Communication supporting environments of Grade R classrooms in a Rural District of the Western Cape

by

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DECLARATION

I, *Prianka Parusnath,* hereby declare that the work on which this dissertation/thesis is based is my original work (except where acknowledgements indicate otherwise) and that neither the whole work nor any part of it has been, is being, or is to be submitted for another degree in this or any other university.

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Signature: Signed by candidate

Date: 22 April 2016

DEDICATION

I dedicate this thesis to my family. And to the children who face gargantuan challenges with untarnished innocence and immeasurable kindness.

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Abstract

Communication is key to all situations in which human beings are involved at a local and international level (Block & Cameron, 2002). However, in order to communicate effectively, language development is crucial. Language skills form the foundation for literacy learning and academic progression, which allows citizens to actively engage in their roles within a globalising world (Block & Cameron, 2002). This language literacy learning is a complex process which occurs in many different contexts: homes, communities and classrooms. Key among them is the classroom setting which serves to create a communication environment supporting quality instruction. International literature shows that communication environments play a vital role in language and literacy development and later academic success (Gibbons & Silva, 2011; Harms, Clifford, & Cryer, 2015; Shonkoff & Phillips, 2000). Grade R is an important classroom experience, however, little is known about the opportunities for language learning in Gr R classrooms in South Africa.

It is evident that the majority of the learners in South Africa are receiving poor quality education, therefore improvements need to be made with regards to facilitating language, literacy and numeracy learning in early grades (Green, Parker, Deacon, & Hall, 2011; Kathard et al., 2011; Spaull, 2015; Wium & Louw, 2011). Exposure to high quality classroom environments reduces the risk of poor language and literacy outcomes (Phurutse, 2005). Moreover, classroom environments are vital in teaching learners how to use purposeful, goal orientated language in order to communicate effectively (Wells, 2009). Exploring communication environments will add useful perspectives and insights into the factors that influence literacy outcomes within the country.

One of the main roles Speech-Language Pathologist's play in facilitating language literacy processes is collaborating with and providing support for teachers within classrooms (B. J. Ehren, Ed, & Ehren, 2001; Kathard et al., 2011; Wium & Louw, 2013). SLPs have a particular focus on knowledge of language and communication and have important roles to play in supporting educators facilitate the reading, writing, speaking and listening skills required to develop language and literacy (Wium, Louw, & Eloff, 2010).

Teachers have a key role in creating supportive environments and when given adequate support and guidance, they can be used as a resource which could help change communication environments in classrooms. It is vital that SLPs work together with teachers in order to support this change.

This study aims to describe the communication environment in Grade R classes in a rural district setting in the Western Cape in terms of language-learning environment; language-learning opportunities and language-learning interactions in order to identify areas of strengths and weaknesses. In addition to this, the study aims to explore the relationship between communication environments and school performance in a rural district in the Western Cape as well teacher and classroom variables.

In order to do this, an observational tool, the Communication Supporting Classrooms Observational Tool, was used which allowed researchers to document what was happening in the classroom over the prescribed observation period (Dockrell, Bakopoulou, Law, & Spencer, 2010). Before this, the pilot phase of the study allowed researchers to train assistants to use the tool using video recordings as well as to ascertain the tool's applicability to South African classrooms with different languages of learning and teaching. A sample size of 60 classrooms was used in the main phase, consisting of 30 lower performing schools and 30 higher performing schools. The study included all regular learners and regular classroom teachers in the chosen Grade R classrooms in a rural/remote district.

Overall, the outcomes of the pilot study were two-fold: (1) The researchers determined that the tool could be used reliably in classrooms where Afrikaans and isiXhosa were the language of instruction due to high inter-rater reliability measured by ICC; and (2) With sufficient training and practical examples, raters can be trained to use the tool effectively.

In addition to these outcomes, the results of the pilot study allowed researchers to make useful choices for the main study. The study indicated that the tool was applicable in classrooms where Afrikaans and isiXhosa were the medium of instruction which allowed researchers to include these classrooms in the sample for the main study.

The strengths and weaknesses found in the main study were relative to each area of the tool. Rather than being compared to a standardised outside source, each area of the tool was compared to the other. From the combination of the tool scores, item analysis and additional observations, it was determined that LLE and LLI were areas of relative weakness across classrooms when compared to LLO.

While there was a large amount of variation and overlap between scores of higher and lower performing classrooms, there was evidence that lower performing classrooms had lower scores and larger ranges across all three areas of the tool. Additionally, results produced statistically significant correlations between LLE and LLI and school performance. Lower performing schools generally performed 1.84 points lower in the area of LLE and 1.65 points lower in the area of LLI when compared to higher performing schools. There was no significant difference between school performance and LLO.

CHAPTER ONE

Introduction

1.1 Overview of the chapter

This chapter serves as an introduction to the study by providing the research focus and the aims of the study. The rationale for the study will then be discussed focusing specifically on the benefits of early education and the role that communication environments play in language and literacy development. The study context will also be explained in terms of the South African Grade R environment and the barriers to education that currently exist. Finally, an overview of the chapters will be provided and key terms and abbreviations explained.

1.2 Orientation to the study

Communication is key to all situations in which human beings are involved at a local and international level (Block & Cameron, 2002). As the world becomes smaller through developing technology and the internet, communication skills become increasingly more important to make connections with others. Whether it be regarding politics, the economy, national exchanges of ideas or individual ones, there is a need for meaningful communication (Block & Cameron, 2002). However, in order to communicate effectively, language development is crucial. Language skills form the foundation for literacy learning and academic progression, which allows citizens to actively engage in their roles within a globalising world (Block & Cameron, 2002). This language literacy learning is a complex process which occurs in many different contexts: homes, communities and classrooms. Key among them is the classroom setting which serves to create a communication environment supporting quality instruction. International literature shows that communication environments play a vital role in language and literacy development and later academic success (Gibbons & Silva, 2011; Harms et al., 2015; Shonkoff & Phillips, 2000). Grade R is an important classroom experience, however, little is known about the opportunities for language learning in Gr R classrooms in South Africa.

Quality Grade R classroom environments have been shown to positively influence success in school in later years (Pianta et al., 2010). Much of the world and institutions like the United Nations Educational, Scientific and Cultural Organization (UNESCO) have long since labelled basic education as a priority for national and global development (UNESCO, 1990). The Education for All movement was created with specific goals that aimed to provide basic education to children, youths and adults by the year 2015 (UNESCO, 1990). Amongst these goals was providing quality learning environments in the early years for learners through developing infrastructure, teacher training and providing support to educational institutions (both financial and research based) with a focus on developing countries (UNESCO, 1990). The classroom provides a unique context for fostering communication skills and literacy development by providing an environment rich with active engagement with others and interactional activities which demand communication on a daily basis (Kramsch, 2003). Communication here is not limited to language expression but includes a good grasp of language comprehension and production of gesture as well as other non- verbal cues; these skills encompass what it means to be an efficient communicator (Carpenter, Nagell, Tomasello, & Butterworth, 1998).

Learners need to play an active role in learning in order to be successful in school; this is promoted through good communication practices which in turn can be fostered by creating learner-centred classrooms (Dufresne, Gerace, Leonard, Mestre, & Wenk, 1996). Many developing countries value the improvement of pre-primary education in order to give learners a better start to formal education (Berlinski, Galiani, & Gertler, 2009). Research which aims to determine how to improve schooling experiences at this level is imperative as high quality early childhood interventions are shown to have positive academic, social and emotional outcomes for learners of both advantaged and disadvantaged backgrounds (Montie, Xiang, & Schweinhart, 2006).

Previously Grade R was considered a preparation year before entry into school, however, most classrooms now focus not only on school readiness and language literacy learning, but developing various academic skills as well (Currie, 2001; Jaesook & Griebling, 2013). One of the most vital aspects of any Grade R year is shaping communication proficiency and laying the groundwork for developing reading skills (Dobbs-Oates, Kaderavek, Guo, & Justice, 2011).

Teachers are often under pressure to fit a full curriculum into half a day while bridging knowledge gaps and also screening for learners who might potentially have difficulty before first grade (Jaesook & Griebling, 2013). As such, the importance of other activities such as play, socialization and developing communication skills are diminished (Jaesook & Griebling, 2013).

Mainstream schools in developing countries are therefore having to focus on ensuring that the basis of language learning is provided through simulated or real communication opportunities and extensive interactions within a classroom setting (Crabbe, 2003). Research focused on the various measures and specific tasks within this communicative approach is considered important in promoting language learning and communication skills (Crabbe, 2003). Early childhood settings have the potential to become key sources of literacy experiences as these settings have numerous opportunities to target literacy skills (O'Connor, Arnott, McIntosh, & Dodd, 2009).

Exposure to high quality classroom environments reduce the risk of poor language and literacy outcomes (Phurutse, 2005). Moreover, classroom environments are vital in teaching learners how to use purposeful, goal orientated language in order to communicate effectively (Wells, 2009). In addition, frequent interactions and ongoing communication with teachers allow learners to make knowledge their own and contextualise what they are learning in meaningful ways (Wells, 2009). In this way, language shapes the basis for academic learning. The language and literacy skills learners display in preschool are indicative of their later reading abilities and academic progression (Kendeou, van den Broek, White, & Lynch, 2009; Lonigan, Burgess, & Anthony, 2000). However, language learning and its relationship to classroom communication environments is not made explicit and is often based on assumed knowledge that not every child may have (Heath, 1986).

In creating positive and productive language learning experiences, teachers and classroom environments play a vital role. Teachers are not only placed in classrooms to transfer knowledge but to facilitate communication and social development as well (Jaesook & Griebling, 2013).

However, most teachers have difficulty in performing all of these roles as the requirements for learners in Grade R grow more demanding (Gillies & Boyle, 2010). In addition to this, teachers may also have limited resources to work with in order to create supportive communication environments (Dickinson & Caswell, 2007). The secondary aim of this study explores the teacher and classroom variables in rural areas that play a role in communication development.

The majority of the learners in South Africa are receiving poor quality education, therefore improvements need to be made with regards to facilitating language, literacy and numeracy learning in early grades (Green, Parker, Deacon, & Hall, 2011; Kathard et al., 2011; Spaull, 2015; Wium & Louw, 2011). Exploring communication environments will add useful perspectives and insights into the factors that influence literacy outcomes. In South Africa, there are a number of factors, including poverty and language learning policy, which compound the situation making language learning more difficult within classrooms (Prinsloo & Janks, 2002). Although early education programmes exist all over the world, little research has been done to date in South Africa on finding the most efficient and useful way to enhance language and literacy experiences that are vital in order to make a significant impact on learner's education (Dickinson & Caswell, 2007).

Studies that have been conducted over the past few years have indicated that learners in South Africa are not acquiring basic literacy skills in their first three years of school (O'Carroll & Hickman, 2012). However, before intervention is considered, research must first aim to understand the current communication environments in Grade R classes and factors that might influence language-learning outcomes as well as impact academic outcomes. This pilot exploratory study therefore focuses on describing and exploring the communication environments in Grade R classrooms.

This study asks: What is the nature of communication environments in Grade R classrooms in rural areas of the Western Cape? This study will contribute to research by establishing a baseline description of communication environments in higher and lower performing schools in a rural/remote district in the Western Cape.

Using the Communication Supporting Classrooms Observational Tool (CSCOT), an observational checklist, communication environments were explored in terms of language-learning environments (LLE), language-learning interactions (LLI) and language-learning opportunities (LLO). In addition, the influence of classroom variables such as class size and educators' years of experience on the classroom scores will be examined.

1. 3 Research aims and objectives

Primary aim

To describe the communication environment in Grade R classes in a rural district setting in the Western Cape.

Objectives

1. To describe the communication environments in Grade R classes in terms of language-learning environment; language-learning opportunities and language-learning interactions.

2. To describe the three dimensions of the communication environment across classrooms to determine areas of strengths and weaknesses.

Secondary aims:

To explore the relationship between communication environments and school performance in a rural district in the Western Cape.

To explore if teacher and classroom variables influence Grade R classroom communication environments.

Objectives

3. To explore the relationship between Grade R in communication environment scores in higher and lower performing schools in a rural district.

4. To explore the relationship between teacher experience, class size and school performance and Grade R classroom communication environment scores.

1.4 Rationale

1.4.1 The importance of the early years

As previously mentioned, exposure to high quality classrooms is vital to ensure success in school. This quality depends on various factors including the availability of resources, time management and organisation of activities, teacher and parent support as well as the health and development of the child (Pianta, la Paro, Payne, Cox, & Bradley, 2002). However, in developing countries, learners are exposed to numerous risk factors that can have negative effects on cognitive, motor and social-emotional development (Grantham-McGregor et al., 2007). These factors include poverty, poor health and unstimulating home environments (Spaull, 2012; Strickland et al., 2004).

The majority of learners who are not ready for school often perform poorly, repeating grades and ultimately dropping out of school (Engle et al., 2007). This in turn means that they are at a disadvantage when entering a working environment and often receive the lowest wages (Arnold, Newman, Gaddy, & Dean, 2005). When these individuals become parents, it is likely that they may continue this cycle of poverty with their children. Providing high quality education at an early age is not just about giving learners a solid start to formal education but it can also be used as a tool to break the cycle of poverty found in many developing countries (Young, 2002). With Grade R being the introduction to formal schooling in South Africa, this grade plays a vital role in developing social and academic skills that provide the foundation to academic success.

Early cognitive and social-emotional development are strong predictors of later school progress in developing countries (Grantham-McGregor et al., 2007). In a study completed in 2007, it was estimated that approximately 200 million children under the age of 5 years in developing countries were not reaching their full developmental potential (Engle et al., 2007).

As such, many countries around the world are implementing pre-primary education programmes in order to give learners a better foundation with which to begin their schooling career (Berlinski et al., 2009). Grade R provides learners with early access to skills and knowledge that often improve short and long term academic performance and social proficiency in later primary education (Barnett, 1992; Berlinski et al., 2009; Currie, 2001; Nores & Barnett, 2010; Reynolds & Temple, 1998).

Research has shown that in addition to providing a solid foundation for learning, it is also more feasible for governments to invest in early education programmes rather than having to provide for learners with difficulties later on in life (Berlinski et al., 2009; Currie, 2001). These early education programmes often take many different forms ranging from formal preschools to home-based community environments (Nores & Barnett, 2010). In addition, each programme may have a unique focus which includes areas such as cognitive development, physical growth and child health (Nores & Barnett, 2010). However, although the focus of the programmes may differ, the role of educational context is somewhat more consistent. In this way, it is difficult to ensure equal and quality education at an early stage.

1.4.2 The influence of environments on language development and communication

There are two main environments that children are exposed to at an early age, the first being the home environment and the second being the classroom environment (Curby, Rimm-Kaufman, & Ponitz, 2009; Justice, 2004). Though innate ability and genetics influence the variability of language development in children, research shows that the quality of the environment also plays a role in these communicative differences (Anderson et al., 2003; Hoff, 2006). Environments can be described as systems which surround a child and provide a source for interaction with the world (Foster, Lambert, Abbott-Shim, McCarty, & Franze, 2005). Environments such as home, school as well as childcare and peer groups can be influenced by indirect factors such as socio-economic status, culture and ethnicity (Tudge, Gray, & Hogan, 1996).

Home is the first key environment where children are exposed to high quality language home environments, however, this is not always the case. Quality here can be attributed to the opportunities that children have to observe language exchanges between adults and engage in interactions themselves as well as the amount of adult responsiveness they receive from parents and caregivers (Hoff, 2006; Justice, 2004). These environments can act as encouragement for children who learn that language can be used for communication thus motivating them to use language themselves (Elardo, Bradley, & Caldwell, 1977). However, language is not limited to verbal output but includes print rich settings and shared reading experiences as well which provide an important part of the foundation for academic success (Foster et al., 2005).

The second key environment children are exposed to are classroom environments (Curby et al., 2009). Whether in a less formal day care or formal preschool class, these settings play a vital role in communication development and language learning (Justice, 2004). Often, the school environment exposes children to new communicative situations, including the introduction to multilingual peers and new cultural experiences (Johnson, 1999). In addition to this, the classroom is a key environment for Speech Language Pathologists (SLPs) and teachers to collaborate on language and literacy practices.

In this environment children are provided with ample opportunity to practice delivering messages to teachers and peers using both verbal and non-verbal communication skills (Johnson, 1999). Many researchers believe that young children benefit from wide-ranging opportunities to further their oral language and emergent literacy in early classroom environments (Yeager, Piasta, Justice, & Connell, 2014). Studies indicate that communication supportive classroom environments contribute to language proficiency and social competence which positively influence later academic success and provide learners with a better start to formal education (Foster et al., 2005; Fraser, 2014; Hoff, 2006; Justice, 2004; Rodriguez et al., 2009).

In conjunction with supportive environments, the early years are crucial as there are fundamental developments that occur in all aspects of the child's brain (Grantham-McGregor et al., 2007). Different areas of the brain develop at different stages, however, all stages have an impact on one another (Young, 2002).

If one process is delayed or interrupted, this could have lasting effects on the structure and function of the brain later in life (Grantham-McGregor et al., 2007; Young, 2002). Over the years, there are many theories that have come to light with the regards to the process of language acquisition. These theories are based on different academic backgrounds and therefore all provide unique perspectives on this one phenomenon (Ingram, 1999).

