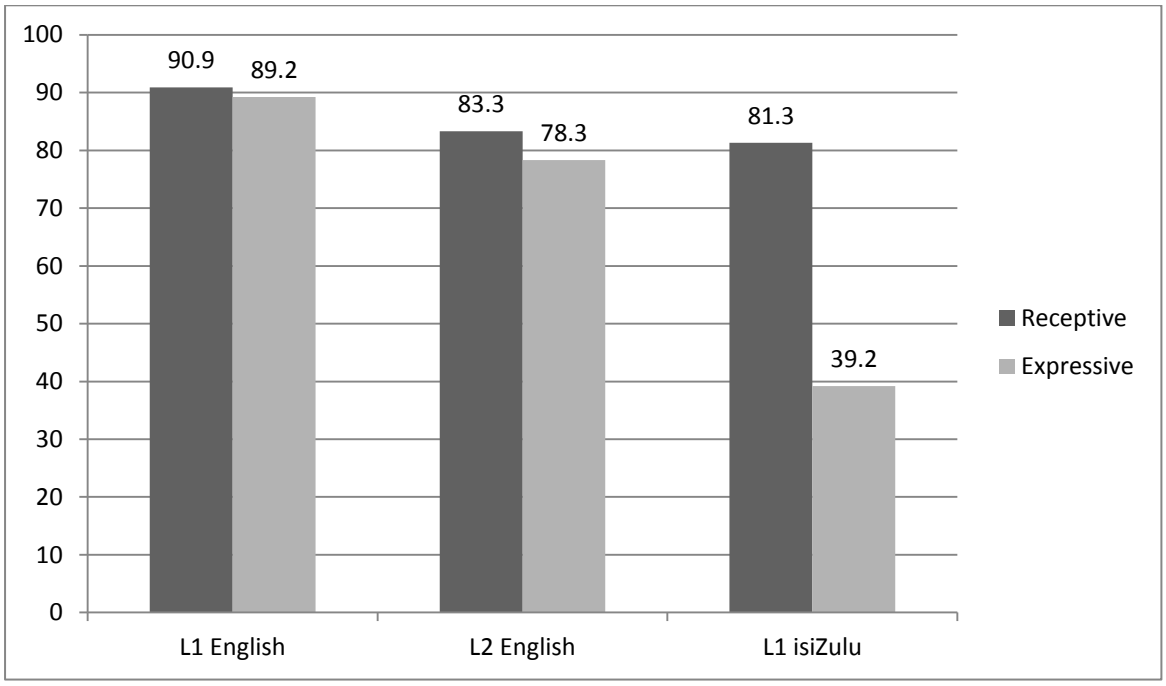


Figure 2: Mean percentage scores for receptive and expressive measures

The English monolingual group was assessed only in English. This group scored higher generally on the receptive vocabulary measure (*m= 100; SD =4.05)* than on the expressive vocabulary measure (*m= 98.1; SD = 4.58).* The trend where receptive language scores are better than the expressive language scores is not uncommon, especially in typically developing children (Gray et al., 1999). The English monolingual group knew many of the test items as reflected by the high mean scores and small standard deviation. A paired sample t-test revealed that the difference between the receptive and expressive monolingual English scores was not significant *(t=2.33; p=5.4185; df= 29).* Receptive and expressive scores within the English monolingual group were also not significantly correlated (r=0.33; p= 7.3410) as reflected in table 6 below.

Table 6: Correlations between receptive and expressive vocabulary measure results

Correlation	p-value	r- value	Significance level	
Monolingual receptive and expressive English scores	7.341	0.33	5%	Not significantly correlated
Bilingual receptive and expressive English scores	0.5021	0.50	5%	Significantly correlated
Bilingual receptive and expressive isiZulu scores	0.082	0.58	5%	Significantly correlated

While the monolingual participants appeared to have better scores on the receptive vocabulary assessment than on the expressive vocabulary assessment, the difference was not statistically significant. Thus, the monolingual English participants demonstrated relatively equal receptive and expressive vocabulary skills. The receptive and expressive scores were also not correlated (r=0.33; p= 7.3410) and so not related to each other. This means that the receptive and expressive scores did not increase or decrease in the same way in this group. This implies that for the English monolingual group, expressive scores cannot be predicted from receptive scores or vice versa, suggesting that both tests are important to assess vocabulary.

Within the bilingual group, there was a wider range of scores on both the receptive and expressive English measures when compared to the monolingual English group. Again, the pattern of receptive vocabulary scores (*mean=91.6; SD=5.33)* being better than expressive vocabulary scores (*mean=86.1; SD= 8.95)* was noted. A paired sample t-test revealed that there was a significant difference between the receptive and expressive English scores in the bilingual group (*t= 3.812; p= 0.001%; df=29)*, emphasizing that there was a large difference in the participant's understanding and relative use of vocabulary in this group. In contrast to the monolingual group, receptive and expressive scores for this bilingual group on the English measure were significantly correlated (r= 0.50; p= 0.5021). This suggests that for this group, there was a relationship between receptive vocabulary knowledge and expressive vocabulary use where a better receptive vocabulary score directly supported a better expressive vocabulary score. This implies that to an extent, receptive vocabulary scores can

be used to conservatively predict expressive language skills which may have implications for the practical use of this method in bilingual language assessments.

The fact that the receptive-expressive vocabulary correlations were not significant in the monolingual group but were significant in the bilingual group was interesting. It is not clear if this difference is due to the stage of vocabulary development the bilingual child is at compared to the monolingual child, or if this is due to a fundamental difference in the way bilingual learners learn vocabulary. Further investigation and research into this is needed to confirm or refute either suggestion.

In the bilingual group, the isiZulu receptive vocabulary (*mean=71.5; SD=5.6.69)* appeared to be stronger than expressive vocabulary (*mean =41; SD=14.23).* There was a wider range of responses as reflected in the large standard deviation. A paired sample t-test confirmed a significant difference between the receptive and expressive isiZulu scores(*t= 14.280; p=0.000%; df= 29),* This is in contrast to the monolingual group, where skills were relatively equal, and mirrors the English results for the bilingual group. The receptive and expressive score for the isiZulu tests were also significantly correlated (r= 0.58; p= 0.082). This suggests that there was a direct positive relationship between the receptive and expressive vocabulary scores where better receptive vocabulary scores resulted in better expressive vocabulary scores and vice versa. As with the bilingual English results, this suggests that expressive vocabulary scores may be conservatively predicted based on receptive vocabulary scores. This has significant implications for practical use of the bilingual vocabulary testing and composite scoring, as discussed further in section 4.5 below. It was also noted within these assessments that there is a low mean score on the expressive measures (39.2%) when compared to the receptive isiZulu measure (81.3%). This may be due to the exposure that learners have had to isiZulu. This scoring also reflects the learner's poor use the correct isiZulu vocabulary when labelling an item, more often than not choosing to adapt an English word into isiZulu which is not always correct or acceptable

4.1.2. Comparison between isiZulu and English scores in bilingual group

Within the EAL group results on the L1 isiZulu measures and the L2 English measures were compared. To accurately compare the two measures, raw scores on both tests were converted to a percentage as the English measure had more items. There was a significant difference between the receptive English and isiZulu measures (*t=6.3910; p=0.0001%; df=29),* as well

as a significant difference between the expressive English and isiZulu measures (*t=19.455; p=0.0%; df=29).* In both cases, the English vocabulary scores were higher. This result was surprising as English was not the home language of the learners. Possible reasons for the relatively better scores in English are discussed below.