However, there are three main theories that researchers take into account when discussing language development. One of the first language acquisition theories was proposed by B. F. Skinner who believed that adults provide a model for children learning language (Papadaki-D'Onofrio, 2003). In other words, the propensity a child has to learn language is based on the amount of modelling and positive or negative reinforcement provided by adults (Ambridge & Lieven, 2011). While research has shown that adult reinforcement serves as a model for early language development, it is not the only factor involved in language acquisition (Papadaki-D'Onofrio, 2003). It is rather the interaction between social, cognitive and environmental factors that play an important role in language acquisition (Clark, 2008).

The second theory of language acquisition was proposed by Noam Chomsky who put forward the idea that all children have an innate ability to learn language (Ingram, 1999). Chomsky believed that all children learn language in the same way regardless of the amount of input they receive from others (Papadaki-D'Onofrio, 2003). He also believed that the rules for grammar and lexical content of language were coded into the brain at birth and learning language involved contextualising this code and combining the application of known syntactic structures with learnt vocabulary to form sentences (Ambridge & Lieven, 2011). One of the most important aspects of this theory proposed by Chomsky was that children have a critical period that occurs from the ages of four and twelve where they are most successful in learning language (Ambridge & Lieven, 2011). While there is a strong case for nature versus nurture, and while they may benefit from both, children also have innate potential which makes the period they have for learning critical.

The final theory is the interactionist theory developed by Vygotsky that focuses on cognitive development, which dictates that language learning is both biological and social (Papadaki-D'Onofrio, 2003). This theory debates that children observe communication and language interaction in the environment around them and then later develop these abilities themselves (Papadaki-D'Onofrio, 2003). This is a more realistic approach to language acquisition and is supported by current research which indicates that there are many factors that influence language development (Grantham-McGregor et al., 2007; Lonigan, Burgess, & Anthony, 2000; O'Connor et al., 2009). From these theories of language acquisition, there are two important factors that appear to have great influence on language development: The age of the child and learning through interactions. These two characteristics often overlap the most in the Grade R year.

1.4.3 Speech Language Pathologist input is needed in schools

One of the main roles Speech-Language Pathologist's (SLPs) play in facilitating language literacy processes is collaborating with and providing support for teachers within classrooms (Ehren, Ed, & Ehren, 2001; Kathard et al., 2011; Wium & Louw, 2013). SLPs have a particular focus on knowledge of language and communication and have important roles to play in supporting educators to facilitate the reading, writing, speaking and listening skills required to develop language and literacy (Wium et al., 2010). Teachers play a key role in creating supportive environments and when given adequate support and guidance, they can be used as a resource which could help change communication environments in classrooms.

In South Africa, recognized qualifications for Grade R teachers have only been a requirement since 2011, therefore the necessity for teacher support in these classrooms are vital (Wium & Louw, 2011). Grade R now falls under the formal Basic Education curriculum in an effort to prepare learners for formal education and equip them with the skills needed for future success (Department of Basic Education, 2011).

Given this just recent introduction to formal training in preschool education, many teachers often have limited knowledge of typical early language development and the impact it has on literacy and academic learning (Shaughnessy & Sanger, 2005). This in turn means that learners with delays or disorders may not be identified and therefore will not receive appropriate intervention or support which can lead to later language and literacy difficulties (Fillmore & Snow, 2000).

Minimal attention has been paid to the way that teachers learn and develop productive and engaging learning communities within classrooms (Putnam & Borko, 2000). Teachers rarely receive training in developing communication skills and using these skills effectively when teaching (Putnam & Borko, 2000). SLPs are required to provide training and guidance for teachers as well as monitor classroom environments that facilitate language learning at a district and school based level in order to minimise these risks (Wium & Louw, 2011). By focussing on a collaborative effort between teachers and SLPs in the classroom, all learners are provided with regular supplemental early literacy instruction as opposed to individual learners (Korth, Sharp, & Culatta, 2010). In addition, this strategy introduces teachers to research-based instructional approaches to language and literacy (Korth et al., 2010) This collaboration aims not only to support educators but to meet the specific needs of learners (Wium et al., 2010).

Historically, SLP interventions were child specific rather than focusing on education as a whole. This means children with speech, language or learning difficulties were seen on an individual basis with one-on-one therapy in lieu of large scale interventions aimed at providing overall language stimulation. In these cases, contact with teachers is limited and it is difficult to incorporate educational tasks into therapy (Wren, Roulstone, & Hall, 2001). The role of SLPs in improving language and literacy in a classroom-based environment is still emerging and the impact of intervention is unknown (Kathard et al., 2011). However, it has been found internationally that classrooms facilitated by teacher and SLP collaboration have shown positive outcomes that support successful learning (Ehren, Montgomery, Rudebusch, & Whitmire, 2009; Ehren et al., 2001)

In terms of the South African focus, this study will provide a unique and in depth view of classroom communication taking into the account the specific focus that SLPs have on language-learning and literacy development (Ehren et al., 2001). This study will enable researchers to gain an understanding of communication environments in Grade R classrooms in the Western Cape and identify possible gaps in communication support for teachers.

1.4.4 Identifying the knowledge gap

There is little research that has been done in rural schools in South Africa from an SLP point of view. However, it is evident that many schools in rural areas are without basic resources needed for implementing the curriculum such as reading books, computers, stationery, adequate classrooms and furniture (Prinsloo & Janks, 2002). These factors will be further discussed in the study focus later in the chapter. Subsequently, assessments conducted over the past few years have identified that learners in impoverished areas have reduced opportunities to learn literacy skills (O'Carroll & Hickman, 2012). It was reported in 2011 that South Africa had one of the lowest average scores of low income countries that took part in international literacy assessments (Spaull, 2012).

However, it is not just policy that is needed to alleviate barriers to education but also feasible real world solutions to improve these conditions (Hannum, 2008). Evidenced based intervention programmes are sorely needed. However, finding these interventions is difficult due to the lack of high quality research carried out in rural environments (M. L. Arnold et al., 2005). It is important to dedicate research to these areas in order to identify focal points for future intervention. However, before evidence based interventions can be developed, the impact of teacher and classroom variables on communication and language-literacy outcomes in rural areas needs to be established. While these variables play an important role in academic development, there is limited knowledge about this in South African rural contexts.

1.4.5 Introduction to the classroom communication environments

Research has shown that there is inconsistency between developmental levels of learners when they enter schools; this can often be attributed to the amount of stimulation received before entering Grade R and the language and literacy environment in the home (Grantham-McGregor et al., 2007). As such, The Better Communication Project (BCRP) was initiated in London in 2010 as an investigation into methods of making classrooms more communication-friendly and improving the quality of language-learning environments to enhance the language and literacy skills of learners (Lindsay, Dockrell, & Sue, 2010). The project was launched to explore the elements that support communication and from there, develop a framework or tool to carefully monitor the quality of classroom environments and possibly inform future teacher training (Lindsay et al., 2010).

As a result, the Communication Supporting Classrooms Observational Tool (CSCOT) (See Appendix A) was developed as a means of profiling features of communication environments by capturing what is happening in classrooms in real time (Lindsay et al., 2010). The CSCOT was designed to measure three main aspects of the classroom: Language-learning environments, language-learning opportunities and language learning interactions (Dockrell, Bakapoulou, Law, Spencer, & Lindsay, 2012). It was used as the instrument in this study to guide and standardize observations.

1.4.6 Language learning environments

As mentioned above, the first aspect of the CSCOT is language-learning environments which refers to the physical aspects of a classroom including infrastructure, space and resources (Dockrell, Bakopoulou, Law, & Spencer, 2010). Linguistic environments have been shown to have a significant influence on children's language successes; these settings include the home and other environments in which children spend substantial amounts of time such as the classroom (Justice & Wiggins, 2008). Research shows that access to resources such as space, appropriate furnishing and materials available for teaching aids, impacts the quality of children's language learning (Mashburn et al., 2008; Paro et al., 2009).

1.4.7 Teacher roles (Language-learning interactions)

The second aspect of the CSCOT is language learning interactions which refers to the opportunities that learners have to practice their language skills through exchanges with others (Dockrell et al., 2010). The type of instruction and exchanges with adults that take place in Grade R settings have significant effects on learner's achievement in later years (Pianta et al., 2010).

Research shows that interactions in the classroom, both academically and socially, are important indicators of the quality of education learners receive (Paro et al., 2009). There are many different approaches that can be taken in helping young children learning to read and write as it is a difficult and complex process to grasp (Jackson et al., 2006). The challenge is in identifying the most effective strategies for teaching that can enable learning experiences and help learners reach their full potential (Jackson et al., 2006).

Research has shown that teachers and parents provide the most critical roles in developing these vital language and literacy skills, both in supportive and instructional capacities (Neuman & Cunningham, 2008). One of the most important skills that teachers must possess is that of effective communication, which will enable them to construct their language in such a way so as to achieve an efficient and effective medium of instruction within the classroom (Fillmore & Snow, 2000).

Another vital aspect of communication for teachers is their ability to comprehend what is being said to them by learners, as one of the key components of communication is a two-way interaction (Fillmore & Snow, 2000). In addition to facilitating communication environments, teachers play an essential role in supporting language development (Fillmore & Snow, 2000). This involves teaching learners how to use different characteristics of language related to academic communication throughout various school subjects (Fillmore & Snow, 2000).

1.4.8 Learning opportunities

The third aspect of the CSCOT is language-learning opportunities which refers to the prospects that learners have to learn and practice their language skills (Dockrell et al., 2010). The opportunities that learners have to engage in conversations with adults and peers have shown to facilitate the development of language (McCartney, 1984).

Other opportunities that contribute to communication supporting environments include structured activities such as interactive book reading and small group work (Dockrell et al., 2010). The combination of these three dimensions were found to be the key components of effective language-literacy learning (Dockrell et al., 2010). The wellbeing of learners at school and their enjoyment of learning environments are important as good school experiences and quality education are linked to future success and positive future development (Gibbons & Silva, 2011).

1.5 Study context

Since the end of the Apartheid era, South Africa has faced many challenges in the education sector (Chisholm, 2005; Prinsloo & Janks, 2002). Although the laws of Apartheid have been long since abolished, there are still grave inequalities that exist within the Education Department (B. N. Spaull, 2012). After years of segregation, the post-apartheid government was tasked with finding ways to improve service delivery while trying to reduce unemployment and poverty (B. N. Spaull, 2012).

The implementation of Grade R was a long process, carried out over a number of years. In 1995, Grade R was formally introduced in a White Paper that outlined plans to phase in a Reception year into schooling, giving learners a better start to formal education in an effort to correct imbalances in learning outcomes created by Apartheid (Department of Education, 1995). The focus was on improving learning opportunities for learners between ages 0-9, as well as inter-departmental collaboration and forming partnerships with existing Early Childhood Development (ECD) centres and the private sector (Department of Education, 1995).

Thereafter, in 1996 the Department of Education adopted the Interim ECD Policy which aimed to implement a pilot project in order to assess the costs and curriculum needed for the implementation of a Reception Year (Department of Education, 1996). This was done in collaboration with community based ECD services and non-governmental organisations (Department of Education, 1996). At this stage, the Grade R was not a formal year of instruction but a proposed introductory year for primary school (Department of Education, 1996). Approximately 2730 ECD sites were chosen to participate in the three project that, after careful planning, began in 1997 (Department of Education, 1996).

At the end of the project, it was found that the quality of education in Grade R was found to have improved over the course of the three years, as a result of training of caregivers and teachers in ECD centres, developing a curriculum and using an Outcomes Based Education (OBE) approach (Department of Education, 2001). However, it was found that the quality of education provided varied from province to province with the Eastern Cape, Free State, North West and Mpumalanga experiencing severe problems with regards to implementation of the project (Department of Education, 2001). The final report of the project made a few crucial recommendations to policy with regards to ECD, namely: (1) Grade R should be compulsory for admission to Grade 1; (2) Grade R should be offered at primary schools as well as community based ECD centres; (3) The government should make provisions to fund this implantation of Grade R (Department of Education, 2001).

With these recommendations came suggestions for formal teacher training and support from the department, provision of resources such as books and official registration of ECD sites to ensure the monitoring of high quality education as well as safe and healthy environments for learners (Department of Education, 2001). Funding was provided per learner with Grade R in public schools being made the priority, followed by community based sites and independent sites (Department of Education, 2001). Further subsidies were provided to the poorest schools in order to ensure the equitable distribution of funds (Department of Education, 2001).

The OBE system was revised in 2002 due to problems with implementation across the country (Department of Basic Education, 2011). Thus the Revised National Curriculum Statement Grades R-9 was introduced. It was then further revised in 2009 due to implementation challenges and combined with the Revised National Curriculum Statement Grades 10-12, resulting in the National Curriculum Statement Grades R-12 and Curriculum and Assessment Policy Statements (CAPS) document (Department of Basic Education, 2011). This document aimed to provide a clearer picture of teaching and learning requirements on a term to term basis (Department of Basic Education, 2011)

These documents are currently being used to provide guidelines for educators of Grade R and include guidelines for time allocation in hours per subject per day (Department of Basic Education, 2011). In terms of the curriculum, language learning has been divided into four main areas: Listening, speaking, reading and writing, with a suggested 10 hours spent on home language per week (Department of Basic Education, 2011).

This combination of history, the slow changing nature of the education system, and the added pressures from society demanding change have contributed toward the inconsistency between intentions of improving education and the actual outcomes (Chisholm, 2005).

1.6 Barriers to education: Poor education provided in SA currently, particularly in rural areas

The Cape Winelands, chosen district for this study, has a population of 787 490 as of 2011 which makes up 13.5% of the population within the Western Cape (Western Cape Government, 2013). Within this district, there is a literacy rate of 81.7% (Western Cape Government, 2013). As of 2014, there were in total 1 196 358 learners enrolled in school in the Western Cape (Western Cape Education Department, 2014). Of that number, 59 565 learners were enrolled in Grade R public ordinary schools in the Western Cape (Western Cape Education Department, 2014).

While these statistics look promising, the province still has a long way to go in terms of providing quality education for all. The current Basic Education system is not meeting the requirements of the country and as a result it has been found that numeracy and literacy skills in learners are inadequate (Wium & Louw, 2013). Tests, both national and internationally, have proven that most primary school learners have below average literacy and numeracy skills (B. N. Spaull, 2012).

However, there are certain factors outside of the classroom that can influence literacy and numeracy development. One such factor is socio-economic status (Bloch, 1999). Among the most important resources a school has is the payment of school fees which provides much needed income to cover the costs of resources for learners, maintenance of infrastructure and employment of teachers (Phurutse, 2005).

However, the ability of parents in rural areas to provide support to both the school and their children is severely limited due to the large divide between financial stability in rural and urban populations (Phurutse, 2005). This lack of funding often results in rural schools having poor resources and overworked teachers as well as inadequate infrastructure and support for learners (M. L. Arnold et al., 2005; Phurutse, 2005).

It is also important to note that culture is another factor that might be considered as a barrier to education. Culture plays an integral role in human development, especially in diverse countries such as South Africa (Shonkoff & Phillips, 2000). Understanding culture is essential to understanding the influence early experiences have on expectations, practices and values of an individual. In some countries, the culture is to place emphasis on preparing children's practical skills for trades such as agriculture, rather than the theory of mathematics or sciences in a classroom (Mulkeen, 2006). Research has shown that parents in rural areas have often received lower levels of education than that of their urban counterparts and therefore often place a lower value on schooling (Ejieh, 2005). Even when parents do value education, they do not feel equipped to support their children. This can mean that learners do not always receive the support that is needed outside of the classroom (Kendall, 2007). While rural environments present a particular set of challenges, they are not all bad and in many cases this diversity contributes toward the development of new perspectives and ideas in the classrooms.

Particularly in rural areas, geography can play a role in limiting educational opportunities. Necessary trips outside of rural areas such as visiting a doctor or receiving a grant may result in days of missed school due to length of the journey (Mulkeen, 2006). The difficulty with geography is not only limited to learners but also affects teachers. Often teachers are reluctant to accept posts at schools in rural areas due to increased travel time to and from school, which results in decreased formal contact hours and limited access to resources and support (Phurutse, 2005). However, there are positives that arise from working in rural classrooms. Teachers have the opportunity to provide a safe and supportive environment for learners which foster socio-emotional development and academic learning.

The burden of disease and nutrition also play a role in the measure of success a child has in school (Engle et al., 2007). Research has shown that learning can be impaired as a result of malnutrition (Harber & Muthukrishna, 2000). Although many rural schools have access to government funded feeding schemes to provide learners with adequate nutrition, in schools where overcrowded classes are a reality, this often means that not every child has access to a meal (Swartz, 2009). Malnutrition is one of the leading causes of immunodeficiency in developing countries (Chandra, 1997). In areas where diseases and infections such as malaria and HIV/AIDs are prevalent, learners are faced with yet another challenge in the form of ill health both of caregivers and children themselves (Harber & Muthukrishna, 2000). In the Western Cape, the prevalence of HIV/AIDS as of 2009 was 16.9% (Western Cape Government, 2013). This ill health of the child results in poor learner attendance as well as slow learning and impaired concentration while caregiver illness results in decreased support and stimulation at home (Engle et al., 2007; Harber & Muthukrishna, 2000).