Many of the participants who reported their first language as being isiZulu scored relatively poorly on the isiZulu vocabulary assessments, especially when compared to their performance on the English assessments. A shift in language dominance may be a reason why the EAL participants scored significantly better on the English (L2) measures than on the isiZulu (L1) subtests.

Until an L2 is introduced, L1 acquisition is expected to parallel that of monolingual children. However, once an L2 is introduced, there may be a slowed growth, plateauing or even regression in L1 proficiency (Kan & Kohnert, 2005; Kohnert et al., 2009). This has been demonstrated in a number of studies on bilingual children across numerous languages such as Leseman (2000) who investigated Turkish preschoolers in a Dutch preschool. Language dominance can shift over time and is typically closely linked to the amount of input the bilingual child receives in each language, which is seldom equal (Paradis, 2005). A salient shift in dominance towards the L2 often happens once the child enters formal schooling and may be supported by a perception that the L1 is less socially desirable or less suitable for education compared to the L2, as is the case with English in South Africa. However, even when the L2 becomes the child's stronger language, their abilities are not directly comparable with monolingual speakers (Kohnert et al., 2009), which may explain the large difference in scores as discussed further in section 4.2.1. The dominance shift may result in distributed language abilities where the child may perform better on some tasks in the L1 and better on others in the L2 (Kohnert et al., 2009).

In addition to a possible shift in language dominance, the type of isiZulu that the participants are exposed to as their L1 may also play a part. Urban code-mixed vernaculars are increasingly used (Webb et al., 2010). In the urban schools of Gauteng, there is an urban vernacular of Gauteng Zulu. Gauteng Zulu is the variety that has spread among isiZulu speakers in the Johannesburg townships, in particular Soweto and Alexandra. It contains lexical and syntactic features from the other Nguni languages, the Sotho languages, Tsonga, English and Afrikaans (Webb et al., 2010). Lafon (2005) highlighted and contrasted the

nature of isiZulu in South Gauteng as compared to isiZulu in the rest of the country, specifically KwaZulu-Natal. Lafon (2005) noted that isiZulu speakers in southern Gauteng are generally found to have lexical, phonetic and morpho-syntactic differences when compared to KwaZulu Natal isiZulu speakers. There is a large amount of instability and variation between isiZulu speakers in Gauteng with code-switching occurring often during conversational speech (Lafon, 2005). The standard variety of isiZulu may even be looked down upon and considered rural or backwards (Lafon, 2005). As a result, children who may have isiZulu recorded as home language such as the participants in this study, may have an isiZulu language model that is characterized by the use of code-switching and 'borrowed words' which affects overall vocabulary development. This was evident during the expressive vocabulary measure, where many participants were unable to recall or did not know the standard isiZulu word for items, but consistently 'borrowed' words from English and Afrikaans e.g. *amafone* for 'telephone', when '*ucingo'* is considered the standard, correct isiZulu term. As a result of this, many participants scored relatively poorly on the assessments. The use of the borrowed terminology also meant that there was a general trend where, if the participant did not know the English word for an item, they had difficulty producing an isiZulu equivalent, be it standard isiZulu or a borrowed word which affected composite scoring.

The participants in this study may have also scored better on their English scores due to the educational context they are learning in i.e. taught by teachers who are L1 English speakers and in a classroom with L1 English learners. A study by Jordaan (2010) assessed the semantic processing performance of EAL learners in two different educational contexts. Context one was a classroom with EAL peers and EAL teacher. Context two was a classroom with mixed EAL learners and L1 English learners, with an L1 English teacher. In this study, Jordaan found that the learners who were in context 2 performed significantly better than the learners in context 1. These results suggest that EAL learners may show greater growth in underlying semantic processing skills and by association, better English vocabulary, when they have interaction with L1 peers from whom they learn language models (Genesee et al., 2006; Jordaan, 2010). EAL learners may also perform better on these measures when taught by an English L1 teacher rather than an English EAL teacher (Jordaan, 2010). However, further research is needed to accurately explain why the EAL learners in educational context 1 performed better on these measures than learners in educational context 2. The results of this study may provide insight into why the EAL learners in this study performed

significantly better in their English vocabulary assessment with a poor performance in isiZulu as it has been established that there may be an L1 attrition and dominance shift when learners enter schooling where their L1 isn't supported.

4.2. Between-group comparisons

4.2.1. Comparison between English monolingual learners and EAL bilingual learners on English vocabulary scores

On the English tests, the English monolingual group scored consistently better on both measures than the isiZulu bilingual group. The mean raw scores are reflected in the graph below.

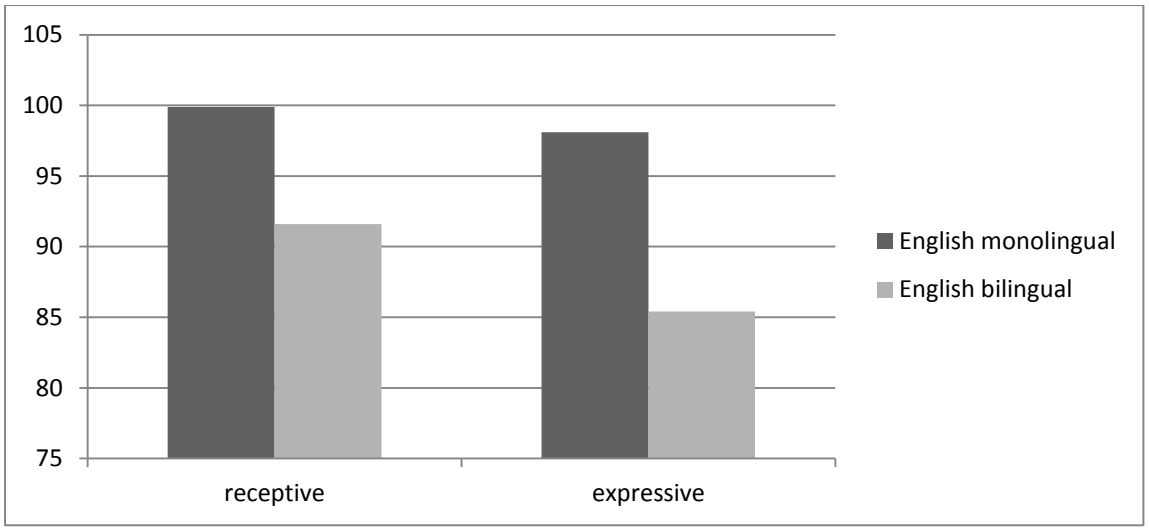


Figure 3: Mean percentage scores on English receptive and expressive measures

The results of the independent sample t-tests comparing the monolingual and bilingual groups on the English vocabulary measures are reflected in Table 7 below**.**

Table 7: Results of t-tests comparing the monolingual and bilingual group on the English receptive and expressive scores

Comparison	t-statistic	p-value	degree of freedom	significance
Monolingual and bilingual receptive English scores s	7.05	0.000%	58	Significant
Monolingual and bilingual expressive English scores	6.718	0.000%	58	Significant

There was a statistically significant difference between the scores of the English and isiZulu learners on the receptive vocabulary test (*t=7.015; p=0.000%; df=58)* as well as on the expressive vocabulary measure, (*t=6.718; p=0.000%; df=58)*. There is a larger difference between the two groups in the expressive language measure than in the receptive language measure. In both the receptive and expressive language assessments, the monolingual group scored significantly better. These results emphasise that when assessed in English only, the bilingual group's vocabulary appears to be significantly worse than the monolingual peers. This may then result in the over-identification of language impairment in bilingual children when the results may not be a true reflection of ability and knowledge.

4.2.2. Discussion

It is not surprising that the monolingual L1 English group scored better on the English measure than the EAL learners. This finding correlates with other research studies comparing monolingual and bilingual speakers (e.g. Allman, 2005; Hemsley et al., 2010; Kan & Kohnert, 2005; Pearson et al., 1993). In these studies, this pattern of language difference was expected and emphasized that a bilingual child should not be compared to a monolingual child on the same measures (Hemsley et al., 2010).

This was further illustrated by calculating the mean and standard deviation for the combined English results of the EFL and the EAL group (*n= 60)*. When using English results alone, 16 participants (53%) of the isiZulu group would have fallen 1 or more SD below the peer group mean on the receptive measure, while 13 participants (43%) would have fallen 1 or more SD below the peer group mean on the expressive measure. If the scores of the isiZulu group were compared to the mean of the EFL group, 21/30 participants (70%) would have fallen one or more SD below mean on the receptive test, while 23/30 participants (76.6%) would have fallen one or more SD below mean on the expressive test. These results confirm that over-identification of language impairment occurs when bilingual learners are compared to monolingual learners and emphasizes the need for peer mean testing as well as the need to assess both languages so that a language difference is not incorrectly labelled as a language impairment.

Incidentally, the EFL monolingual group's scores were comparable to the norms used in the EOWPVT and the ROWPVT for the age range of the participants, suggesting that these tests may be suitable to assess an English monolingual child in South Africa.

4.3. Comparison between English monolingual learners and EAL bilingual learners when composite scores are used

As indicated in the previous section, if assessed in English only, the bilingual groups appear to fall behind in their vocabulary development but assessment in one language only may not allow the child to demonstrate their full range of conceptual knowledge and development. As a result, composite scoring was used. A composite score for the bilingual group was calculated to determine their total conceptual vocabulary. This means that for each item that they knew in either language, they received a point. This was the same for both receptive and expressive vocabulary assessments. Table 8 below gives an example of how a composite score was calculated to obtain a measure of total conceptual vocabulary.

Table 8: An example of the method used to calculate composite score for a bilingual participant

	English	isiZulu	Composite
bicycle	×	✓	✓
monkey	✓	✓	✓
boat	×	✓	✓
bird	×	×	×
aeroplane	✓	×	✓
banana	×	✓	✓
elephant	✓	×	✓
scissors	×	✓	✓
swing	✓	✓	✓
ear	×	×	×
Total score /10	4	6	8

Once composite scores were obtained for the participants in the bilingual group, the raw data was analysed to determine mean, standard deviations and compare results using t-tests. Results are reflected in tables 9 and 10 below.

Table 9: Mean and standard deviation for composite scores and individual language scores

	mean	standard deviation	minimum score	maximum score
Bilingual composite Receptive *(possible total =110)*	94.5 (85.9%)	5.12	82	102
Bilingual English Receptive *(possible total =110)*	91.6 (83.3%)	5.33	82	102
Monolingual English receptive *(possible total =110)*	100 (90.9%)	4.05	90	108
Bilingual composite Expressive *(possible total =110)*	87.2 (79.3%)	7.87	65	99
Bilingual English Receptive *(possible total =110)*	86.1(78.3%)	8.95	58	97
Monolingual English Expressive *(possible total =110)*	98.1(89.2%)	4.58	90	107

The new composite scores were compared to the English scores in both the monolingual and the bilingual groups, with particular interest on how the composite scores would compare to the monolingual English scores. Figure 4 below demonstrates the mean bilingual composite scores, bilingual English scores and monolingual English scores.

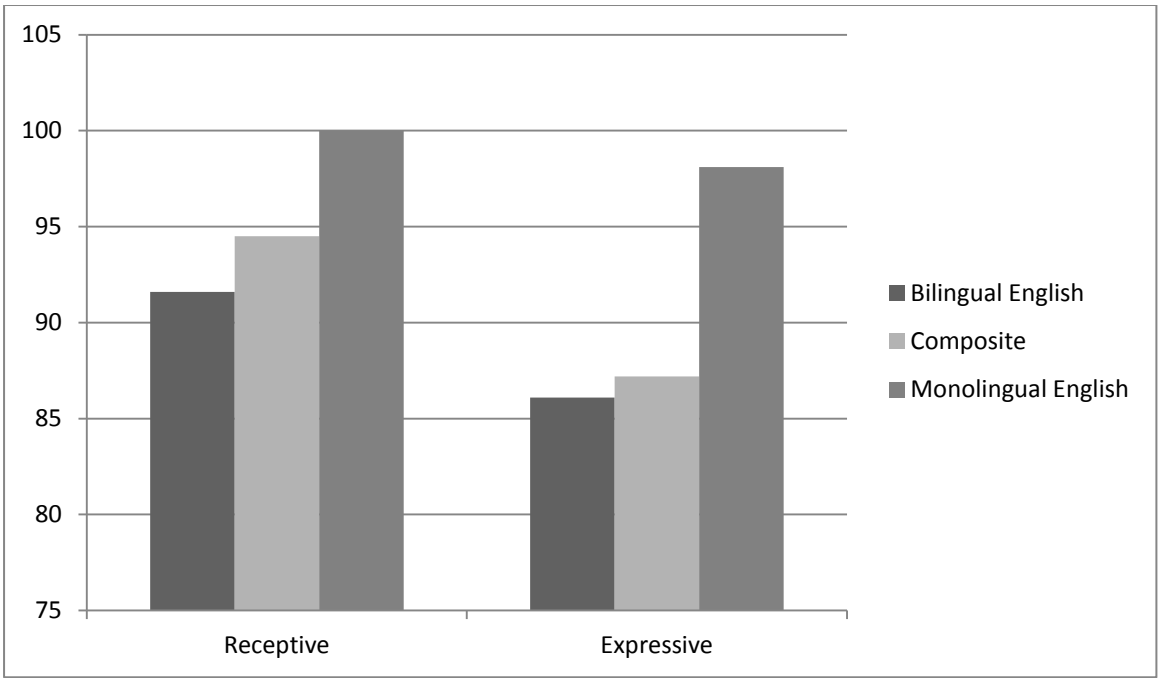


Figure 4: Mean receptive and expressive composite, bilingual and monolingual English scores

As reflected in figure 4, it is clear that the mean responses increased for both receptive and expressive measures using composite scoring compared to the English-only scores in the bilingual group. However, the increase was not sufficient to overcome the significant difference between the EFL and EAL scores on either the receptive or expressive language scores as reflected in table 10 below. The monolingual English group still obtained significantly higher scores than the bilingual group even when composite scores are used as the basis for comparison.