In addition to these factors, it is also the varied multilingual backgrounds of learners which play a role in influencing a child's language and literacy development and academic success. Due to the diverse nature of the South African population, many schools are faced with learners who have home languages spanning across the eleven official languages of the country, which makes it difficult, specifically in rural areas, to provide adequate support to every learner in the classroom (Prinsloo & Janks, 2002).

As an added point of contention, providing this support and supplementary learning requires additional human resources for schools which are already under resourced and under strain with overcrowded classrooms and high teacher to learner ratios (Prinsloo & Janks, 2002). Research has shown that larger class sizes in urban and rural settings have a negative impact on the teaching and learning environments (Blaine & Mwamwenda, 1994; Phurutse, 2005). The most recent government statistics indicate that the majority of rural schools have larger class sizes than urban schools (Phurutse, 2005).

Though there are various factors that may present as barriers to education, one of the most vital is poor promotion of early education (McLoyd, 1998). Although many countries focus on developing early education programmes, few are centred around parents and fewer still around parent education (Engle et al., 2007). Parents in rural areas are often less informed about school readiness and the benefits of early education than their urban counterparts (Diamond, Reagan, & Bandyk, 2000).

For numerous reasons, the reality of the South African education system is that there are extremes between the performance of urban and rural schools (Prinsloo & Janks, 2002; Rumberger & Thomas, 2000). Due to these extremes and inequalities in performance, it has been found that a small number of learners perform in the higher range while the majority of learners are performing in the lower range (Kathard et al., 2011; Western Cape Government, 2009). These statements held true within the study contexts. General challenges included large variations between higher and lower performing schools within rural areas as well as potential classroom and teacher variables. Given the diverse nature and characteristics of rural and urban schools, it is important to investigate the communication environments across these contexts.

1.7 Overview of chapters

Chapter One: Chapter One provides the orientation and background to the study. It highlights the aims and objectives of the study as well as details the rationale and study context.

Chapter Two: Chapter Two aims to explore the literature surrounding factors that support communication and early literacy development. The areas discussed will include: language-learning environments, language-learning interactions, language-learning opportunities, additional teacher/classroom variables, comparisons to other studies and existing research gaps.

Chapter Three: Chapter Three will detail the research methodology as well as the pilot study. The methodology discussed will include research design, participants, sampling (method and size), recruitment and procedure. The pilot study will also be discussed in terms of aims and objectives of the pilot, procedure and outcomes. Data collection procedures as well as data analysis methods are included in this chapter.

Chapter Four: Chapter Four will focus on explaining the results of the study. The data was analysed quantitatively and will be presented per aim.

Chapter Five: Finally, conclusions will be drawn from the study in Chapter Five. Comparisons to the literature will be made in accordance with the study aims. This chapter will also document the implications of the study and any recommendations for the future.

1.8 Definition of key terms and abbreviations used in the study

Communication refers to one's ability to both understand language and convey meaning using verbal or non-verbal methods (Johnson, 1999).

CSCOT - Communication Supporting Classrooms Observational Tool

SLP - Speech Language Pathologist

ICDS - Integrated Child Development Services

LOLT - Language of Learning and Teaching

ECD - Early Childhood Development

Communication Environment refers to each environment (home, school, community) and the influence each element has on the exchange of ideas, news, views, messages, information or emotions (Dockrell et al., 2010).

Language-learning environment (LLE) refers to the physical aspects of a classroom including infrastructure, space and resources (Dockrell et al., 2010).

Language-learning interactions (LLI) refers to the opportunities that learners have to practice their language skills through exchanges with others (Dockrell et al., 2010).

Language-learning opportunities (LLO) refers to the prospects that learners have to learn and practice their language skills (Dockrell et al., 2010).

Early Childhood Development (ECD) is a term which applies to the processes by which learners from birth to 9 years develop physically, mentally, emotionally, and socially (Department of Education, 1995).

Morning ring describes the first period of the day where teachers greet the learners and explain basic concepts following the syllabus (Department of Basic Education, 2011).

Grade R refers to the first year of formal schooling within the South African Education system (Department of Basic Education, 2009). This in international literature can also be referred to as preschool, kindergarten or reception year.

Language Learning is the process by which language capabilities develop in a human (Yeager et al., 2014)

Language Acquisition is the process by which humans obtain the capacity to recognize and comprehend language (Clark, 2008; Kramsch, 2003).

CHAPTER TWO

Conceptual Framework and Literature Review

2.1 Overview of the chapter

This chapter aims to provide a background to the theory behind this study looking at the importance of language literacy learning in classrooms as well as theories of language acquisition. It also aims to detail the development of the CSCOT as an observational tool and where it fits in with the aims of the study. It presents the literature in terms of early language intervention programmes in Grade R and research being conducted in other countries. The influence of environments on communication and language-learning will be explained. The key areas of Language-Learning Environment, Language-Learning Interactions and Language-Learning Opportunities will be reviewed. The literature on classroom variables such as school performance and teacher experience which may influence the classroom environment will also be discussed.

2.2 Literature review

2.2.1 What makes a communication environment and why does it matter?

As literature suggests, classroom communication environments are an integral part of language and literacy development and as such should be nurtured from a young age (Johnson, 1999; Korth et al., 2010). Communication is an ability that all human beings use in every facet of their lives, whether it be keeping in touch with family, recounting a story from work or even buying groceries at the supermarket (Dufresne et al., 1996). Communication is also central to all learning; it is the overarching skill without which there would be limited language and literacy learning, or for that matter, any other kind of learning (Johnson, 1999). However, in order to develop communication, language and literacy must also be developed. Including language and literacy in engaging communication tasks within classrooms is the most efficient and effective way to develop these skills (Allen, Gregory, Lun, Hamre, & Pianta, 2013). The classroom provides a unique context for learning, in that the language used decides what is learnt and how things are learnt (Wilkinson & Silliman, 2000).

Learning is an interactive process, none more so than the process of language acquisition and reading that contribute to communication (Cambourne, 1995). Language learning in particular requires integration between oral and written language, social activity and development of interpersonal relationships and active engagement within the classroom (Wilkinson & Silliman, 2000). It is best fostered from a young age as this is the most crucial time for development (Nores & Barnett, 2010). The best way to support language and literacy learning is by creating communication rich environments (Dufresne et al., 1996). However, there are many children in the schooling system who are placed in classrooms where the need to develop communication is overshadowed by the need to fulfil the requirements of a curriculum (Foorman, Anthony, Seals, & Mouzaki, 2002).

Although language interactions happen naturally in all environments, language and literacy learning in South Africa is now a central part of the Grade R Curriculum and Assessment Policy Statement (CAPS), with teachers prescribed to focus 10 hours a week on home language learning (Department of Basic Education, 2011). This is then further broken down into three main areas with organized activities set out for each area: (a) listening and speaking; (b) reading and phonics; and (c) writing and handwriting (Department of Basic Education, 2011). The curriculum then further prescribes frameworks of how to focus on each area for prescribed periods of time. The goal for listening and speaking as per CAPS is allocated within the first ten minutes of every day where teachers and learners are able to discuss the weather, talk about the day and check attendance (Department of Basic Education, 2011). The outcomes required to be promoted from Grade R to Grade 1 are extensive and as such a strict timetable was set out for all teachers to follow in order to standardise learning and maximize inputs to achieve these outcomes (Department of Basic Education, 2011). Teachers then become instructors rather than facilitators and children become learners rather than quality communicators (Justice & Wiggins, 2008).

Though there is much room in the syllabus for language learning, activities become structured and outcome specific which then detracts from the natural process of communication development. As such, the development of vital communication skills that influence language and literacy learning are often lost (Pianta et al., 2010).

Although lessons aim to include prescribed early literacy activities, it is vital that the environments of the classrooms themselves are used as resources to foster good language and literacy practices (Foorman et al., 2002; Paro et al., 2009). However, before this can be done, communication environments need to be clearly defined in order to measure their effectiveness and impact on learning.

There are numerous elements that are assumed to make up a supportive classroom environment, these range from the physical aspects of the classroom, to the number of learners in each class, to the interactions between learners and peers (Paro, Pianta, & Stuhlman, 2004). Literature shows, however, that it is a combination of these aspects which contribute toward language rich environments that support learning (Justice, 2004). Each aspect plays a particular role in communication development: Physical environments that stimulate language learning, interactions that foster language exchanges and opportunities that allow children to practice using the new language they have learnt in new ways (Fraser, 2014).

The physical classroom environment should provide a stimulating atmosphere with language and literacy rich print as well as language and literacy specific areas focused on developing these skills outside of lessons (Dockrell et al., 2010). There should be spaces for children to engage with not only learning and play materials but with each other as well (Dickinson & Caswell, 2007; Dockrell et al., 2010). Interactions play a large role in the development of communication skills. This process reflects Vygotsky's Theory of Language Acquisition that focuses on the cognitive processes of learning language and proposes that this is a social or interactive process (Papadaki-D'Onofrio, 2003). It is through interactions that children build up a number of language and social skills required to function socially and academically (Hall & Walsh, 2002). Through interactions, children are able to co-construct knowledge based on listening to others, challenging their own perspectives and expanding beliefs while relating to one another (Gillies, 2013).

Opportunities then arise from these interactions and physical environments where children are able to practice new language and discuss new ideas. These can be through small group interactions or conversation with peers (Dockrell et al., 2010).

2.2.2 How do we measure classroom environments?

There are various measures that can be used to measure classroom environments. This is a challenging area with many different tools and checklists which aim to measure different aspects of classrooms (Allen et al., 2013). This can vary from measuring the most developmentally appropriate practices to the quality of classroom experiences to teacher instruction (Mashburn et al., 2008). Tools such as the Classroom Assessment Scoring System (CLASS), Early Childhood Classroom Observation Measure (ECCOM) and Early Childhood Environmental Rating Scale (ECERS) were developed to measure aspects of the environment that supported language and literacy learning (Allen et al., 2013; Booren, Downer, & Vitiello, 2012; Stuhlman, Hamre, Downer, & Pianta, 2010a). Different scales however, focus on different aspects of the classroom, for example, the ECERS is a standardised procedure to evaluate classroom environments at a global level, the CLASS focuses on interactions between teachers, peers and within tasks as well as emotional support and classroom organisation, while the ECCOM measures social climate and cultural sensitivity within these settings (Paro et al., 2004). There are many different tools which can be used to measure classroom environments.

However, for the purposes of this study, a tool was needed that would allow researchers to capture classroom communication environments at a single moment in time which could provide a broad overview of the current South African communication context in Grade R. The tool best suited to this aim was the Communication Supporting Classrooms Observation Tool (CSCOT) developed as part of the Better Communication Research Project in the UK.

2.2.3 Background to Better Communication Research Project

Before the Better Communication Research Project was launched, the Bercow Report was compiled in July 2008, in response to the limited services provided to children with communication difficulties between the ages of 0-19 (Bercow, 2008). It highlighted the steps that needed to be taken in order to support children with communication difficulties within the schooling system and was submitted to Parliament in London (Bercow, 2008).

The key themes of this report included the importance of early intervention, the critical importance of communication and the need for collaborative services (Bercow, 2008). The report went on to further identify the gaps in provision of services within the education sector and as a result, the Better Communication Action Plan was developed (Bercow, 2008). This plan in turn engaged the government, professionals (including teachers and SLPs) and families in planning initiatives to resolve the problems (Department of Health, 2008). The principles for these initiatives included raising awareness of communication difficulties, collaboration within sectors and policy development to improve service delivery (Department of Health, 2008). The Better Communication Research Programme was the response to the Bercow Report's call for a committee that could inform service delivery to improve outcomes for children with speech, language and communication difficulties as well as add to the evidence base (Lindsay, Dockrell, Law, & Roulstone, 2010). It also highlighted the importance of the early grades in school which provide a foundation for children to develop communication skills as well as language literacy at an early age (Dockrell et al., 2010). As such, research was dedicated to bridging the gap between the health and education sectors as well as integrating research, practice and policy (Lindsay et al., 2010).

In total, there were ten research projects carried out by the BRCP (Lindsay et al., 2010). One of the studies, as previously mentioned, aimed to explore the elements that support communication and, thereafter, develop a framework or tool to carefully monitor the quality of classroom environments and possibly inform future teacher training (Dockrell et al., 2010; Lindsay et al., 2010). The tool developed was the CSCOT. For three months, two senior research fellows piloted the tool in 15 classrooms ranging from Grade R to Grade 2 in schools across the North and South East of England (Dockrell et al., 2010).

The results of the BRCP indicated that there were no significant differences across the year groups (Grade R, 1 and 2) for the dimensions, language-learning opportunities or language-learning interactions. However, there was a significant difference across language learning environments with Grade R appearing as a front runner in creating sufficient language environments for language-learning (Dockrell et al., 2010). This indicates that Grade R classes in the study had the infrastructure and resources available to promote language learning and support communication development in classrooms.

In addition to examining the communication environments across year groups, the differences were examined across urban and rural schools. No significant differences were noted between language-learning environments or language-learning interactions. However, rural schools were found to have scored higher in the area of language-learning opportunities (Dockrell et al., 2010). This indicates that learners in rural schools were provided with ample opportunities in which to learn and practice their language skills.

Building on the BCRP study, an undergraduate thesis project at the University of Cape Town in 2013 aimed to describe the language-learning environment within a foundation phase classroom in an informal settlement in the Western Cape, using a classroom observation tool (Harty et al., 2013). The data was collected in an English medium school in an urban area. As part of the study, the CSCOT was assessed for face and content validity by a panel of experts for use in a South African context. Analysis revealed that this tool can be used as a means to highlight strengths and weaknesses within classroom settings and focus on improving areas that require intervention (Harty et al., 2013).

The results of the study could not be generalised to the South African population due to the limited sample size. However, the results of this study were found to mirror the results found in the BCRP whereby the findings indicated that the foundation phase, Grade R's in particular, were observed to be organised to facilitate optimal learning (Harty et al., 2013). While there was no significance noted across the grades in terms of language-learning interactions, there were significant differences found with regards to language-learning opportunities (Harty et al., 2013).

Furthermore, this study also recommended modifications to the tool (Harty et al., 2013). While both of these studies examined communication environments across foundation phase classrooms, this study will focus on Grade R classes only. It is also important to note that, in South Africa, the study was carried out in a middle-class English speaking classroom and that all classrooms in the country may not have similar environments.

Though the research indicates that Grade R is performing optimally in some aspects, it is important to focus on Grade R as it is the entry point of schooling for many learners and the year in which important academic foundations are built (Dobbs-Oates et al., 2011). Various aspects of the classroom impact on the quality of language-learning environments, language-learning interactions and language-learning opportunities such as class size, child to teacher ratio, the characteristics of teacher experience and training, the use of certain programmes in the classroom and additional services offered to families outside of the classroom environment (Mashburn et al., 2008).

2.2.4 Language Learning Environments

The classroom is an important environment for children to develop academic and social skills, therefore the quality of the classroom is an important factor to consider in supporting language learning (Paro et al., 2009). In past research, student achievements were the standard by which outcomes were assessed (Fraser, 2014). However, classrooms as learning environments also provide a unique approach to investigating and improving what goes on in classrooms (Fraser, 2014). It is much more than just a place in which to store books and desks and provide shelter for teachers and students (Martin, 2006). Generally, schools tend to focus more on lesson planning rather than the space, materials and physical settings of teaching (Morrow, 1990). Yet, elements of the physical setting, if purposefully arranged and combined with a well-defined teaching plan, can be used as an active learning space (S. B. Neuman & Roskos, 2005).

There are two main aspects of the classroom that can affect the contribution the environment makes towards learning (Martin, 2006). The first is the structural capacity of the classroom which provides the basic space of the classroom (Lackney, 1994). This controls factors such as light, temperature and acoustics, in and outside, of the room which will affect how interactions between groups occur (Martin, 2006). Physical aspects of the environment all play an important role in a child's learning experience (Read, Sugawara, & Brandt, 1999).

The second aspect of the classroom is the arrangement of the room which includes decoration, the organisation of furniture, play areas and group spaces (Martin, 2006). Classroom materials also play a key role in language development (Martin, 2006). Props can be used when teaching in order to facilitate more complex learning interactions and literacy environments, including print rich posters and charts. Dedicated reading areas can be used to provide stimulation to children as well as modelling good literacy habits (Strickland et al., 2004). The combination of these factors can affect safety, mood, behaviour and concentration of children in the classroom (Read et al., 1999).

Conversely, poor classroom conditions make it difficult for teachers to deliver, which limits the learning process (Martin, 2006). In addition to this, inadequate lighting, ventilation, space and poor acoustics negatively impact the experience of learners in a classroom (Lyons, 2001). A large concern in developing countries is that low income schools are often housed in old buildings without necessary funding needed for maintenance or improvement of buildings and resources which can compromise the health and safety of children and therefore their learning experiences and opportunities (Lackney, 1994). The reality of classrooms in South Africa is that there is an uneven distribution of resources in urban and rural areas (Prinsloo & Janks, 2002). However, little else is known about the environments that children in these areas are exposed to.

2.2.5 Language Learning Interactions

Interactions within classrooms are an integral part of any given school day. These interactions include language exchanges with teachers and with peers whether as part of a classroom discussion or natural conversation (Curby et al., 2009; Hall & Walsh, 2002). In the past, the model in classrooms included teachers as the addressee or third party communicator where students refer to other students without actually addressing them directly. This often means that students in classroom situations were rarely granted opportunities to interact with each other (Cazden, 1986). Research indicates that the interactions children have with adults and peers in preschool have measurable effects on school achievement (Pianta, et al., 2010). Currently still in many classrooms, the practice is that the teacher talks and the students are required to answer questions which often just reaffirm ideas previously mentioned by the teacher (Gillies & Boyle, 2010).

For the last few years, language-learning practice in classrooms has been focussed on moving away from teacher-centred methods and towards a more learner-centred approach (J. Arnold, 2005). Emphasis has been placed on group learning in order for children to develop important cognitive, linguistic and social skills within the classroom (J. Arnold, 2005). This kind of cooperative approach aims to actively engage children with the learning process, specifically language and literacy learning, and provide children with experiences that increase their likelihood of success in later years (Pianta et al., 2010).

However, in Grade R, important peer interactions are not limited to formal academic group work but also more social aspects of language including engaging in pretend play, sharing toys and asking others to play (Gillies, 2013). These interactions allow students to practice turn taking skills as well as script content with other children within the context of their games (Howes et al., 2011). High quality instruction also plays a role in language learning interactions that take place in the classroom; these high quality communications include instructional conversations between children and teachers as well as literacy specific instructions such as interactive book reading and feedback to students (Pianta, et al., 2010; Roskos, Christie, & Richgels, 2003; Strickland et al., 2004).

Some teachers find this method challenging as it means they have less control of the communicative channels in the classroom (Gillies & Boyle, 2010). It also requires sustained effort and can place strain on teachers to adhere to the objectives of a rigid curriculum while still allowing students the opportunity to develop their language skills (Gillies & Boyle, 2010). According to research carried out in Australia, teachers are more willing to use interactive methods in the classroom when they have received training on creating dialogic discourse and how to use these techniques within the curriculum (Gillies, 2013).

Interactive student learning is most beneficial when students, their peers and teachers actively participate in discussions and engage with new ideas together (Brigman & Webb, 2003; Roskos et al., 2003). However, this level of interaction varies depending on a number of classroom variables such as income of families, the concentration of poverty and numbers of staff available in the classroom to work with the children (Pianta et al., 2010). As such, this study aims to explore the extent to which interactive language learning takes place within the South African Grade R classroom context.

2.2.6 Language Learning Opportunities

Children are exposed to many learning environments when they are young. Each environment provides an opportunity to practice emerging skills and learn something new (Dunst, Hamby, Trivette, Raab, & Bruder, 2000). The areas of environment, interaction and opportunity are interrelated, each having a different contribution to language learning but all having an influence on academic achievement (Curby et al., 2009). Learning opportunities vary from school to school and even from classroom to classroom based on curricular programmes available and instructional experiences (Gamoran, 1987). These opportunities can be intentional or unplanned and occur in a number of situational or activity based tasks (Dunst et al., 2001).

Often, children are placed in classrooms where there is little or no opportunity for them to reap the rewards that come from interacting with others and the classroom environment (Gillies & Boyle, 2010). Research has shown that children benefit from preschool programmes, the success of which are influenced by the classroom environment and the quality of interactions with peers and teachers (Curby et al., 2009).

However, many classrooms follow a didactic approach to learning with little room for discussion and minimal interaction (Curby, Rimm-Kaufman, et al., 2009). These practices are based on the idea that some basic skills need to be mastered before advanced learning can occur and are therefore acquired through direct instruction (Stipek, 2004). This applies not only to discussion and group work but reading activities as well, where the teacher is the instructor rather than the facilitator (Wasik & Bond, 2001). In the early years, this teacher-centred approach may have negative effects on the social and motivational development of children (Stipek, Milburn, Clements, & Daniels, 1992). In addition, it also limits the opportunities that children have to practice language learnt (Stipek, Milburn, et al., 1992).

While this is often the case in the majority of classes, many early childhood programmes have included some aspect of group learning into the curriculum in order to provide children with opportunities to develop language and social skills (J. Arnold, 2005). Adding activities such as interactive reading, small group work tasks and theme discussions are just a few ways in which lessons are being improved in order to develop language-learning opportunities for children (Seidman & Tseng, 2011). In classrooms with high quality instructions, dialogic interactions are frequent and students are encouraged to voice their ideas and opinions (Curby, LoCasale-Crouch, et al., 2009).

The experiences children have in the classroom play an important role in their language-learning development (Curby et al., 2009). Efforts to provide children with a better start to formal schooling have included introducing methods of teaching which aim to expand on the opportunities children are exposed to in the classroom (Curby et al., 2009). This includes focussing on holistic development of the child by providing emotional and instructional support to students as well as effective classroom organisation which fosters high quality interaction practices (Curby et al., 2009; Seidman & Tseng, 2011).

However, in South Africa, resources are limited and while there is not much existing literature, one study indicated that teachers receive little support with regards to creating language opportunities and maximizing classroom potential (Wium & Louw, 2011). Therefore, this study aims to explore the language-learning opportunities provided in Grade R classes in the country. This area of investigation is complex, particularly as contexts vary and while there are helpful tools like the CSCOT, these are in an early stage of development and use. This study is one of the first studies of this nature with a SLP focus.

2.2.7 Classroom factors that influence communication environments

There are a combination of factors that influence the success and quality of preschool programmes (Pianta et al., 2010). This ranges from the nature of the programme, the classroom environment as previously discussed and characteristics of the teacher. There has been extensive research done internationally which has focussed on determining the relationship between teacher classroom characteristics such as teacher education, teacher experience and class size and student achievement (Nye, Konstantopoulos, & Hedges, 2004).

This study aims to document three aspects which influence classroom environments in South Africa: Teacher related factors, class size and school performance. These factors were chosen not only because they are highlighted in international literature as key factors that could influence environments, but also because little is known about them in relation to South African classroom communication contexts.

Teacher Related Factors

In countries such as the USA, significant research has been done on the characteristics of teachers who promote successful student achievement (Darling-Hammond, 1999). It has been found that teachers who are skilled and well prepared for a classroom environment have a considerable and continued impact on children's literacy skills (Jackson et al., 2006). Research shows that teachers who hold a degree in early education provide higher quality learning experiences for students (Pianta et al., 2010).

Furthermore, teachers who engage with continued professional development in the area of adapting practices and early intervention, provide more stimulating environments for children (Pianta et al., 2010). These were key considerations for the purposes of this study. Researchers wanted to know the effects of these factors on communication within classrooms. Few studies in South Africa have been able to track the influence that teacher variables have on communication supporting environments.

Another factor found to influence student outcomes is teacher experience; studies have shown that teachers with less than three years of experience are generally less effective than more senior teachers (Darling-Hammond, 1999). However, this gain plateaus after a period as senior teachers often become less effective in senior years; possible explanations for this include job fatigue and lack of interest toward continued professional development in later years of their careers (Chingos & Peterson, 2011; Darling-Hammond, 1999).

Within a South African context, research indicates that historically, teacher training has focussed on the content of the training rather than on equipping the teachers with the skills on what and how to teach (Prinsloo & Janks, 2002). As a result of this, there has been limited transfer of this training into classroom environments (Prinsloo & Janks, 2002). Teachers are so concerned about what information they are delivering in the curriculum, they often overlook how they are delivering it (Johnson, 1999). This study therefore aims to explore how teacher-related factors such as age and years of experience influence the communication environments they provide.

Class Size

The debate of the effect that class size has been a challenge facing researchers for years, each study differing from the last (Biddle & Berliner, 2002). Class size tends to vary from school to school depending on the resources available, the number of teachers per grade and sometimes even the geographic location of the school (Mosteller, 1995). Internationally, the country with the largest average class size is China with approximately 39 learners per classroom, while the country with the smallest average class size is Luxemburg with approximately 15 learners per classroom (OECD, 2014). In South Africa, the average class is 40 children per classroom (Moloi & Chetty, 2011).

It is common practice that many schools are funded based on the number of students enrolled, and as such class sizes are growing larger and larger each year (Blatchford, 1994). The majority of research indicates that class size has a positive impact on learning outcomes where smaller class sizes have better outcomes (Blatchford, Bassett, & Brown, 2011). However, in order to get a clear idea of the effect of class size both sides of the argument must be explored.

The research is divided into two viewpoints, one that proposes that class size has no effect on academic outcomes, and one that proposes that class size has a positive effect on academic outcomes (Rothstein, Krueger, Hanushek, & Rice, 2002). Leading researchers for the case against reducing class sizes believe that using class size as an indicator of student performance is a political move to address long standing problems in public schools of poor academic success through easily visible changes (Hanushek & Allen, 1998). Extensive research has explored classrooms over a number of years and findings indicate that academic achievement remains virtually unchanged despite the smaller teacher-child ratios applied to classrooms over the past few years (Biddle & Berliner, 2002; Hanushek & Allen, 1998; Rothstein et al., 2002; Schneider, 2002). While there are some positive outcomes such as higher teacher satisfaction rates that appear as a result of reduced class sizes, these are often balanced out by negative aspects such as the high costs associated with implementing this strategy (Hanushek & Allen, 1998).

On the other hand, there has been research that states the opposite, questioning the methodologies used by researchers in obtaining those results (Schneider, 2002). In 1985, an experiment was conducted in Tennessee, United States of America, that was constructed to determine the short and long term effects that class size has on the earliest grades (Mosteller, 1995). This study has been used by many as the foundation of class size research (Schneider, 2002). The project consisted of two parts: the Student-Teacher Achievement Ratio Project (STAR) and the Lasting Benefits Study (Krueger, 2003).

The first part of the programme, the STAR project, was carried out over four years from kindergarten to Grade 3 and compared effectiveness of smaller versus regular sized classrooms (Mosteller, 1995). The results of the study indicated that there was a significant difference between the two groups where children in smaller classes achieved higher test scores (Krueger, 2003; Mosteller, 1995; Rothstein et al., 2002; Schneider, 2002).

The second part of the programme aimed to track the progress of the children enrolled in regular and smaller classes (Mosteller, 1995). Results of this project indicated that children who began in smaller classes continued to perform better than those who started in regular classes (Krueger, 2003; Mosteller, 1995; Schneider, 2002). The children who started out in smaller classes had improved academic achievements even when reintroduced to regular class sizes later in their schooling career (Krueger, 2003; Mosteller, 1995).

In many of the studies that have explored this area, methodologies seem to be a regular point of contention (Schneider, 2002). The difficulty also seems to be controlling the other variables that influence positive outcomes such as parent involvement in the learning process at home and the interactions between children and teachers within the classroom (Blatchford et al., 2011). Although this research may not yet be definitive, similar non-academic ideas as to the effect of class size seem to be appearing in the literature (Biddle & Berliner, 2002).

One such idea is that lower teacher-child ratios are associated with more adult-child interactions, individual attention given to each child and the way they learn, and less restrictive behaviour by teachers attempting to keep a big class under control (Bowman, Donovan, & Burns, 2000). Larger numbers in the classroom may often mean that children who have communication difficulties fall through the cracks without receiving the support that they require (Dustmann, Rajah, & Soest, 2003).

Creating smaller class sizes is a fast and effective way for governments to increase the amount of resources available to each school, however, in areas where there are large numbers of students and few schools, this is not always a feasible strategy (Dustmann et al., 2003). Lastly, the level of teacher and parent satisfaction is higher when classes are smaller (Schneider, 2002).

Though the current class size research fails to draw convincing conclusions with regards to the effects on academic achievement, it is evident that there are some aspects of class size that can have some effect on school performance in certain circumstances (Rothstein et al., 2002). While there is continued effort to explain these conflicting results, projects such as the STAR experiment are making positive strides towards getting an answer (Schneider, 2002). This research aims to further explore the effects of class size on academic achievement within a South African context.

School performance

There have been significant inequalities across different educational contexts in urban and rural populations resulting in lower and higher performance of schools (Kathard et al., 2011; Prinsloo & Janks, 2002; Stipek, Daniels, Galluzzo, & Milburn, 1992). In developing countries, teacher and school quality have a positive effect on academic achievement, especially in primary school (Heyneman & Loxley, 1983). Although the background characteristics of individual students play a role in achieving required outcomes, the characteristics of the school that children attend also contribute to achieving these outcomes (Rumberger & Thomas, 2000). Research conducted in Hong Kong discovered that emphasis is being placed on the search for quality education in educational reforms around the world (Cheng & Tam, 1997).

The reality of the South African education system is that there are extremes between the performance of urban and rural schools (Prinsloo & Janks, 2002; Rumberger & Thomas, 2000; Stipek et al., 1992). Contexts of inequality often leaving lasting impacts on education and performance of schools (Spaull, 2012). Due to these extremes and inequalities in performance, it has been found that a small number of learners perform in the higher range while the majority of learners are performing in the lower range (Kathard et al., 2011). Given the diverse nature and characteristics of lower and higher performing schools, it is important to investigate the communication environments across these contexts. At this stage, the aim is not to draw causal relationships but to explore the relationships in environments and the differences across low and high performing schools.

In schools found in rural areas and townships of South Africa, features such as poverty combined with high teacher turnover, lack of funding, absenteeism and low expectations for student achievement impact on the quality of education and subsequent performance of schools (Corallo & McDonald, 2001; Kathard et al., 2011). In higher performing schools, factors such as effective school leadership, goal setting, high expectations of students, supportive learning environments, collaboration between students, staff and parents as well as quality instruction and access to resources positively impact on student achievement and therefore overall performance of the school (Bergeson, Shannon, & Ed, 2007).

This research project aims to describe the communication environment in Grade R classes in a rural district setting guided by the three dimensions of the CSCOT. The dimensions of the CSCOT will be compared across classrooms to obtain an overview of communication environments across rural districts of the Western Cape. Additionally, the three dimensions in Grade R classes will be compared across higher and lower performing schools in the Western Cape. Finally, the study aims to determine how teacher-classroom variables such as teacher training and teacher experience influence Grade R classroom communication environments.

2.2.8 Preschool intervention programmes

In the last few years, international research has begun to focus on Grade R programmes that provide support for teachers and assist in the development of language and literacy in the early school years (Dickinson & Caswell, 2007). Grade R programmes are intended to develop behaviours and academic skills of children before they enter a school environment (Howes et al., 2008). These early years are crucial as there are fundamental developments that occur in all aspects of the child's brain (Grantham-McGregor et al., 2007). Grade R provides children with early access to skills and knowledge that often improve academic performance and social proficiency in later primary education (Berlinski et al., 2009).

As a result of this, many developing countries such as Jamaica and the Philippines have been putting emphasis on research that will contribute toward improving the quality of education received at a preschool level (Department of Basic Education, 2009; Grantham-McGregor et al., 2007). Research being done in other developing countries is vital in informing interventions that could be feasible in South Africa. This section focuses on the various intervention programmes in other countries that can provide models for intervention programmes in South Africa.

Although there are many different methods and practices of preschool interventions around the world, the one thing every programme has in common is a focus on improving lack of school readiness in children (Howes et al., 2008).The recent trend for research in developing countries has been to focus on defining outcomes to describe what is expected of learners at certain levels. However, the focus needs to be shifted toward managing the quality of learning opportunities that learners need to be exposed to in order to achieve the defined outcomes (Crabbe, 2003). This is a trend that is sorely needed to be followed within South African communication supporting contexts.

Studies have shown that there are risks involved with applying standard-based curriculums to early childhood learning programmes (S. B. Neuman & Roskos, 2005). This is mainly due to the fact that childhood development, especially in the first year of preschool, is considered on an individual level rather than using absolute benchmarks for achievement (Bowman et al., 2000). In addition, early education aims to focus on a combination of content areas rather than a subject specific focus. Focussing on one subject may result in disjointed learning with few of the concepts being grasped by the young child (Bowman et al., 2000; S. B. Neuman & Roskos, 2005).

Finally, early education centres around holistic development; moving away from this and focussing on a more academic programme might exclude social or emotional aspects of development which play an equally important role in school readiness (Strickland et al., 2004).

In order to develop language and literacy skills that improve later academic success, children need a strong conceptual knowledge and language base, an extensive vocabulary and an aptitude for verbal reasoning which aids in understanding messages that are being conveyed to them (S. B. Neuman & Roskos, 2005). Coding skills such as grapheme recognition and phonological awareness and the relationship between the two are also vital in language and literacy development (McCardle, Scarborough, & Catts, 2001; Roskos et al., 2003). However, in order to achieve these skills, children need to be provided with the opportunity to develop these abilities interactively which is where preschool intervention programmes come into play (S. B. Neuman & Roskos, 2005).