Table 10: Results of t-tests comparing the receptive and expressive vocabulary between the monolingual and bilingual group

Comparison	t-statistic	p-value	degree of freedom	significance
Monolingual receptive English and Bilingual composite scores	4.657	0.0132%	29	Significant
Monolingual expressive English and Bilingual composite scores	7.991	0.000%	58	Significant

While the composite scores improved the scores of the bilingual group slightly, the result did not yield a non significant difference between the EFL and EAL groups. This result does not correlate with previous studies that employed the same method of assessment and conceptual scoring (e.g. Kan & Kohnert, 2005; Pearson et al., 1993). This may be in part due to the participant's poor performance on the isiZulu measures, meaning that composite scores were often the same or minimally higher than English scores for the bilingual group.

Difficulty in adapting the English tests into isiZulu may also have affected the underlying vocabulary items and scoring. Some of the words in English did not have direct isiZulu equivalents and so could not be used in the isiZulu assessment. Difficulty with vocabulary in African languages is an issue that has been noted in education, especially when working to promote the use of a home language in the classroom. Despite efforts by many including the South African Department of Arts and Culture's National Language Service Directorate and the PanSALB, there are still major challenges in the development of technical terms in the African languages (Webb et al., 2010). Many of the African languages have not been sufficiently developed and standardised, have not been widely accepted, are not familiar to

L1 speakers and are not used in formal contexts such as classrooms (Jordaan, 2010). This includes the dissemination of terms already normalised for use in school classrooms as well as agreeing on new terms for scientific concepts (Webb et al., 2010). Moji (1998), for example, illustrates the difficulty of finding appropriate technical terms in Southern Sotho, where there is only one word (*lebelo*) for the concepts of speed, velocity and acceleration. The difficulty in the development of technical terms is challenging in that there is considerable difficulty in finding terms for concepts and the translation of English terminology is considered problematic in that English and the African languages are non-cognate languages (Jordaan, 2010).

4.3.1. Translation equivalents and singlets

In previous studies that compared the two vocabularies of a bilingual child, translation equivalents and singlets were commented upon. Translation equivalents (TE's) or 'doublets' are words that the bilingual child knows in both language. In contrast, singlets are words that the bilingual child only knows in either language. These have been useful constructs as they have provided insight into lexical acquisition. While a younger bilingual child may have a large number of singlet's, older bilingual children produce more TE's (Pena et al., 2002). When assessing vocabulary growth over time, Hemsley and colleagues (2010) found that the number of TE's increase with more exposure to English.

TEs and singlets could not be formally calculated in this study as there were some words in English that did not have direct isiZulu translations as discussed above. However, they can be commented on informally. On the receptive tests, most words known were TE's. On the expressive test, most words known appeared to be singlets. While this doesn't correlate with previous studies where the number of TE's increase with increased exposure to English, it may be explained. The high number of singlet's compared to TE's on the expressive vocabulary measures may be due to the overall poor performance in isiZulu compared to English. As a result, there were fewer isiZulu items with the potential to score as a TE. No clear pattern emerged when doing item analysis between the isiZulu responses and English responses e.g. a consistent difficulty with verb labelling as an identified area of weakness.

4.4. Identification of possible language impairment

As discussed in the literature review, a child who is learning in an additional language without adequate support is at risk for poor development of academic language and therefore at risk for academic failure (Heugh, 2000). Additionally, a bilingual child with possible language impairment is further at risk and early identification and intervention is essential to minimize the impact on future academic and social skills. However, differentiating between language impairment and a language difference in EAL learners is challenging. As a bilingual child with a true language impairment will perform poorly in both languages, results from composite scoring of the vocabulary measures were used to identify possible individuals with language impairment.

Within the isiZulu population, the mean score and standard deviation of the sample for composite scoring was calculated for both the receptive vocabulary measure (*m =94.5, SD=5.12)* and the expressive vocabulary measure (*m=87.2, SD=7.87).* Any participant in the isiZulu group who fell one or more standard deviation below the group mean on either measure, was flagged as having a possible language impairment and assessed further on the DELV-CR. Six participants were flagged, i.e., 20% of the sample size. This is a higher incidence than the 7% typically expected (Tomblin et al., 1997). This may be due to using an SD of only -1, rather than -1.5SD or -.2SD as advocated in the literature. However, the SD of -1 was chosen so that all learners at risk could be assessed further. For the purpose of this study, the English L1 participants weren't assessed further. However, two participants from the English L1 group who scored below the peer group mean on the vocabulary measures were flagged and referred for additional assessments by a speech-language therapist.

4.4.1. Description of participants identified as language impaired

The 6 EAL participants identified as at risk for a possible language impairment based on their bilingual composite vocabulary scores were all assessed on the DELV-CR (Seymour et al., 2003). This further assessment aimed to confirm the presence of a language impairment through further assessment as well as provide additional descriptions of EAL learners with language impairment. The DELV-CR has been used in previous studies in South Africa to assesses and describe the language of EAL learners, specifically Grade 2 learners (see Jordaan, 2011; Marshall, 2013). As all the learners identified with possible language impairment were in Grade 2, a comparison of results can be made and the peer group means obtained by Jordaan (2011) were used. Table 10 below reflects the scores of the participants

identified as possibly language impaired in each subtest of the DELV-CR. Where the participant fell below the peer mean as assessed in Jordaan (2011), the block was highlighted as this suggested an impairment in that area.

Table 11: Scores of each participant identified as language impaired on the DELV-CR

	Semantics (/32)	**Syntax (/32)**	**Pragmatics (/32)**
1	23	22	17
2	19	16	11
3	11	15	9
4	15	16	13
5	22	19	25
6	14	20	12
Peer Group mean (Jordaan, 2011)	**20**	**17.3**	**11.58**

Of the 6 learners identified as having a possible language impairment, 4 performed below peer group mean in the semantics assessment, 3 performed below peer group mean in the syntax assessment and 2 performed below group mean in the pragmatics assessment. Two participants (2&3) fell below the group mean on all areas of assessment on the DELV-CR. One participant scored below the peer group mean in the semantics assessment only (participant 6). Two of the participants (1 & 5) scored above average across all three areas of assessment, suggesting that they do not have a language impairment. This result was not unexpected as EAL learners can be over-identified, thus emphasizing the need to use a battery of assessments. Given the results of the DELV-CR above, 4 out of the 30 EAL learner participants were identified as having a possible language impairment. While this is higher than the literature average of 7% (Tomblin et al., 1997), this may be due to the small sample size.

Children with language impairment often present with delayed receptive and expressive semantic development due to their difficulty with organizing and retrieving appropriate words (Schwartz, 2009). The semantics subtest of the DELV-CR investigates three different areas: verb and preposition contrast items, quantifier items and fast-mapping items (Meirim et al., 2010; Seymour et al., 2003).

The verb and preposition contrast items assess a child's vocabulary organization, an important skill for vocabulary retrieval and use in the school-age years (Seymour et al., 2003). Verbs are important to assess as they have shown to be particularly vulnerable in language-impaired children, especially in EAL children with language impairment (Jordaan, 2011a). In this section, the participants were required to complete a cloze sentence about a picture e.g. "That man isn't walking, he is… *crawling"*. Appropriate preposition use was also assessed in this way. The quantifier items looked to assess the connection between word meaning and how grammar changes word meaning. In this case, the quantifier 'every' is used and the participant is asked to point to the picture that best matches the sentence spoken e.g. *'every man is riding a horse'.* Fast-mapping items are particularly important as they assessed the participant's ability to derive the meaning of an unfamiliar verb based on the context it is used in, an essential skill for ongoing vocabulary expansion (Seymour et al., 2003).

All of the four participants identified as having a language impairment demonstrated consistent difficulty as assessed in the semantics sub-test. This is consistent with scoring poorly on the vocabulary assessments. Difficulty particularly with verbs and lexical organization is consistent amongst children with PLI (Schwartz, 2009).

Delayed and disordered syntax development is a common characteristic of language impairment in both English first language children and EAL learners (Bedore & Pena, 2008; Schwartz, 2009). The subtests that assess syntax in the DELV-CR assess comprehension of *wh-* questions, understanding and use of passive voice and understanding and production of articles e.g. *the* and *a* (Seymour et al., 2003). Of the four participants identified as language impaired, three demonstrated consistently poor syntax as assessed on the DELV-CR subtests, consistent with findings from both English language impaired children (Bedore & Pena, 2008; Gray et al., 2012) and EAL children with language impairment (Jordaan, 2011a; Marshall, 2013).

As language and social-pragmatic skills are closely related, children with PLI typically display some key social-pragmatic deficits (Schwartz, 2009). Two of the four individuals identified as language impaired presented with pragmatic deficits when compared to the peer group mean on the DELV-CR. In the DELV-CR, the pragmatics domain evaluated the participant's ability to use language in social contexts (Seymour et al., 2003). Communicative role-playing, narratives and question-asking was assessed as these are areas of weakness

commonly associated with language impairment in children. The pragmatic areas of weakness are thought to be associated with the underlying poor flexibility of language and weaknesses in the semantic and syntactic arena's, rather than a pure pragmatic deficit (Jordaan, 2011a; Schwartz, 2009).

4.5. Theoretical and practical implications for the use of composite scoring in vocabulary tests to aid in the identification of language impairment amongst EAL learners

The findings of the current study provide valuable insight into the possible use and validity of bilingual vocabulary assessments with composite scoring of conceptual vocabulary. Many previous studies in other contexts have shown that using composite scoring can be used to assist in differentiating between typically developing EAL learners with language difference and an EAL learner with an underlying language impairment. The use of composite scoring gives important insight into a child's core conceptual vocabulary as well as insight into the spread of language skills and shifts in language dominance. In this study, while composite scoring did improve the EAL learners' scores, the improvement was not significant for a variety of reasons and so did not correlate with previous research. This suggests that the theoretical use of composite scoring may still need to be explored further in the South African context, as discussed further under '5.4. Implications for further research'.

The use of bilingual vocabulary assessments has clinical implications as it can provide information about an individual's lexical knowledge across both languages. However, there are practical limitations regarding creating translation equivalent tests and administering the tests. The administration time is longer and so it may not be practical as a screener but more as part of a battery of tests for a learner that has been identified as at risk. If the additional language of the learner is spoken by the SLT, this is beneficial as the clinician can then critically evaluate responses.

However, if the additional language is not spoken by the clinician, as is the case with most SLTs in South Africa, the clinician would need to be trained on correct pronunciation of words or make use of an assistant to translate, who may not be freely available. The receptive

measure may be easier to administer as it requires the clinician to record a correct or incorrect response. The expressive measure is more challenging as the child may give an appropriate answer that the clinician is unable to effectively evaluate e.g., with dialectal differences. The use of a receptive measure is promising as the study showed that there is a correlation between receptive and expressive vocabulary in the EAL participants in this study. Thus, only assessing receptive vocabulary may be sufficient to estimate a child's expressive vocabulary and differentiate between typically developing and language impaired EAL learners.

While the use of composite scoring shows promise in the South African context, further support is still needed to fully explore its practical application. It is clear from the study, however, that peer group means remain essential as a basis for comparison especially amongst EAL learners.

CHAPTER 5

CONCLUSION

The results of this study provide some valuable information regarding the assessment of EAL learners to differentiate between language difference and language impairment. This is important within the South African context where appropriate and valid assessment tools are limited despite the urgent need for SLT's to be able to differentiate between the two groups to provide appropriate and ethical services.

5.1. Implications for language assessment of bilingual learners

It has already been established that globally that SLT's working in schools are finding it challenging to apply their knowledge of bilingualism into practical, fair and accurate language assessments of culturally and linguistically diverse learners (Caesar & Kohler, 2007). This is true in the South African context where many SLTs feel they have insufficient knowledge, skills and a lack of valid assessment tools to assist with the differentiation of TD EAL learners and EAL learners who present with a PLI (Jordaan, 2011a). There is a need for accurate identification and assessment tools as the majority of learners in South Africa do not speak English as a first language and yet it is the most common LoLT. In this situation, too many EAL learners may be referred for services erroneously resulting in possible over-identification. Alternatively a 'wait-and-see' approach is adopted, resulting in under-identification of PLI in these EAL learners. The similarity in language profiles between TD EAL learners and monolingual children with PLI further complicates accurate identification and diagnosis.

The results of this study suggest that the use of composite scoring to obtain a conceptual vocabulary score in bilingual vocabulary assessments is a viable option to assist with the identification of language impairment in EAL learners, provided that learner's scores are compared to a peer group mean. However, further research is needed to consolidate this notion as results were not as significant as in other similar studies. In other bilingual vocabulary assessment studies such as those done by Hemsely, et al (2006), Pearson et al (1993) and Kan and Kohnert (2005), typically-developing bilingual learners scored the same or better than their monolingual peers when comparing composite vocabularies. By contrast,

the bilingual learners' scores improved with composite scoring but did not improve them to the point of the monolingual scores as was seen in previous studies. This may be due to the relatively poor L1 proficiency of the EAL learners in the study compared to the language proficiency of the EAL learners in studies conducted overseas such as Spanish.

Consideration needs to be given to the alternative language of assessment and the vocabulary items used. Due to the time consuming nature of the assessment and possible limitations in the examiner's linguistic skills in either language, the method of bilingual vocabulary assessment may not be suitable for screening purposes, but rather as part of a full battery of assessments. One method of screening that has been suggested is the use of a sentence repetition task to identify learners who are at risk for language impairment (Marshall, 2013).

As isiZulu is the most common L1 spoken in South Africa (StatsSA, 2011), the adapted isiZulu vocabulary lists used in this study could be used in other circumstances. However, consideration should be given to linguistic variables in a given language e.g. the differences between the isiZulu spoken in Gauteng versus in KwaZulu Natal. Consideration should also be given to the fundamental linguistic differences between the two languages assessed e.g. a lack of vocabulary for a concept in one language.

The ongoing diagnosis and description of language impairment in EAL learners is essential for SLT's in South Africa. The DELV-CR (Seymour et al., 2003) was found to be a suitable measure of language in EAL learners. The similarities in DELV-CR language profiles and those of previous studies supported the validity of use of the DELV-CR.

5.2. Implications for Speech-Language Therapists

The results of this study highlight the important role SLTs have within the education system and when working with school-aged learners. As skilled language specialists, SLT's have a responsibility to educate themselves on possible pitfalls when working with EAL learners and to share knowledge with parents and educators. SLT's have a responsibility to be critical of assessment methods to ensure validity and reliability of assessments, especially within EAL learners. In this study, the substantial difference between the TD EAL learners and the EFL learners on the English versions of the vocabulary assessments highlighted that EAL learners

cannot be simply compared to the monolingual norms that come with most tests and that EFL learners should be compared to test norms with care. While many SLTs have this theoretical knowledge that there needs to be sensitivity to linguistic and cultural variables, the application into practice is still an area that requires improvement. SLTs should be aware of the theory and possible cultural biases present in their current assessments and intervention practices and adjust their practices to promote learning in different culturally-appropriate ways (Thordartotir, 2010).