In the past, programmes such as Head Start focussed only on at risk populations (Garces, Thomas, & Currie, 2000). As this project was developed in America in the 1960's as a way to reduce the effects of poverty and give children a better chance, the children that received this intervention were predominantly from disadvantaged socio-economic backgrounds between the ages of three and four (Garces et al., 2000). The climate in this study draws similar parallels to the history of South Africa and the current state of the South African education system which is why the intervention focus and outcomes of this study are crucial to this context. Subsequently, Head Start has expanded and branched out into two main areas: (1) Early Head Start which provides home-based and day care-based support for children from birth to three years of age; and (2) Preschool Head Start which provides parent support and interventions at the day centres attended by children between the age of three and five (Adam, 1999). Although this programme has short term effects on test scores in the early years, no long term effects of the programme have been found (Garces et al., 2000).

However, in developing countries, there are various factors in play that extend beyond just the need for high quality child education such as child health and nutrition as well as water and environmental sanitation (Hannum, 2008). Taking this into consideration, the Integrated Child Development Services (ICDS) programme was developed in India in 1975 (Kapil, 2002). It is aimed at the holistic development of children – providing support from the earliest opportunity, and vulnerable women – including pregnant mothers and female adolescents (Kapil, 2002).

The services are provided at a village and block level all the way up to a government level and aim to include multiple sectors to ensure the success of the programme (Kapil, 2002). It is programmes like these that provide a model as well as insights into developing potential programmes for South African contexts which present similar difficulties.

The foundation of the ICDS programme is found in the branch of Early Childhood Care and Preschool Education which focuses on promoting stimulation of young children through interventions with the mothers as well as holistic development of children up to the age of six (Kapil, 2002). Evaluations carried out as part of the programme found that children involved in the ICDS scheme showed improved psychological development and reduced early childhood mortality rates (Kapil, 2002).

Quality preschool programmes should include a number of components that focus on not only the holistic development of the child but providing support and training to teachers (Bowman et al., 2000). Although programmes vary across countries and contexts, research shows that children who attend well planned programmes where curriculum aims are specific and integrated across all domains of development have a tendency to learn more and are more prepared to face the challenges of formal schooling (Bowman et al., 2000).

CHAPTER THREE

Methodology

3.1 Overview of the chapter

In this chapter, the methodology will be discussed. The details of the study will be presented in this chapter, including sample size and participants, recruitment strategies, data analysis and ethics. The classroom observation tool used in the study was being used in this study for the first time where the challenge presented is using the tool in classrooms with different languages. The pilot phase was used to validate the tool within this South African context and will be described below. Due to the exploratory nature of the study, much of the study resulted in a trial and error approach. Previous literature was used to guide the overall methodology and much of the design.

As previously mentioned, the primary and secondary aims of the study are as follows:

Primary aim

To describe the communication environment in Grade R classes in a rural district setting in the Western Cape.

Objectives

1. To describe the communication environments in Grade R classes in terms of language-learning environment, language-learning opportunities and language-learning interactions.

2. To describe the three dimensions of the communication environment across classrooms to determine areas of strengths and weaknesses.

Secondary aims:

To explore the relationship between communication environments and school performance in a rural district in the Western Cape.

To explore if teacher and classroom variables influence Grade R classroom communication environments.

Objectives

3. To explore the relationship between Grade R in communication environment scores in higher and lower performing schools in a rural district.

4. To explore the relationship between teacher experience, class size and school performance and Grade R classroom communication environment scores.

3.2 Research design

A quantitative approach was taken as it was useful in identifying factors that influence an outcome (Creswell, 2003). A quantitative study allows researchers to make formal generalisations, explain phenomena and focus the study in order to obtain specific information (Muijs, 2010; Sandelowski, 2000).

It is important for researchers to be able to draw specific conclusions in order to make formal, standardised comparisons between classrooms. In quantitative studies, the variables intended for study are pre-selected and conclusions are drawn from the results of statistical analyses (Sandelowski, 2000). In this study, variables LLE, LLI, LLO, class size, teacher experience and school performance were preselected to draw conclusions about the degree to which classrooms support communication and language development. This research aimed to document the communication environments in classrooms and thereafter explore the factors that influence language learning specific to the South African Grade R population.

In order to conduct a descriptive, analytical study and to obtain the required information for this project, an observational cross sectional study design was used (Fraenkel & Wallen, 2000). This cross sectional approach was a key aspect in the development of the CSCOT which allowed researchers to document what was happening in the classroom over the prescribed observation period (Dockrell et al., 2010). Cross sectional studies allow researchers to gain an idea of the current situation in the environment observed; this study provides an overview of what is happening at a given time in Grade R classrooms (Collins, Joseph, & Bielaczyc, 2004; Jacobsen, 2012).

This kind of study also indicates associations that may exist between variables, allows researchers to explore relationships between variables and is therefore useful in generating hypotheses for future research (Levin, 2006). For the purposes of this research, an observational study was used in order to be able to describe communication environments in Grade R classes. Observation, specifically classroom observation, is a method of observing classroom environments as lessons and teaching practices occur in real time (Hora & Ferrare, 2013). A natural, direct, structured, non-disguised observation was conducted using the CSCOT as the tool which predetermined the aspects of the classroom that were being observed (Stuhlman, Hamre, Downer, & Pianta, 2010b; Zikmund, Babin, Carr, & Griffin, 2012).

A structured observation tool, such as the CSCOT, allowed the researcher to minimize bias during the observation and provided specific information that contributed toward results (Stuhlman et al., 2010b). In addition to these factors, observational methods are also cost effective, efficient and ethically advantageous means of collecting data; it enables flexible research approaches that can be used to explore a range of topics (Mathers, Hunn, & Fox, 2009).

3.3 Sample size

A sample size of 60 classrooms was used, consisting of 30 lower performing schools and 30 higher performing schools. When considering the methodology of a study, it is important to determine the size of the sample, as inappropriate or inadequate sample sizes impact the quality and the accuracy of the research (Bartlett, Kotrlik, & Higgins, 2001). Previous studies have indicated that there is a large variance between classrooms therefore 60 was deemed an appropriate sample size (Dockrell et al., 2012; Harty et al., 2013; Raudys & Jain, 1991). As this study is the first study of its kind, it was difficult to find prior information to base sample size on; as a result, 60 was decided on as it is a feasible sample size that will generate robust data for comparison (Julious, 2005).

3.4 Sampling method

This study required different subgroups to be investigated, therefore, stratified adaptive cluster sampling was used to ensure a representative sample (Thompson, 1991). This method required dividing the study population into subgroups and, within those groups, selecting clusters of participants (Fraenkel & Wallen, 2000). In this instance, the overall population of Grade R classes within the Cape Winelands District were further broken down into groups of higher and lower performing schools. Thereafter all Grade R classrooms within a school were chosen which were then classified as clusters of classrooms rather than choosing one classroom per school.

A third party individual was used to randomly choose schools out of all the schools in each category of higher performing schools and lower performing schools within the Cape Winelands District using a fishbowl. Thereafter, schools were placed into two unidentifiable lists. The researchers then contacted the schools on this randomized list starting at number one and working through the list until 30 classrooms on each list were obtained. The researchers and raters involved in obtaining data were blinded to the classification of higher or lower performing schools by using this third party individual to choose schools without revealing the level of performance. Blinding ensured that researchers were unaware of variables impacting the study so that they were not influenced by prior knowledge, thus reducing bias (Schulz & Grimes, 2002).

These lists were then used in order to contact participants. All Grade R classrooms in the chosen schools were chosen to participate in the study until the targeted sample size was reached. The higher and lower performing schools were classified according to the systemic results as released by the Department of Education (Western Cape Education Department, 2014).

The figure below represents the process which was followed in order to obtain the sample size.

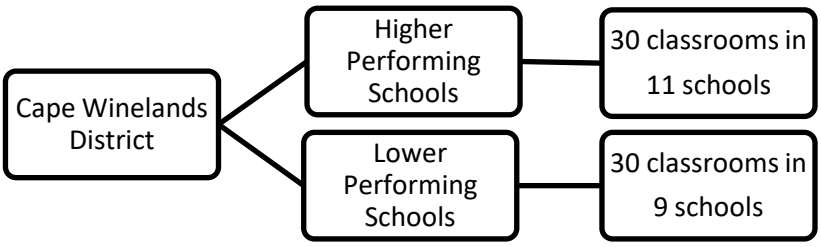


Figure 3.1 Process of obtaining sample size

3.5 Participants

The selection criteria for the study included all regular learners and regular classroom teachers in the chosen Grade R classrooms in a rural/remote district. This was to ensure the most natural conditions for observations. In order to obtain reliable, natural observations, these inclusion criteria were necessary.

Inclusion criteria for teachers:

Teachers who routinely taught the Grade R class and who agreed to participate were included in the study.

Inclusion criteria for learners:

The learners who were regular members of the class were also included.

Inclusion criteria for classrooms:

Public Ordinary Grade R classrooms attached to Public Ordinary schools were chosen for the study, once principal, teacher and learner consent was given.

Exclusion criteria for teachers:

Substitute teachers were excluded from the sample as observations were to capture a regular lesson; in addition to this, part of the study focused on acquiring specific classroom demographics known by the teacher.

Exclusion criteria for learners:

Learners were excluded from the study if parent consent was withdrawn.

Exclusion criteria for classrooms:

Independent Grade R classrooms within Early Childhood Development centres or private schools were excluded from the study. Classrooms were also excluded if principals and teachers did not give consent.

3.6 Recruitment strategy

Once ethics approval had been obtained from the University of Cape Town's Faculty of Health Sciences Human Research Ethics committee, permission was also obtained from the Western Cape Department of Education. The researchers worked through the lists mentioned above in order to contact schools until the desired sample size was achieved. The principals of the chosen schools were contacted telephonically in order to gain permission to work with the schools. In addition, onsite meetings with the principals were arranged in order to provide more information about the study and hand over the necessary documentation (See Appendix B). This meeting was also used as an opportunity to meet the teachers at the school, put them at ease and arrange an observation date.

Informed consent was then obtained from the teachers (Appendix B) and thereafter a blanket consent approach was taken given that the study observed teachers and learners in their everyday contexts with no intervention or video recording (Walters, 2014).

The researchers provided parents with an information sheet to explain the study (Appendix C). This information sheet also provided the parents with an opportunity to withdraw their consent for their child's participation in this project. The document was translated into Afrikaans and isiXhosa in order to ensure that the information was presented in a language that could be understood by parents. In cases where parents were unable to read, the principals and teachers were asked to co-operate using their pre-existing forums with parents to explain the parameters of the study.

3.7 Equipment

A modified version of the Communication Supporting Classrooms Observational Tool (CSCOT) was used as an instrument to standardise and guide observation of communication environments within the classroom (Appendix D). The aim of creating a tool such as this was to develop a means of profiling features of communication environments (Dockrell et al., 2012). The CSCOT was designed to measure three main aspects of the classroom: Language-learning environments, language-learning opportunities and language learning interactions (Dockrell et al., 2012).

Language-learning environments refer to the physical infrastructure that facilitates learning, including space in the classroom and resources available (Dockrell et al., 2012). Language-learning opportunities refer to the opportunities children are provided with in their school day to practice their language skills (Dockrell et al., 2012). Language-learning interactions refer to the opportunities children have to practice their language skills through interactions and exchanges with others (Dockrell et al., 2012). Each area is totalled individually with no overall score given. There is also room for comment on the tool to ensure all aspects of the observation are recorded.

Research carried out as part of the Better Communication Research Project (BCRP) indicated that the CSCOT has acceptable reliability and face validity overall, with a consistently high inter-rater reliability (Dockrell et al., 2012.; Lindsay, Dockrell, & Sue, 2012). Observational tools that are standardised and validated against administrators and outcomes ensure that the results obtained can be compared with minimal bias (Stuhlman et al., 2010b).

The scoring of the CSCOT is in two parts. First, each item is scored one point if the item/behaviour was seen in the classroom and zero points if it was not seen. Secondly, each item in the LLI and LLO sections allows the researcher to note the frequency with which the behaviour occurs (one being the minimum and five being the maximum). Though the frequency does not affect the overall score, the observations are useful for qualitative interpretations. General observations were also made, as due to the expected complexities of classrooms, the CSCOT did not cover all aspects of communication environments observed by the researcher (Prinsloo & Janks, 2002).

For the current study, the researchers decided upon categorising scores into good, average and poor results which are reflected in Table 3.1 below. These categories were decided upon by the researchers in order to make general comparisons between classrooms. Due to the exploratory nature of the study, these categories were not based on a predetermined scoring scale but based on researcher expertise and experiences in classrooms as well as information gleaned from the BCRP. This decision was based on the percentage scores of each area as well as the methodology of a previous study (Harty et al., 2013). Additional comments were collected to supplement the scores of the CSCOT.

Table 3.1

Categorization of scores

	Poor (50% and below)	Average (50% - 90%)	Good (90% and above)
LLE	9 or less	10 - 16	17 - 19
LLI	10 or less	11 - 17	18 - 20
LLO	2 or less	3	4 - 5

As part of an undergraduate research project conducted at the University of Cape Town (Harty et al., 2013), the CSCOT was examined by a panel of experts to determine the face and content validity of the tool and its appropriateness in a South African context (Harty et al., 2013). However, in this study the tool was implemented in a school where the medium of instruction was English. Consequently, further explorations of the applicability of the tool in classrooms where the medium of instruction is in another official language was needed. The details of this process are presented in the pilot study.

3.8 Pilot phase

A pilot phase allows researchers to identify any shortcomings of the research project, as well as to strengthen research protocols and determine if instruments or methods used are appropriate (van Teijlingen & Hundley, 1998). A pilot study was conducted to determine the applicability of the proposed data collection method and procedures due to the exploratory nature of the study. The aims of the study were as follows; to determine if:

(1) Sufficient training lead to reliable observations in classrooms where the language of instruction was not English.

(2) Raters were able to achieve good inter-rater reliability when rating using the tool.

Before these aims could be achieved, the first goal of the pilot phase was to familiarize the researchers and raters with the use of the CSCOT. This would allow the researchers to identify any problems with the tool and make changes accordingly. Additionally, the pilot phase allowed the raters to develop a standard understanding of the scoring criteria (Harty et al., 2013). The training process was vital to the success of the pilot. In order to achieve the aims set out by the researchers, the training protocols had to be revised several times for various reasons, which will be discussed further.

Furthermore, the pilot study was used in order to determine whether the tool is applicable to classrooms where the medium of instruction is in one of three official languages spoken in South Africa, namely English, Afrikaans and IsiXhosa. In the Western Cape, English, Afrikaans and IsiXhosa are commonly used as languages of teaching and learning (Brock-Utne, 2015). The researchers needed to determine whether observers' language and Language of Learning and Teaching (LOLT) needed to be matched for the purposes of this study. The final aim was to establish whether the tool could be used by individuals other than educators or SLPs. In the absence of guidelines, the following steps were followed in order to assess the applicability of the CSCOT:

Three schools were randomly chosen to participate in the study. Once permission was granted from the school in writing, written informed consent was obtained from the principal, teachers and parents of the participating classrooms in the pilot phase (Appendix E).

A video-recording of approximately two hours was made during a language-literacy lesson or morning ring session. One recording each was done in an English, Afrikaans and isiXhosa speaking classroom, the three main languages of the Western Cape. Video recordings were only taken during the pilot phase to assist with evaluating the reliability of the tool as well as to provide material for the training of raters. Video recordings allow researchers to jointly capture naturalistic events and view unexpected situations that occur in the classroom (Stigler, Gallimore, & Hiebert, 2010). A normal hand held video camera was used by the researchers to make recordings. Researchers arrived before the time of the lesson to set up the equipment and ensure that both the teacher and learners were acclimatised to the presence of recording equipment and researchers themselves.

In order to have a full view of the classroom and follow movement of teachers and learners with ease, no tripod was used and instead the camera was held by the researchers at all times. It was decided that the first hour of the video was to be used for training while the second hour of the video was used to establish the reliability of the tool. Having obtained adequate training videos, six bilingual speakers (three bilingual English/Afrikaans speakers and three bilingual English/isiXhosa speakers) were recruited from the student body at the University of Cape Town. Three of the raters were students within the Faculty of Health and Rehabilitation while the remaining three raters were from the Humanities Faculty.

The first step in the training was to introduce the raters to the background of the study and tool itself. A presentation was used to outline the purpose of the main study and the pilot study as well as the development and use of the CSCOT. Raters were then given copies of the tool and time to familiarise themselves with the items. Each item on the tool as well as the scoring of the tool were explained. The video recordings were then introduced.

The first hour of the video was broken down into two thirty-minute slots. The first thirty-minute slot was used as a teaching session to allow the raters to become acquainted with the tool. Raters were required to complete the tool, and at some points in the video the researchers paused to point out good examples of certain items. After the video was screened, each item was carefully discussed to clarify any difficulties the raters had with the video and the tool. The raters' answers were then compared to the expert observation prepared by the researchers to evaluate scores.

At this stage, there was a large discrepancy in the scores amongst the different raters, mainly due to the actual process of scoring (seen/unseen and frequency). Given this, the second half hour was used twice, first for the raters to focus on the seen/unseen aspect of the tool and the second to then focus on the frequency. There were still discrepancies noted therefore the methodology was revised for the second session of training. Reliability testing could only be conducted once researchers were satisfied with the competence and confidence of the raters to complete the tool. This level of competence was measured by rater scores compared to the expert observation. Researchers were satisfied if raters scored within two points of the expert opinion, the rationale for which will be discussed below.

In the second session, the researchers revised the CSCOT guide to include definitions and examples of items specific to South African populations. The researchers, in conjunction with BCRP scoring and previous projects (Dockrell et al., 2010; Harty et al., 2013) decided frequency scoring within two points of the expert opinion were acceptable as well as overall scores within two points of the expert opinion. It was also decided that video segments would be broken up into even smaller segments to ensure a successful outcome.

As in the previous session, the one-hour video was broken up into smaller slots. However, this session made use of a ten-minute slot, a twenty-minute slot and a thirty-minute slot. First, raters were shown the ten-minute video and asked to note only the seen/unseen. The scores were then discussed and compared to the expert observation of the researchers. Thereafter the frequency of items had to be noted in the same video and results were discussed.

The same was done with the twenty-minute video segment. The thirty-minute video segment was used as a more realistic practice for the raters whereby they were required to note the seen/unseen and frequency aspects of the tools. The third and final session of the pilot study was to measure reliability. All six raters were required to watch one hour videos of English, Afrikaans and isiXhosa classrooms and fill in the tool. From there, the results were used in order to determine inter-rater reliability as well as to determine the necessity of language matching needed in observations. The training protocol is further described in Appendix F.

3.9 Procedure for main study

The procedure for the main study was developed based in the results of the pilot study as well as previous research (Dockrell et al., 2010; Harty et al., 2013). Two researchers entered a classroom and observed the classroom for an hour, usually during a morning ring followed by a language or math lesson. Each rater would complete the CSCOT independently, whilst observing the activity. After the period of observation, the raters discuss the scores that they had awarded on the CSCOT items. Researchers discussed the rationale behind awarding the given scores, as well as any large discrepancies between item scores awarded by the two raters. Thereafter, a consensus was reached between the researchers and one score awarded to each area of the CSCOT for every classroom. In addition, researchers discussed any other observations made during the session that were either captured as comments made on items on the tool, or behaviours noted that were not included in the tool. Results were immediately recorded into an excel spreadsheet by the primary researcher in order to ensure reliable data capturing.

3.10 Data analysis

3.10.1 Data analysis for pilot phase

Aim 1:

In order to measure the inter-rater agreement between observers, an intra-class correlation (ICC) was used which measured the degree of similarity between ratings within a target – LLE, LLI and LLO (McGraw & Wong, 1996). Comparisons were made between raters and a reference rater who provided an expert observation using Pearson's correlation coefficient (Hunt, 1986).

Aim 2:

Each language had a model response to which the rater scores were compared; the English model was provided by the researchers while the Afrikaans and isiXhosa models were provided by the most proficient rater as chosen by the researchers. The expert observations for Afrikaans and isiXhosa were chosen from the pool of English/Afrikaans bilingual speakers and English/isiXhosa bilingual speakers who scored the closest to the researcher expert observations in the English practice sessions. The dataset was considered as follows: as a series of 21 ratings/scores of three targets (LLO, LLE, LLI) by seven raters for English and six raters for Afrikaans and Xhosa. In order to measure the agreement between raters for each language group, ratings were needed on N number of subjects, which were classrooms in this case. However, each rater only rated one class per language group which means there is no way to measure variability between them. Therefore, LLE, LLI and LLO ratings were combined in order to simulate multiple measurements per rater and measure agreement and variation.

3.10.2 Data analysis for primary aim

At this stage, the data analysis is used to answer research questions and identify possible patterns that are emerging. However, before these questions are answered, the correct methods and statistical techniques need to be applied (Blaikie, 2003). In order to represent the first aim, descriptive statistics were used to describe the communication environments in Grade R classes (Ramsay, Hooker, & Graves, 2009).

To describe classroom communication environments, measures of central tendency such as means and medians were used to describe a typical or representative score, while frequencies and box plots were used to display the data visually (Huck, 2012). To determine areas of strengths and weaknesses across classrooms, descriptive statistics were used. This allowed the researchers to summarise the data, make observations and then describe the strengths and weaknesses observed based on the range of scores as well as mean scores (Fraenkel & Wallen, 2012).

3.10.3 Data analysis for secondary aim

Initially a t-test was considered for the analysis, however, in order to conduct a t-test, the assumption is that all parameters are equal (Ruxton, 2006). As this is an exploratory study, it was not possible to determine whether this assumption was true (McCrum-Gardner, 2008). For this reason, a multiple regression analysis was chosen as it allowed researchers to investigate various simultaneous influences on a single variable. In this study regression analyses were used to determine if teacher and classroom variables impacted communication environments (Sykes, 1993). SPSS was chosen as the software with which to analyse the data.

There were a large number of variables that needed to be considered for the regression analysis, however, not all could be included as these variables needed to fit the regression model (SPSS Technical Report, 2005). Therefore, further analysis was needed before variables were decided upon. For example, teacher experience overall and teacher experience in Grade R were important variables but both did not need to be included if the two had a strong correlation (Seltman, 2009). Consequently, a Spearmen rank Correlation test was done to determine this relationship (Zar, 1998). A strong correlation was found between the two, therefore, the final variables included in the model were school performance, teacher experience in Grade R and class size.

For the area of LLE, a mixed effect model allowed a more flexible approach and was used as the linear regression model did not suffice (SPSS Technical Report, 2005). This model also allowed researchers to take into consideration the fact that each school was treated as a cluster and therefore accounts for the school specific random effects (Hedeker, Gibbons, & Flay, 1994). Due to the fact that there was often more than one Grade R classroom per school, the schools were considered as clusters of classrooms. The model tested for LLE is represented below:

$$LLE_{ij} = \beta_0 + \beta_1 * HL_{ij} + \beta_2 * (Teacher\ experience)_{ij} + \beta_3 * Size_{ij} + u_j + \epsilon_{ij}$$

However, the areas of LLI and LLO both used an ordinary linear regression as the mixed effects model crashed when entered into SPSS and the errors were evident (SPSS Technical Report, 2005). This was most likely due to the presence of schools with only one classroom, therefore the cluster effect of schools did not influence the parameters here and the assumption was that each class was representative of a different school and independent of each other. The model tested for LLI and LLO is represented below:

$$LLI_{ij} = \beta_0 + \beta_1 * HL_{ij} + \beta_2 * (Teacher\ experience)_{ij} + \beta_3 * Size_{ij} + \epsilon_{ij}$$

3.11 Ethical considerations

The ethical considerations guiding this study require consideration of autonomy, beneficence, non-maleficence and justice. In addition, this study adheres to the Declaration of Helsinki (WMA General Assembly, 2013). Autonomy entails respect of participants' rights (Orb, Eisenhauer, & Wynaden, 2001). In upholding the principle of autonomy, participants have the right to decide whether to participate in the study or not and the right to withdraw at any time (Orb et al., 2001). Informed consent is a way in which researchers are able to demonstrate respect participants' autonomy and ensure that confidentiality is maintained. The schools, teachers or learners will not be identified in the reporting of the study, thereby ensuring that confidentiality is maintained.

Beneficence is an ethical principle that ensures that studies will directly benefit participants involved (Sims, 2010). While this research study may not benefit participants directly at this stage, it will inform future interventions that will provide assistance to children in Grade R. However, following the study, feedback was provided to principals and teachers of the schools involved with suggestions and advice to improve communication environments in the classroom. In addition, a pamphlet was sent to teachers which presented ways to improve communication environments in the classroom. The UCT Knowledge Co-Op was also recruited to share outcomes of the research as they have been close partners involved in all stages of the project.

The principle of non-maleficence will be upheld by ensuring that no harm comes to participants involved in this study (Sauer, 2002). Informed consent was obtained from the teachers. All participants were treated equally and were informed about the risks and benefits involved in contributing to the study (Sims, 2010). Furthermore, all schools – regardless of medium of instruction in the chosen district – were considered for the study to ensure that the principle of justice was sustained throughout the duration of the project (Sims, 2010).

CHAPTER FOUR

Results

4.1 Overview of the chapter

This chapter will provide the results of the pilot phase and the main study. The results of the pilot study will address the following key issues: (1) Can sufficient training of raters lead to reliable observations in classrooms with different language mediums?; (2) Would raters be able to achieve good inter rater reliability when rating using the tool?; and (3) the decisions taken for the main study. Thereafter the results for the main study will be presented. To begin, a profile of classrooms in the study will be provided. Following this, results will be discussed per aim, first by describing classroom environments, followed by examining the influence of school performance and selected variables on LLE, LLI and LLO.

4.2 Pilot phase

4.2.1 Overview of the pilot phase

The aim of the pilot phase was to determine the inter-rater reliability of the CSCOT within English, Afrikaans and isiXhosa medium classrooms in South Africa. In addition to this, the pilot study aimed to determine if sufficient training of research assistants could lead to reliable observations. The key issues the pilot study addressed were critical to the main study and also to ensure reliability within a South African classroom context.

In the main study, there were 60 classrooms with varied LOLT. It was not only important for procedures to be finalised to ensure reliable observations, but the researchers also needed to find the best way to get the most reliable results within and across these varied classrooms. Therefore, training protocols needed to be developed to train raters and a good inter-rater reliability needed to be reached in order to ensure that observations in classrooms with diverse languages of learning were feasible (Appendix F). The results of the pilot study have informed the procedural choices for the main study.

Intensive training was provided over three weeks (one session per week) to all raters following the procedure as mentioned in the methodology. Raters were required to watch video recordings of classrooms in order to become familiar with the tool and items. Rater responses were compared to expert observations and this process was repeated until the researchers were satisfied with raters' progress in training. Reliability testing was only done once researchers were confident in the raters' abilities to complete the tool accurately.

4.2.2 How expert opinions and scoring were decided

Given the human component needed to complete the tool, the researchers decided that perfectly matching scores were unlikely, so instead an expert observation was used as a "model answer" in order to measure responses and determine reliability.

The expert observations were compiled per language (i.e., three videos, one for English, one for Afrikaans and one for isiXhosa classrooms) and were used as the goal with which to measure comparisons. For the English tool, the researchers composed the expert observations based on their own observations (and as a result this item has seven responses in figures 4.2.2-4.2.4). The researchers in the study were monolingual and thus it was imperative that the Afrikaans and isiXhosa model answers were chosen by the researchers out of the pool of research assistants, i.e., the most reliably scored tool as decided upon by the researchers was chosen to be the expert observation. In order to decide this, the researchers selected raters who scored the closest to the researchers' expert observations in the English practice sessions. The Afrikaans model answer was chosen from the responses of the three Afrikaans/English bilingual speakers, while the isiXhosa model answer was chosen from one of the three isiXhosa/English bilingual speakers.

Research assistant scores within 2 points of the expert opinion were deemed acceptable by the researchers. For example, if the researchers established a score of 16/20 for LLI, scores between 14 and 18 were considered an acceptable range for raters. This decision was based on the experiences of previous projects using the tool (Harty et al., 2013).

The rationale here was that 100% agreement was unlikely so a feasible scale needed to be decided upon in order to reach a reliable degree of agreement. For the data analysis, the scores were plotted on graphs to visually represent the data and thereafter an intra-class correlation (ICC) was calculated in order to determine the statistical reliability of the scores. For the purposes of this study, an ICC score of 0.9 or more was considered to be reliable.

The table and graphs below will be used to explain the results of the pilot study. Table 4.2.1 represents the descriptive statistics for the pilot study including model scores, ranges of scores, means and standard deviations, while graphs 4.2.2 - 4.2.4 represent the rater scores in relation to the model scores. In these graphs, the dark blue dots represent the responses of the raters, while the light blue dots represent the model response. As this was the reliability testing stage of the pilot, all raters (n=6) were required to rate all classrooms (English, Afrikaans and isiXhosa).

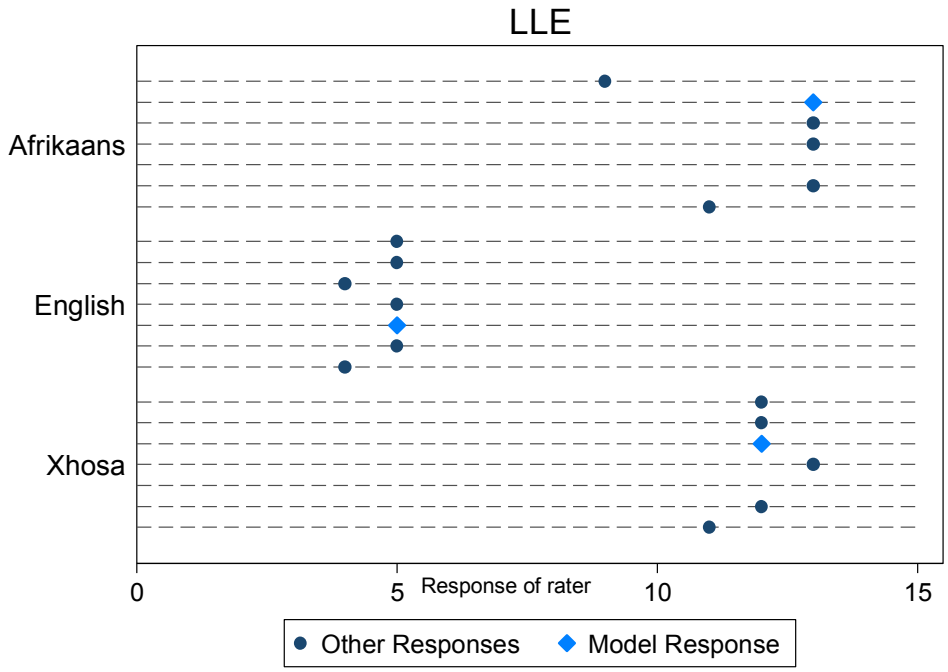
Ideally, the scores if in 100% agreement will make a straight vertical line, however if there is variation, the points will be scattered. The results will be discussed per language medium classroom (English, Afrikaans and isiXhosa) and per variable (LLE, LLI and LLO) and thereafter comparisons will be made.

Pilot Phase Results

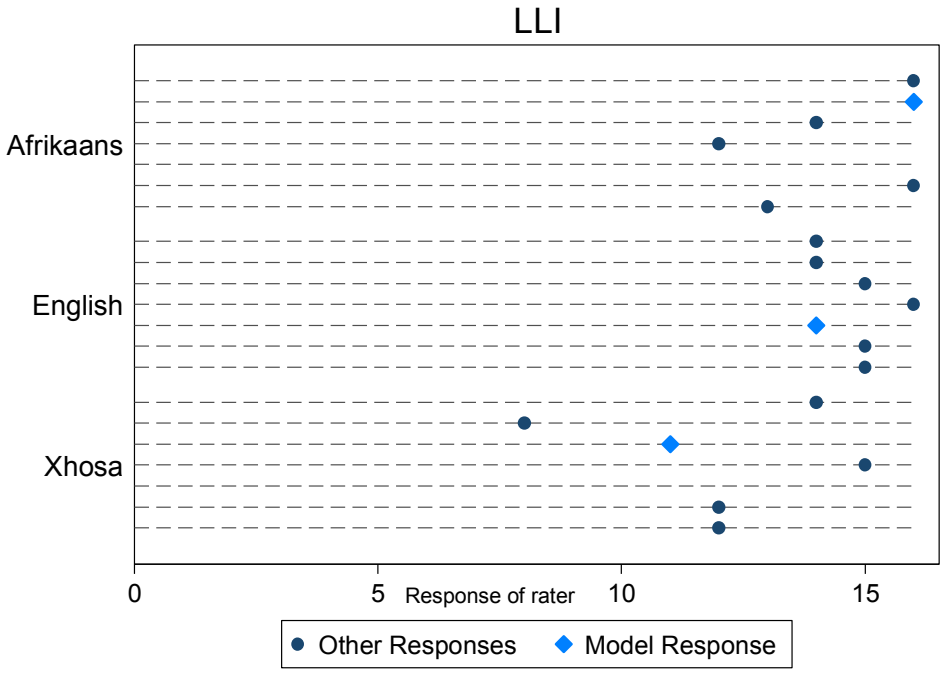
Table 4.2.1

Summary table of Pilot Study Results (Range, Mean and Standard Deviation per area and per language)