SLT's need to work in a collaborative role in the classroom where there is ongoing support and skills-sharing with educators. It is important to assist educators in understanding the importance of language and the effect that it has on overall literacy and academic achievement (Wium & Louw, 2011). More than this, it is important that teachers are given practical input on how to support language as simply creating awareness may not be sufficient. Studies such as these are important to add to the growing body of literature regarding EAL learners in South Africa to inform policy and practice, especially in the highly-debated area of LoLT. SLT's have a role to play in the assessment of the language demands of the curriculum so that appropriate programs can be planned with the appropriate support (Jordaan, 2011a). Working collaboratively in the classroom also supports assisting educators in identifying learners who may be struggling with their academic language and thus make appropriate referrals for support.

As highlighted in this study, there is a clear need for speech-language therapy services in South Africa Schools. However, as discussed previously, the majority of services provided to schools are by private SLT's offering therapy at private rates. Children under the age of 6 are able to access services provided by SLT's in the public health sector (Kathard et al., 2001). Past the age of 6, school-aged children are not able to access speech-language services provided by the public health sector unless they have an accompanying medical condition. Some speech-language therapists are employed in the education sector to work at schools for children with special educational needs (Kathard et al., 2011). As a result, if a learner in a mainstream school is unable to afford to attend therapy, they may not receive the necessary services. SLT's are not currently given the opportunity to provide the appropriate and necessary support within the education sector and so are faced with a challenge in terms of their ability to support learners and educators. Kathard et al (2011) suggests that ongoing research and lobbying of the Department of Education is necessary so that SLT's may be

employed at the school or district level to for collaboration and support purposes. Research such as this assists in highlighting the need for SLT's within schools as well as providing a possible method of assessment to determine a bilingual child's eligibility to receive services.

It is clear that SLT's play a role in improving language and literacy outcomes within the educational setting, supporting academic achievement and later better employment opportunities. This is applicable for both learners with and without language impairment. SLT's also have a clear role to play in the educational workforce and so opportunities to work within the education sector should be taken up by SLT's to implement meaningful change (Kathard et al., 2011).

5.3. Limitations of the study

While valuable, the generalisability of the findings are affected by several factors. The data was collected from an urban school in Johannesburg, Gauteng and the sample size was relatively small. As a result, the sample may not accurately represent isiZulu EAL learners in the rest of Johannesburg, Gauteng or South Africa. As only isiZulu EAL learners were selected, the results cannot be generalised to other EAL learners.

The use of vocabulary assessments in bilingual testing provides a limitation as the appropriate and accurate translation and adaptation of assessment measures into other languages can be challenging. This was seen in this study where many of the more complex vocabulary items did not have direct isiZulu equivalents. This is variable depending on the nature of the additional language that is being assessed.

5.4. Implications for future research

Research in bilingualism and communication disorders presents with many challenges but is essential to provide insight and inform appropriate assessment and intervention (Kohnert & Medina, 2009). This study indicated a number of possible directions and opportunities for future research.

While the composite scores improved slightly, there was not as significant of an improvement as seen in similar studies. Due to the nature of language dominance shifts in school-aged children and the use of urban vernaculars in some urban surroundings, reduplication of this study with both younger children and in different education contexts may be beneficial.

Duplication of this study with younger population e.g. preschool children may yield interesting results as results may be less affected by a possible language dominance shift. Assessing a younger population may also assist with bypassing the issue where there isn't equivalent isiZulu vocabulary for the more technical terms that older children are expected to have in their vocabulary e.g. satellite. As a number of previous studies (e.g. Kan & Kohnert, 2005; Pearson, et al., 1993) assessed the vocabulary of preschoolers with composite scoring, it may be interesting to compare results in a South African context.

Bilingual vocabulary assessment in a different educational context such as in a lower socio-economic area or one where all learners and teachers are EAL may yield different results. A difference in linguistic performance due to differing educational contexts was suggested by Jordaan (2010) and so is a viable area for further research. Bilingual vocabulary assessment using different languages such as Afrikaans and Setswana may also yield different results and may be an area for future research.

In the study, the receptive and expressive scores for the monolingual group were not correlated, where as the scores were correlated for the bilingual group. It is unclear if this difference is due to the timeline of language development in bilingual learners compared to monolingual learners; or if it is due to a fundamental difference in the way bilingual learners learn vocabulary. This is a possible area for future research.

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APPENDIX A: Principal Information sheet and consent form

Dear Principal

My name is Tracey O'Brien. I am a speech therapist and audiologist, currently completing my Master's Degree in Speech Pathology at the University of the Witwatersrand. As part of my Master's Degree, I would like to investigate identifying language disorders in learners who speak English as an additional language and would like to invite your school to participate.

With your permission, parents of Grade 2 and Grade 3English and Zulu speaking learners will be approached. A consent letter will be sent home to their parents/guardians explaining the project. The child will participate in the study only if the parent/guardian gives permission and returns the signed permission slip. The child will also be asked if they would like to be included in the study. Should both parties give permission, the child's vocabulary receptive and expressive vocabulary will be assessed. The tests will be completed at school, at a convenient time- to minimize disruption and should take approximately 30 minutes. If a child has been identified as having a possible language impairment, they will be assessed further and referred to an appropriate professional.

The results of this study may have important implications for supporting bilingual learners and identifying language impairment in bilingual learners. Participation in the study is entirely voluntary and the school, the parents and the selected children can withdraw from the study at any time with no consequences. All information gathered during this study is strictly confidential.

Should you have any queries or questions, please feel free to contact me on 0827066712 or traceyjobrien@gmail.com

Kind Regards

Tracey O'Brien	Prof Heila Jordaan
Researcher	Supervisor

I, _____ (name) hereby give permission to the researcher to conduct the above-mentioned study at this school site in 2014.

Signature	*Date*

APPENDIX B: Parent information sheet and consent form

Dear Parent/Guardian

My name is Tracey O'Brien. I am a speech therapist and audiologist currently completing my Master's Degree in Speech-Language Pathology at the University of the Witwatersrand. I am studying vocabulary in Grade 2 and Grade 3 learners who speak only English at home and learners who speak Zulu and English at home. I would like to invite you to allow your child to participate in this study.

This study would involve your child being tested on a vocabulary test where they will be required to label pictures and point to pictures that match a word that has been said. If your child only speaks English, they will be assessed in English. If your child also speaks Zulu, they will be assessed in both English and Zulu. These tests will take an estimated 30 minutes and they will be completed at the school during school hours. The testing time will be arranged with your child's teacher to ensure that they are not missing out on valuable teaching time. Your child may be selected for further testing on another day to get more information about their language to identify if they may benefit from extra language support in the classroom. Should you give permission for your child to participate; your child will also be told about the study and asked if they are willing to participate.

All information gathered during this study is confidential and will be anonymous. Only the researcher and the researcher's supervisors will have access to the information. It is hoped that the results of this test will give information about how children's vocabulary develops and will also help identify children who may benefit from additional language support in the classroom.

If you are happy for your child to participate, please complete the attached consent form and return to your child's class teacher. Please note that participation in this study is voluntary. You and your child are free to decline to participate or to withdraw from the study at any time with no negative consequence. If you have any queries or comments, please feel free to contact me on 0827066712 or traceyjobrien@gmail.com.

Kind Regards

Tracey O'Brien	Prof. Heila Jordaan
Researcher	*Supervisor*

I, _____ (name), give consent to allow _____ _____ (child's name) in Grade _____ (grade and class) to participate in this study. My child's home language is _____.

I give permission for Tracey O'Brien to use the results of this study. I understand that participate in this study is voluntary and can withdraw at any time. I acknowledge that all information will be kept confidential.

_____ _____

Signature *Date*

APPENDIX C: Child assent form

Hello

My Tracey O'Brien and I am a speech teacher. I'm studying at University. I'm busy working on a big project with Grade 2 and Grade 3 children. I'm going to ask you to do two activities:

- Firstly- to look at some pictures and tell me what they are.
- Then - I'm also going to ask you to listen to a word and point to the picture that matches the word that I say.

This will help me understand how children learn words and this isn't a test for marks. You don't have to do any of the activities if you don't want to. If we start and you decide you don't want to do them anymore, just tell me and I will stop. You won't be in trouble if you decide you want to stop.

Will you help me with my project and do these activities with me? You can put a tick the box.

☐ - YES ☐ - NO

Name: _____ Date: _____

APPENDIX D: Gauteng Department of Education Research Approval Certificate

GAUTENG PROVINCE
Department: Education
REPUBLIC OF SOUTH AFRICA

For administrative use:
Reference no: D2015 / 107

GDE RESEARCH APPROVAL LETTER

Date:	**2 June 2014**
Validity of Research Approval:	**2 June 2014 to 3 October 2014**
Name of Researcher:	**O'Brien T.J .**
Address of Researcher:	**Unit 162 Stonewedge**
	29 Woodley Road
	Darrenwood
	2194
Telephone Number:	**082 706 6712**
Fax Number:	**086 425 7509**
Email address:	**traceyjobrien@gmail.com**
Research Topic:	**Identifying language impairment in bilingual school-aged children using one word vocabulary tests**
Number and type of schools:	**ONE Primary School**
District/s/HO	**Johannesburg North**

Re: Approval in Respect of Request to Conduct Research

This letter serves to indicate that approval is hereby granted to the above-mentioned researcher to proceed with research in respect of the study indicated above. The onus rests with the researcher to negotiate appropriate and relevant time schedules with the school/s and/or offices involved to conduct the research. A separate copy of this letter must be presented to both the School (both Principal and SGB) and the District/Head Office Senior Manager confirming that permission has been granted for the research to be conducted.

Issued
2014/06/03

The following conditions apply to GDE research. The researcher may proceed with the above study subject to the conditions listed below being met. Approval may be withdrawn should any of the conditions listed below be flouted:

1

Office of the Director: Knowledge Management and Research
9th Floor, 111 Commissioner Street, Johannesburg, 2001
P.O. Box 7710, Johannesburg, 2000 Tel: (011) 355 0506
Email: David.Makhado@gauteng.gov.za
Website: www.education.gpg.gov.za

1. *The District/Head Office Senior Manager/s concerned must be presented with a copy of this letter that would indicate that the said researcher/s has/have been granted permission from the Gauteng Department of Education to conduct the research study.*
2. *The District/Head Office Senior Manager/s must be approached separately, and in writing, for permission to involve District/Head Office Officials in the project.*
3. *A copy of this letter must be forwarded to the school principal and the chairperson of the School Governing Body (SGB) that would indicate that the researcher/s have been granted permission from the Gauteng Department of Education to conduct the research study.*
4. *A letter / document that outlines the purpose of the research and the anticipated outcomes of such research must be made available to the principals, SGBs and District/Head Office Senior Managers of the schools and districts/offices concerned, respectively.*
5. *The Researcher will make every effort obtain the goodwill and co-operation of all the GDE officials, principals, and chairpersons of the SGBs, teachers and learners involved. Persons who offer their co-operation will not receive additional remuneration from the Department while those that opt not to participate will not be penalised in any way.*
6. *Research may only be conducted after school hours so that the normal school programme is not interrupted. The Principal (if at a school) and/or Director (if at a district/head office) must be consulted about an appropriate time when the researcher/s may carry out their research at the sites that they manage.*
7. *Research may only commence from the second week of February and must be concluded before the beginning of the last quarter of the academic year. If incomplete, an amended Research Approval letter may be requested to conduct research in the following year.*
8. *Items 6 and 7 will not apply to any research effort being undertaken on behalf of the GDE. Such research will have been commissioned and be paid for by the Gauteng Department of Education.*
9. *It is the researcher's responsibility to obtain written parental consent of all learners that are expected to participate in the study.*
10. *The researcher is responsible for supplying and utilising his/her own research resources, such as stationery, photocopies, transport, faxes and telephones and should not depend on the goodwill of the institutions and/or the offices visited for supplying such resources.*
11. *The names of the GDE officials, schools, principals, parents, teachers and learners that participate in the study may not appear in the research report without the written consent of each of these individuals and/or organisations.*
12. *On completion of the study the researcher/s must supply the Director: Knowledge Management & Research with one Hard Cover bound and an electronic copy of the research.*
13. *The researcher may be expected to provide short presentations on the purpose, findings and recommendations of his/her research to both GDE officials and the schools concerned.*
14. *Should the researcher have been involved with research at a school and/or a district/head office level, the Director concerned must also be supplied with a brief summary of the purpose, findings and recommendations of the research study.*

The Gauteng Department of Education wishes you well in this important undertaking and looks forward to examining the findings of your research study.

Kind regards

Makhado
.....

Dr David Makhado
Director: Education Research and Knowledge Management

DATE: 2014/06/03

Office of the Director: Knowledge Management and Research
9th Floor, 111 Commissioner Street, Johannesburg, 2001
P.O. Box 7710, Johannesburg, 2000 Tel: (011) 355 0506
Email: David.Makhado@gauteng.gov.za
Website: www.education.gpg.gov.za

APPENDIX E: University of the Witwatersrand Research Ethics Clearance Certificate

Research Office

HUMAN RESEARCH ETHICS COMMITTEE (NON-MEDICAL)
R14/49 O'Brien

CLEARANCE CERTIFICATE	**PROTOCOL NUMBER H14/06/29**
PROJECT TITLE	Identifying language impairment in bilingual school-aged children using one word vocabulary tests
INVESTIGATOR(S)	Ms T O'Brien
SCHOOL/DEPARTMENT	Speech Pathology & Audiology
DATE CONSIDERED	20 June 2014
DECISION OF THE COMMITTEE	Approved Unconditionally
EXPIRY DATE	17/07/2016

DATE 18/07/2014 **CHAIRPERSON** _____ (Professor T Milani)

cc: Supervisor : Prof H Jordaan

DECLARATION OF INVESTIGATOR(S)

To be completed in duplicate and **ONE COPY** returned to the Secretary at Room 10000, 10th Floor, Senate House, University.