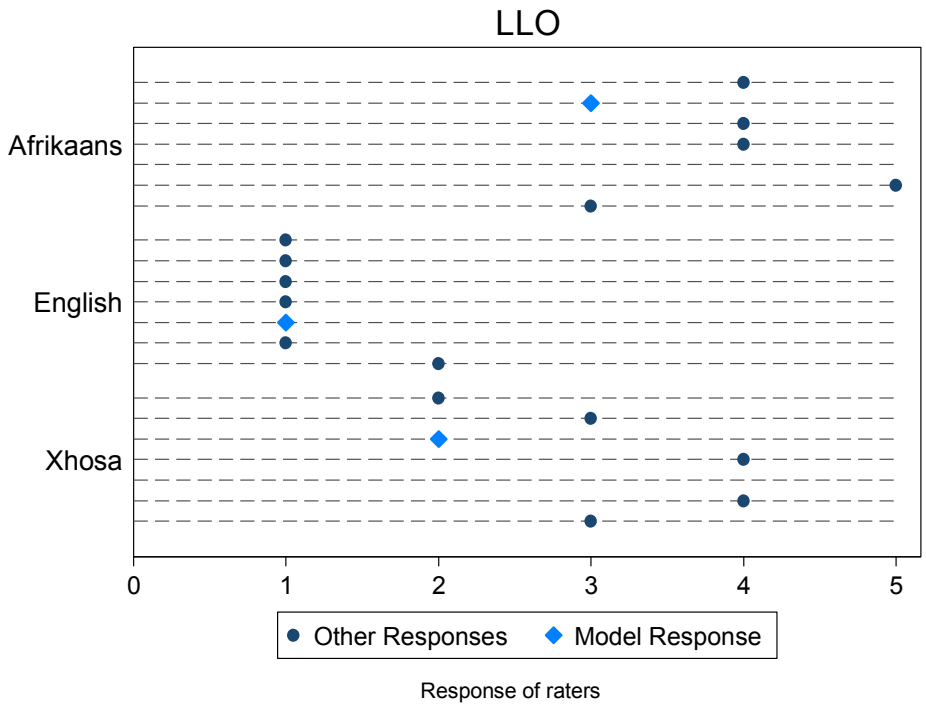
Language of Classroom	*Variable*	*Expert Opinion*	Range of Scores	Mean Score	Standard Deviation (SD)
Afrikaans	LLO	3	3 - 5	4.00	0.71
English		1	1 - 2	1.17	0.41
Xhosa		2	2 - 4	3.20	0.84
Afrikaans	LLE	13	9 - 13	11.80	1.79
English		5	4 - 5	4.67	0.52
Xhosa		12	11 - 13	12.00	0.71
Afrikaans	LLI	16	12 - 16	14.20	1.79
English		14	14 - 16	14.83	0.75
Xhosa		11	8 - 15	12.20	2.68



Graph 4.2.2 Scatter plot representing results of LLE for each classroom



Graph 4.2.3 Scatter plot representing results of LLI for each classroom



Graph 4.2.4 Scatter plot representing results of LLO for each classroom

4.2.3 Inter-rater reliability: English medium classrooms per variable (LLE, LLI and LLO)

Scoring of the English classroom component of the pilot resulted in the most reliable scores between raters. As can be seen from the graphs above, there is variation between scores in the areas of LLE and LLI with 100% agreement in the area of LLO with all the points aligned. This strong level of agreement was confirmed by an intra-class correlation (ICC) of 0.994 indicating a high degree of similarity between ratings within targets (LLE, LLI, LLO). The range of scores for both LLE and LLI were within a 1 to 2 point difference of rater scores in approximation to the model score. For LLE, only two raters differed from the model score; the standard deviation here confirms that there is a small amount of variance in the scores (M= 4.67, SD=0.52). For LLI, four raters differed from the model score but within the two-point range deemed acceptable by the raters. However, the high ICC (0.994) in conjunction with the small standard deviation (M=14.83, SD=0.75) was enough for the scores to be considered valid. Taking these scores into consideration, it can be concluded that LLE and LLO were the most accurate areas of the tool completed for the English medium classroom while the area of LLI proved to be more difficult for the research assistants.

4.2.4 Inter-rater reliability: Afrikaans medium classrooms per variable (LLE, LLI and LLO)

As seen from the graphs above, there is some variation between the scores in the areas of LLE, LLI and LLO for the Afrikaans classroom component. However, an ICC of 0.935 indicates that despite this variation there was still a strong level of agreement between raters. There was on average, a 3 to 4 point difference in scores between raters and the model score. This means that observing Afrikaans classrooms provided more of a challenge for raters than scoring the English classroom video. Two raters differed in response with regard to LLE, three raters differed in response to LLI, and four raters differed in response to LLO. The two raters that matched scores were both Afrikaans/English speakers. The results of this analysis indicate that while language matching is not necessary, when languages are matched, the outcomes produce more robust observations and reliable levels of agreement. The standard deviations for LLE (M=11.80, SD=1.79), LLI (M=14.20, SD=1.79) and LLO (M=4.00, SD=0.71) were still within two points of the mean and therefore the scores were deemed appropriate for the purposes of the pilot.

4.2.5 Inter-rater reliability: isiXhosa medium classrooms per variable (LLE, LLI and LLO)

With regards to the isiXhosa component of the classrooms, though there was large variation in all three areas according to the spread of points on the graphs, there was still a high level of agreement between raters. The ICC produced a result of 0.917; as previously mentioned an ICC over 0.9 was considered acceptable. There were an average range of 2 to 7 point differences in rater scores when compared to model scores. For LLE, the 2 that did not match the expert observation were isiXhosa/English speakers, while for LLI, there were no raters who matched the expert. The standard deviations for LLE (M=12.00, SD=0.71) and LLO (M=3.20, SD=0.84) were within two points of the mean while the standard deviation for LLI (M=12.20, SD=2.68) was over 2 points from the mean which indicates a level of difficulty in terms of achieving agreement between raters. However, given the high ICC, this score was accepted with some considerations made for the main study.

4.2.6 Conclusion and discussion

From these scores it was determined that LLE was an area of the tool completed with minimal difficulty while LLI and LLO provided more of a challenge for raters. LLE appears to be the area with the highest level of agreement between raters which is to be expected as this is based purely on the physical aspects of the classroom with no effect on language preference. The graphs for LLI and LLO show more variation between responses which is to be expected as LLI and LLO focus on the complexities of communication and details of language use in the classroom.

English has some variation between responses but within a small range while the Afrikaans and Xhosa classes, at face value, show significantly more variation, most likely due to the language difficulties mentioned by the raters. Overall, the Afrikaans and Xhosa components were an area of complexity with raters who reported the language barrier as a limiting factor in observations. Raters who were unfamiliar with languages of instruction experienced more difficulties in completing the tool. Nevertheless, the majority of raters reported that they were able to infer meaning based on body language of teachers and inflection when speaking in languages they were unfamiliar with. Though the range of scores and standard deviations are larger in the Afrikaans and Xhosa ratings than the English ratings, the Intra Class Correlations for all languages indicate high levels of agreement which was an important outcome given the aims of the study.

The training was the most essential part of the pilot phase in its contribution not only to the results but to the procedure for the main study. The collection of videos not only helped researchers with acquiring training material but also with understanding how to score the tool in a classroom situation. Preferably the training could be shorter sessions held more frequently but this was not possible due to time constraints. However, the training sessions assisted in refining the training protocol for the main study which was useful.

Overall, the outcomes of the pilot study were two-fold: (1) The researchers determined that the tool could be used reliably in classrooms where Afrikaans and isiXhosa were the language of instruction due to high inter-rater reliability measured by ICC; (2) With sufficient training and practical examples, raters can be trained to use the tool effectively.

In addition to these outcomes, the results of the pilot study allowed researchers to make useful choices for the main study. The study indicated that the tool was applicable in classrooms where Afrikaans and isiXhosa were the medium of instruction which allowed researchers to include these classrooms in the sample for the main study. The results, based on ICC, showed that language matching was not a necessity when observing a classroom. However, raters did report some difficulty in observing classrooms where they were not familiar with the language of instruction. Therefore, language matching was chosen as the condition that yielded the best agreement and most robust conditions for observations. This was especially important considering that the majority of classrooms in the rural district chosen were Afrikaans or isiXhosa medium classrooms. Therefore, for the purposes of the research context, at least one language matched rater was chosen to observe classrooms. While this choice was made in a research setting, in clinical settings different conclusions might be reached about language matching in order to complete observations.

Main Study

4.3 Reliability of the data

In order to determine potentially problematic outliers within the process of the data collection, process control charts were plotted. These charts were mapped to ensure the quality and reliability of the data collected and assisted researchers in inspecting the data to ensure that all the information collected was appropriate to use for data analysis.

The figures in Appendix H represent the charts for each area. Scores were plotted by calculating the mean for each classroom and then representing them on the graph. Classes within 3 standard deviations of the mean were considered reliable data points to be analysed. Any classrooms falling above or below these parameters were considered to be outliers which required the recorded data to be revised. On the graph, the black dashed line represents the third Standard Deviation while the lighter patterned lines represent 1 Standard Deviation and 2 Standard Deviations as can be seen.

Figure 4.3.1 (Appendix H) representing scores for LLE indicate that all scores fall within the appropriate area indicating that all the data in this category were found to be reliable. In Figure 4.3.2 (Appendix H) representing LLI, most of the classrooms fall within an acceptable range with the exception of one class (55). However, after reviewing the data, this was most likely due to the type of lesson observed – a more structured activity time that did not provide an opportunity for discussion within the period of that observation. In the final chart, Figure 4.3.3 (Appendix H) representing the scores plotted for LLO, all the classrooms fall within range.

From the results of the process control charts it was apparent that the steps taken in the data collection process produced reliable results. Though there was some variation in the sample, the majority of the data points fell within the upper and lower control limits. The outliers in the sample were easily identified and those data were then reviewed for quality. Having found reasonable cause as to why the points fell out of the limits as mentioned above, it was deemed that the data collected was reliable and of an appropriate quality to proceed with data analysis.

4.4 Profile of classrooms

The Cape Winelands District is a rural district of the Western Cape with a population of approximately 810 616 people, with 25.7% of that number being children under the age of 14 (Western Cape Government, 2014). Table 4.4.1 aims to display teacher demographics as well as overall language characteristics in classrooms. The demographics were collected from teachers who agreed to participate in classroom observations.

Table 4.4.1

Characteristics of participating schools and teachers

Type	Characteristic	n (%)	Mean (SD)
Classroom n = 60	Type of school: - Higher Performing - Lower Performing	 30 (50) 30 (50)	
	Language of instruction the classroom: n (%) - English - Afrikaans - IsiXhosa -English/ Afrikaans	 8 (13.3) 46 (76.7) 5 (8.3) 1 (1.7)	
	Size of classroom: Range (No. of students)	12 - 39	27.3 (6.5)
Teacher n = 60	Gender: n (%) - Male - Female	 0 (0) 60 (100)	
	Age (years):		36.98 (9.88)
	Home Language of teacher - English - Afrikaans - IsiXhosa - English/Afrikaans	 3 (5) 50 (83.3) 5 (8.3) 2 (3.3)	
	Years worked as a teacher		10.532 (8.48)

	Years worked as a Grade R teacher		8.138 (7.91)
	Highest level of teacher education: n (%)		
	- Matric	1 (1.67)	
	- University/Tertiary Education	59 (98.3)	

Table 4.4.1 provides an overview of the characteristics of the classrooms as well as the teachers. All Grade R classes were observed in each school with the exception of School 19 where a parent was substituting for an absent teacher. As per the exclusion criteria, this classroom was excluded from the sample. In total, 60 classrooms were observed, and a summary of the data is presented below. As can be seen from Table 4.4.1, the majority of classrooms observed (76,7%) were Afrikaans medium. Afrikaans was the main language of instruction used in the Cape Winelands district so this was to be expected (Census, 2011). English (13.3%) and Xhosa (8.3%) were also featured languages being used in the classroom with only one official English/Afrikaans bilingual dual medium class noted in the sample. Class sizes in the sample were generally smaller with the average being 27 children per class compared to the average in South African primary schools which Moloi and Chetty (2011) indicate is 40 children per classroom.

All teachers observed in the sample were female with an average age of 36, the youngest being 22 years of age and the oldest being 60. The overall average teaching experience was 10 years with eight years being the average years teachers have taught Grade R specifically. Of all the teachers observed, only one did not have any further qualification but had previous experience working as a teacher's assistant in a Grade R class at the school. She was required to teach as the number of children in Grade R had increased to such a degree that an extra class was required to accommodate all the children. This is an encouraging aspect found in classrooms in this study and is contrary to the indications found in the literature and popular media (John, 2015). It is important to highlight the fact that although this group of teachers had all received tertiary education, this did not indicate that they were all qualified to teach Grade R.

Another observation of the classrooms was the language matching between the home language of teachers and the language of instruction, as well as the home language of students and the language of instruction. Many of the teachers in the sample were bilingual, however, of all the teachers in the sample, those who were first language isiXhosa speaking were the most well matched, relative to language, with all five isiXhosa teachers teaching in their first language, while 46 out of a 50 Afrikaans first language teachers were matched with Afrikaans medium classrooms. The three English first language teachers were matched with English medium classrooms. However, the remaining English medium classroom teachers consisted of four Afrikaans first language speakers and one bilingual English/Afrikaans home language speaker. This indicates that these five teachers were teaching in a language that is not their first language.

Information pertaining to the profile of children was provided by the class teachers. In the sample of 60 classrooms there were 27 classrooms that matched home language of the child with the medium of instruction. The other 33 classes included a range of children who spoke between two to four different languages at home, indicating that there is a large amount of diversity in languages spoken in classrooms. While the children were of diverse language backgrounds, the classroom generally used one main language which was most commonly Afrikaans. This was a common occurrence within classrooms either due to children who travelled from outlying areas to attend schools or parents wishing for their children to speak a specific language.

Completely language matched teacher-learner classrooms were found mainly in isiXhosa medium classrooms. However, in the English medium classes, there was often a mix of Afrikaans, isiXhosa and English home language children. In these classrooms, code-switching was noted occasionally in teacher and student conversations as well as lessons.

4.5 Results for aim 1

The goal of aim 1 was twofold: (1) To describe the communication environments in Grade R classes in terms of language-learning environment (LLE), language-learning opportunities (LLO) and language-learning interactions (LLI); and (2) To describe the three dimensions of the communication environment across classrooms to determine areas of strengths and weaknesses. Items of strength and weaknesses on the tool across classrooms will also be discussed.

As mentioned in the methodology, the researchers decided upon categorising scores into good, average and poor results which are reflected in Table 4.4.2 below. These categories were decided upon by the researchers in order to make general comparisons between classrooms. It is important to note that the results, though based on the scores of the tool, have additional observations relating to the scores.

Table 4.4.2

Classification of CSCOT scores

	Poor	Average	Good
LLE	9 or less	10 - 16	17 - 19
LLI	10 or less	11 - 17	18 - 20
LLO	2 or less	3	4 - 5

The graphs below represent the range of scores per school with the red plots indicating scores for the lower performing schools and the yellow plots indicating scores for higher performing schools. However, though the results are represented per school, the schools represent the clusters of 60 classrooms chosen for the study. A small number of schools (n=2) had only one Grade R classroom per school, therefore classrooms had to be clustered to achieve the desired sample size.

4.5.1 Describing Language Learning Environments

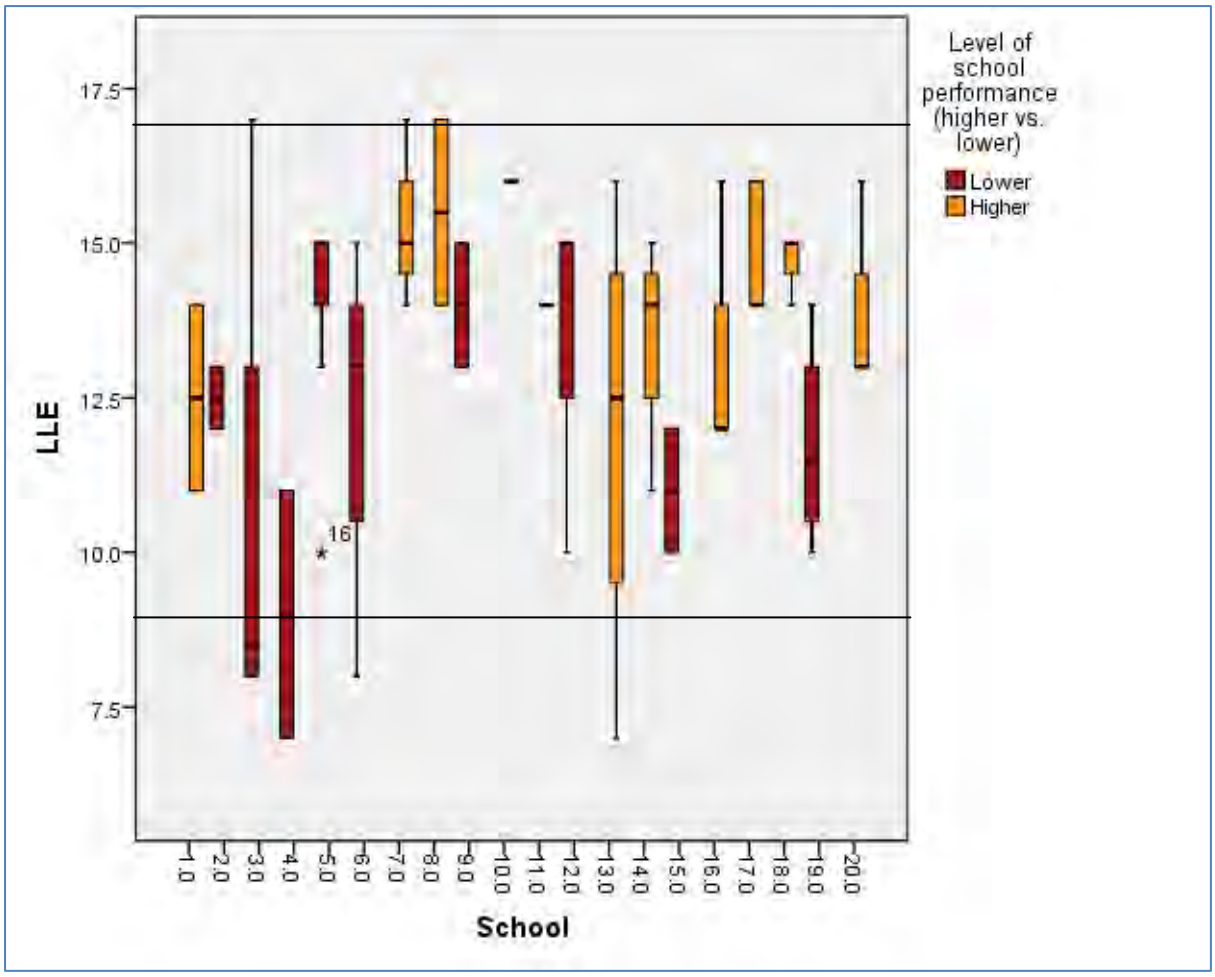


Figure 4.5.1 Box Plots representing LLE scores in schools

4.5.1.1 Overview

The first area explored was LLE. The figure above uses box plots to display the range of LLE scores across schools. The lines drawn on the figure indicate the categories of poor, average and good scores as per Table 4.4.2. The smallest observation in the LLE category as seen above is 7 while the largest is 17 out of a possible 19. The mean is 13.2 which is classified as an average score given the category of ratings and therefore indicates that language learning environments are an area where schools are not performing optimally. A small percentage of schools (5%) obtained a score of 17 or above which would have classified them as having optimal environments.