I/We fully understand the conditions under which I am/we are authorized to carry out the abovementioned research and I/we guarantee to ensure compliance with these conditions. Should any departure to be contemplated from the research procedure as approved I/we undertake to resubmit the protocol to the Committee. **I agree to completion of a yearly progress report.**

TJ Obrien
Signature

21 / 07 / 2014
Date

PLEASE QUOTE THE PROTOCOL NUMBER ON ALL ENQUIRIES

APPENDIX F: Adapted isiZulu receptive and expressive vocabulary word lists

ROWPVT- adapted isiZulu version

Item	English	isiZulu	Item	English	isiZulu
1	Shoe	isicathulo	56	Liquid	uketshezi
2	Fish	inhlanzi	57	Throwing	ukuphonsa
3	Chair	Isihlalo	58	Swan	idada
4	Balloon	ibhaluni	59	Sailboat	-
5	Spoon	ukhezo	60	Onion	u-anyanisi
6	Door	Isicabha	61	Core	umnyombo
7	Bed	umubhede	62	Cliff	eweni
8	Hand	isandla	63	Eruption	ukuqhuma
9	Car	imoto	64	Unicycle	-
10	Lion	ibhubesi	65	Saxophone	icilongo
11	Carrot	ukhalothi	66	Vine	umuvini
12	Hat	isigqoko	67	Twig	igatshana
13	House	indlu	68	Frame	uzimele
14	Socks	amasokisi	69	Protect	ukuvikela
15	Rabbit	unogwaja	70	Reflection	-
16	Clock	iwashi	71	Discussion	ingxoxo
17	Flower	imbali	72	Octagon	-
18	Belt	ibhande	73	Divide/division	ukwahlukanisa
19	People	abantu	74	Distress	Ukuhlupheka
20	Sun	ilanga	75	Examination	ukupopolwa
21	Frog	ixoxo/ iselesele	76	Safe	-
22	Thumb	Isithupha	77	Tornado	Isivunguvungu
23	Bowl	Isitsha/indishi	78	Snorkel	-
24	Happy	ukujabula	79	Gems	Itshe eliyigugu
25	Cutting	ukusika	80	Fingerprint	Zeminwe
26	Biscuit	ibhisikidi	81	Satellite	-
27	Nose	ikhala	82	Shred	ukudabula
28	Spilling	saphaza	83	Wreath	-
29	Crab	Inkalankala	84	Shaggy	-
30	Postman	Indodayeposi	85	Entertainer	wezokuzilibazisa
31	Knees	Amadolo	86	Tap	umpompi
32	Pear	ipheya	87	Slumber	ukulala
33	Barking	khonkotha	88	Solving	ukuxazulula
34	Open	vula	89	Inscription	umubhalo
35	Jump	Gxuma	90	Appetizer/starter	-
36	Groceries	Okuthengiwe	91	Even	okulinganayo
37	Jungle/forest	ihlathi	92	Sob	ukukhala
38	Round	Indingiliza	93	Cap	isigqoko
39	Juggler	-	94	Layers	unqgenqgema
40	Oval	okusaqanda	95	Gossiping	ukuhleba
41	Snake	inyoka	96	Quarters	amakota
42	Diamond	idayimane	97	Blowtorch	-
43	Celebration	umukhosi	98	Jagged	amazengezenge

44	Camera	ikhamera	99	Competitive	Ncintisanayo
45	Tennis	Ithenisi	100	Plates	-
46	Posting/mailing	lokuposa	101	Enclose	Valela
47	Broken	iphukile	102	Constellation	-
48	Jacket	ibhantshi	103	Cashier	-
49	Letter	inhalmvu	104	Hazardous	enobungozi
50	Stack	inqwaba	105	Empress	-
51	Mop	isesulo	106	Parallel	-
52	Melting	Ukuncibilika	107	Demonstration	-
53	Number	Inombolo	108	Pondering	-
54	Pilot	-	109	Aquatic	-
55	Hatch	Ukuchamisela	110	Spokes	-

APPENDIX F (cont): Adapted isiZulu receptive and expressive vocabulary word lists

EOWPVT- adapted isiZulu version

Item	English	isiZulu	Item	English	isiZulu
1	Apples	ihapula	56	Tire/wheel	isondo
2	Eyes	amehlo	57	Light	ukukhanyisa
3	Tree	isihlahla	58	Pineapple	uphayinaphu
4	Cat	ikati	59	Skeleton	-
5	Book	incwadi	60	Horns/antlers	izimpondo
6	Telephone	ucingo	61	Instruments	-
7	Bicycle	ibhayisikili	62	Bottles	amabhodlela
8	Monkey	Imfene/inkawu	63	Dentist	-
9	Boat	Umkhumb	64	Waterfall	impophoma
10	Bird	inyoni	65	Raccoon	Irakhuni
11	Airplane	ibhanoyi	66	Cactus	umdolofiya
12	Banana	ubhanana	67	Telescope	isibonakude
13	Elephant	indlovu	68	Statues	esibaziwe
14	Scissors	isikelo	69	Writing	ukubhala
15	Swing	Ujwijiwi	70	Furniture	ifenisha
16	Ear	indlebe	71	Cutting	ukusika
17	Heart	inhliziyo	72	Binoculars	Izipopolo
18	Duck	idada	73	Fireplace	iziko
19	Key	isihluthulelo	74	Sewing	ukuthunga
20	Swimming	ukubhukuda	75	Wrench (tool)	Isipanela
21	Couch/sofa	usofa	76	Rectangle	unxande
22	Truck	iloli	77	Time/timing	isikhathi
23	Leaf	icembe	78	Leopard	ingwe
24	Train	isitimela	79	Post/mail/letters	iposi
25	Pillow	umcamelo	80	Pyramid	iphiramidi
26	Coat/jacket	ijazi	81	Shield	isihlangu
27	Cup	inkomishi	82	Lobster	isikhuphashe
28	Hair	izinwele	83	Stool	isihlalo
29	Cloud	amafu	84	Compass	ikhampasi
30	Penguin	iphengwini	85	Trumpet	icilongo
31	Bus	ibhasi	86	Paw	isidladla
32	Foot	unyawo	87	Battery	ibhetri
33	Bee	inyosi	88	Ostrich	intshe
34	Corn/mielies	umbila	89	Chess	ishesi
35	Basket	ubhasikidi	90	Microphone	imakhirofoni
36	Fireman	Isichishamulilo	91	Thermometer	isihlolakushisa
37	Animals	izilwane	92	Percent	amaphesenti
38	Painting	penda	93	Skydiving	iphalashuthi
39	Mat/carpet/rug	umata	94	stadium	inkundla
40	Skateboard	isikhathibhodi	95	Measure	lingalisa
41	Clothes/clothing	izingubo	96	Windmill	-
42	Tiger	ithayiga	97	Wheelbarrow	ibhala
43	Bridge	ibhuloho	98	Saddle	-

44	Food	ukudla	99	Reptile	-
45	Starfish	inkanywezi	100	Springs	izipilingi
46	Insects	-	101	Tweezers	udlawana
47	Smoke	intuthu	102	Water	amanzi
48	Straw	ukuphuza	103	Banjoe	-
49	Suitcases	amapotumende	104	Graph	amashadi
50	fruit	izithelo	105	Boomerang	ibhomarengi
51	Bones	amathambo	106	Transport	ukuthutha
52	Drinks	iziphuzo	107	Computer	ikhompyutha
53	Goat	imbuzi	108	Celery	ucelery
54	Wall	udonga	109	Tree stump	isiphunzi
55	Footprints	izinyathelo	110	Fractions	-