As can be seen there is variation not only between schools but between classrooms as well. Some clusters of classrooms have larger variations than others, as can be seen by the tails of the boxes. The longer tails represent greater variation whereas the plots with no tails indicate that classrooms achieved similar scores and there was little variation.

Schools 1, 2, 4, 8, 9, 15 and 18 had no tails on the plots which means that there was little variation in these clusters with all classrooms scoring similarly in this area and therefore spread more evenly. Schools such as schools 3, 6, 12 and 13 have large variation between classrooms with some class scores classified as good and others as poor which accounts for the longer tails.

School 10 and 11 had only one Grade R classroom each so these were unable to produce sufficient plots. It is interesting to note that School 5 had the highest number of Grade R classrooms in a school at 7, however, it also has the least variance in terms of LLE, with the exception of Classroom 16 which fell below the range and therefore was an outlier in the plot. There was no recorded reason for this, however, the scoring of the tool indicated that this classroom was poorly resourced, more so than the other classes in the school. Overall, six classrooms scored in the poor category, 51 classrooms scored within the average category and three classrooms scored in the good category. The trends for higher and lower performing schools will be discussed below.

Table 4.4.3

Classification of scores for LLE

	Poor	Average	Good
No. of classrooms	6	51	3

Table 4.4.4

Item Analysis Table for LLE

Language Learning Environment	**Frequency Scores (Per Classroom) (n=60)**
1. The classroom is organised to emphasise open space.	57
2. Learning areas are clearly defined throughout the classroom.	36
3. Learning areas are clearly labelled with pictures/words throughout the classroom.	23
4. There is space for privacy or quiet areas where children can retreat to have “down time” or engage in smaller group activities. These areas are less visually distracting.	26
5. Children’s own work is displayed and labelled appropriately.	47
6. Some classroom displays include items that invite comments from children.	58
7. Book specific areas are available.	51
8. Literacy specific areas are available (writing, reading activities, colouring, etc.).	2
9. Background noise levels are managed consistently throughout the observation, and children and adults are able to hear one another with ease.	56
10. Transition times are managed effectively, so that noise levels are not excessive and children know what to expect next.	54
11. There is good light.	58
12. The majority of learning resources and materials are labelled with pictures/words.	54
13. Resources that are available for free play are easily reached by the children or easily within their line of vision.	59
14. An appropriate range of books is available in the book area (for example, traditional stories, bilingual/dual language books and a variety	37

of genres and books related to children's own experiences).	
15. Non-fiction books, books on specific topics or interests of the children are also available in other learning areas.	32
16. Outdoor play includes imaginative role play (constructive language display).	9
17. Good quality toys, small world objects and real / natural resources are available.	58
18. Musical instruments and noise makers are available.	17
19. Role play area is available (shopping, dress up, building designated area)	52

4.5.1.2 Item analysis and comparisons

As defined by the BCRP and CSCOT development team, a good physical language learning environment (LLE) should include a well-resourced classroom that facilitates exposure to diverse aspects of language and maximises the quality of language experiences (Dockrell et al., 2010).

As mentioned, six classrooms scored in the poor category, 51 classrooms scored within the average category and three classrooms scored in the good category. The three best performing classrooms in the sample had a total score of 17/19 for LLE. Out of these three classrooms, one belonged to a lower performing school while the other two belonged to higher performing schools.

Classroom 6 belonged to a lower performing school and had all items achieved except for items 16 (Outdoor play includes imaginative role play – constructive language display) and 18 (Musical instruments and noise makers are available). Classrooms 22 and 25 belonged to different higher performing schools.

For classroom 22 all items were achieved except for items 4 (Literacy specific areas are available – writing, reading activities, colouring, etc.) and 8 (There is space for privacy or quiet areas where children can retreat to have "down time" or engage in smaller group activities). For classroom 25 all items were achieved except for items 8 (There is space for privacy or quiet areas where children can retreat to have "down time" or engage in smaller group activities) and 18 (Musical instruments and noise makers are available).

There were two poorly performing classrooms in the sample which had a total score of 7/19 for LLE. Out of these classrooms, one belonged to a higher performing school and the other belonged to a lower performing school. Classroom 9 belonged to a lower performing school, the only items achieved on the tool were 1 (The classroom is organised to emphasise open space), 6 (Some classroom displays include items that invite comments from children), 9 (Background noise levels are managed consistently throughout the observation, and children and adults are able to hear one another with ease), 10 (Transition times are managed effectively, so that noise levels are not excessive and children know what to expect next), 11 (There is good light), 12 (The majority of learning resources and materials are labelled with pictures/words) and 13 (Resources that are available for free play are easily reached by the children or easily within their line of vision). This classroom was severely under resourced. Books were only available from the library twice a week and although literacy specific areas were available, they were poorly resourced. Books in African languages were limited in most classrooms while English and Afrikaans literature was more readily available. In addition to this, there was not enough furniture in the classroom resulting in a shortage of desks and chairs in relation to the number of students leaving some students to work on the floor.

The toys in the classroom were packed away and the only posters up were those supplied by the Provincial Department of Education. Classroom 35 belonged to a higher performing school. This class achieved items 1 (The classroom is organised to emphasise open space), 6 (Some classroom displays include items that invite comments from children),10 (Transition times are managed effectively, so that noise levels are not excessive and children know what to expect next.), 11 (There is good light.), 12 (The majority of learning resources and materials are labelled with pictures/words) and 13 (Resources that are available for free play are easily reached by the children or easily within their line of vision) and 19 (Role play area is available – shopping, dress up, building designated area). However, in this class, the teacher informed researchers that the floor had just been cleaned for the new year. The classroom furniture was not arranged as it usually was and all resources she had were packed away as a result.

Overall, the items achieved most commonly were items 13 (Resources that are available for free play are easily reached by the children or easily within their line of vision) with 59 classrooms scoring in this area and items 6 (Some classroom displays include items that invite comments from children), 11 (There is good light) and 17 (Good quality toys, small world objects and real / natural resources are available) with 58 classrooms scoring in these areas.

The items that occurred less frequently were items 8 (Literacy specific areas are available (writing, reading activities – colouring, etc.) with only 2 classrooms scoring in this area and item 16 (Outdoor play includes imaginative role play – constructive language display) with only 9 classes scoring in this area. This indicates that although classrooms are accessible to children and moderately equipped, improvements can be made to many classrooms which will facilitate language or literacy learning.

4.5.1.3 Additional observations

Additional observations were made outside of the tool that could provide further suggestions for modification in a South African context as well add to the robustness of the observations with the CSCOT. A trend noted across schools was that classrooms often had similar resources such as books, posters and toys that were supplied by the Provincial Department of Education and as such, ensured that most classrooms had access to resources which accounts for the mean score within this area. Some classrooms were housed in shipping containers and therefore scored poorly on the tool due to the limited amount of space to provide visual stimulation and organise the classroom effectively. It was also noted that in some schools, classrooms did not always have sufficient furniture such as desks and chairs for each child which resulted in some children working on the floor. Some schools had fewer resources and so scored poorly in this area, however, other schools performed poorly in this area due to teacher preference where different teachers preferred to have classrooms with resources out of reach or packed away.

4.5.2 Describing Language Learning Interactions

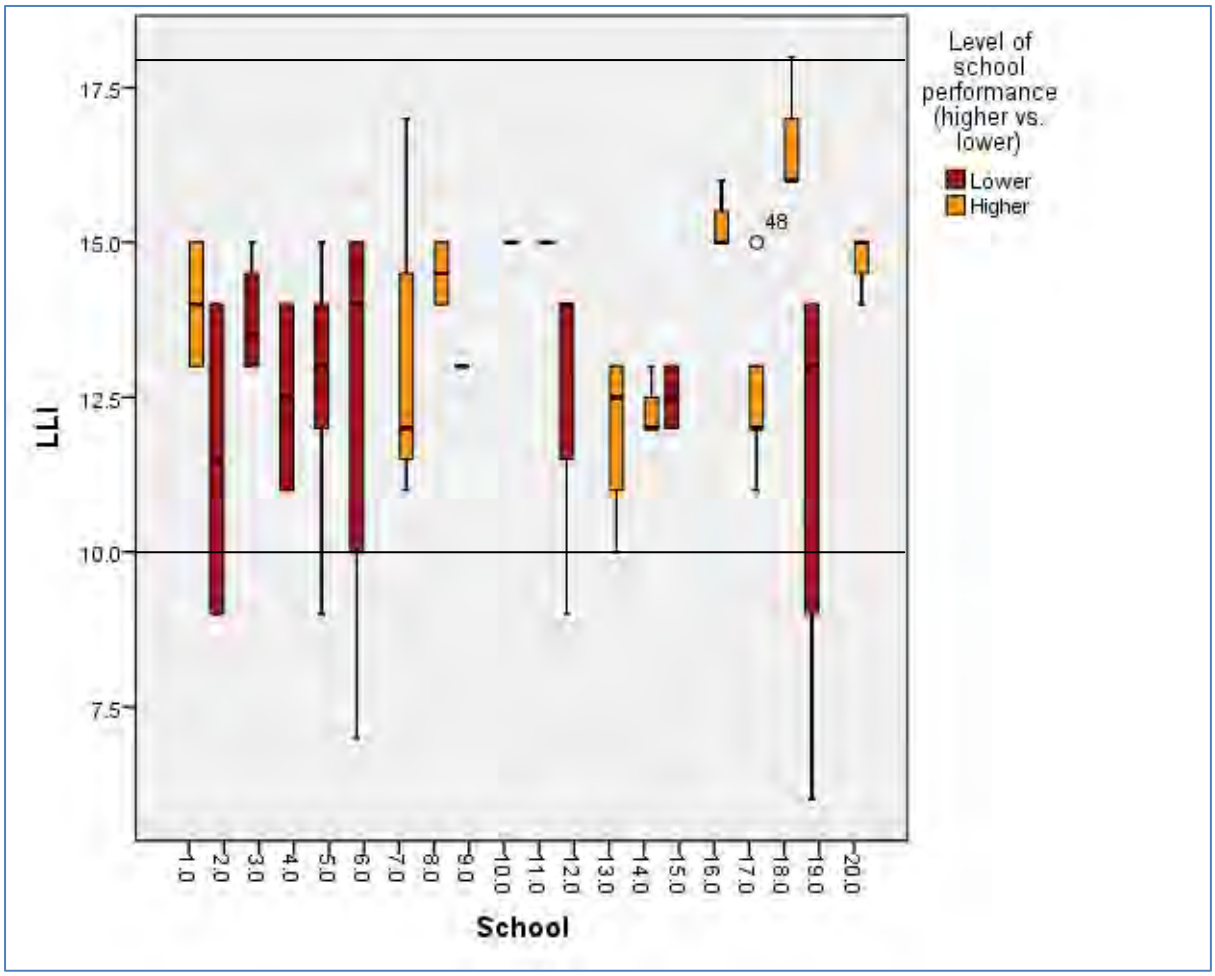


Figure 4.5.2 Box Plot of LLI Scores

4.5.2.1 Overview

The next area observed was language learning interactions (LLI), with 20 items. The lines drawn on the figure indicate the categories of poor, average and good scores as per Table 4.4.2. As can be seen by Figure 4.5.2. the lowest score was 6 while the highest score was18 and the mean score was 13.2 which is considered an average score.

Though there is much variation in the data, it is important to note that there is also a large amount of overlapping between the clusters. This indicates that while there are differences, a substantial number of the classrooms are scoring within the same range. Overall six classrooms had scores which fell in the poor category, 53 classrooms had scores in the average category and one classroom scored in the good category. This indicates that most classrooms are scoring within an average range.

The large tails of the plots indicate that there is a large measure of variability between the data, most of the clusters have large tails, indicating that in most schools there was variation between classrooms. Schools such as school 6 and 19 had tails extending into the lower area of the graph; in these clusters, most classrooms scored within a similar average range while one classroom in each cluster achieved a low score.

However, schools such as school 7 and 18 have tails that extend into the upper area of the graph indicating that most classrooms scored well but one classroom in each of these clusters scored higher in this area.

The plots with no tails such as in schools 1, 2, 4, 8 and 15 indicate that there was little variability in these classrooms meaning that scores in these clusters were similar. As mentioned above, schools 10 and 11 had one classroom each, therefore a range was unable to be plotted. However, school 9 had two classrooms with both classrooms scoring the same in this area which also resulted in a straight line rather than a plot. Classroom 48 in school 17 had a higher score than the rest of the classrooms and therefore fell out of the range in that school. The inter quartile ranges of the plots indicate that the data for lower performing schools falls within the lower ranges while the data for higher performing schools falls within the higher ranges.

Table 4.4.5

Classification of scores for LLI

	Poor	Average	Good
No. of classrooms	6	53	1

Table 4.4.6

Item Analysis Table for LLI

Language Learning Interactions	**No. of classrooms that achieved this item** **(n=60)**
1. Adults use children's name, draw attention of children.	60
2. Adults get down to the child's level when interacting with them.	56
3. Natural gestures (action to support what is being said "pop") and some key word signing are used in interactions with children.	47
4. Adults use symbols, pictures and props (real objects) to reinforce language.	58
5. Pacing: Adult uses a slow pace during conversation; give children plenty of time to respond and take turns in interacting with them.	60
6. Pausing: Adult pauses expectantly and frequently during interactions with children to encourage their turn-taking and active participation.	60
7. Confirming: Adult responds to the majority of child utterances by confirming understanding of the child's intentions. Adult does not ignore child's communicative bids. ("Yeah, mm, yes, ok, really")	42
8. Imitating: Adult imitates and repeats what child says more or less exactly.	57
9. Commenting: Adult comments on what is happening or what children are doing at that time.	47
10. Extending: Adult repeats what child says and adds a small amount of syntactic or semantic information.	35
11. Labelling: Adult provides the labels for familiar and unfamiliar actions, objects, or abstractions (e.g. feelings).	45
12. Adult encourages children to use new words (what are the new words?) in their own talking.	23

13. Open questioning: Adult asks open-ended questions that extend children's thinking (what, where, when, how & why questions).	57
14. Scripting: Adult provides a routine to the child for representing an activity (e.g., "First, you go up to the counter. Then you say, 'I want milk. . .'") and engages the child in known routines (e.g., "Now it is time for circle time. What do we do first?").	6
15. Adult provides children with choices (for example: "Would you like to read a story or play on the computer?").	6
16. Adult uses contrasts that highlight differences in lexical items and in syntactic structures (Opposites; Big, small, and plurals and verbs; -ed, -es).	29
17. Adult models language that the children are not producing yet.	31
18. Turn-taking is encouraged.	55
19. Children's listening skills are praised.	8
20. Children's non-verbal communication is praised.	7

4.5.2.2 Item analysis and comparisons

Good language learning interactions in classrooms as defined by the BCRP and CSCOT Development Team included exposure to particular forms of oral language exchanges and opportunities to practice language in interactions with others (Dockrell et al., 2010).

There was one best performing class in this area, classroom 53, that achieved a score of 18/20 and belonged to a higher performing school. All items of the tool were present except for items 14 (Scripting: Adult provides a routine to the child for representing an activity) and 15 (Adult provides children with choices). The teacher used a manner of good communication practices including incorporating the finer aspects of language into interactions that most classrooms lacked. Lessons were interactive and discussion based. New concepts were well explained and consistently reinforced in the learning process.

The poorest performing class in this area, classroom 55, achieved a score of 6/18 and belonged to a lower performing school. The only items achieved were items 1 (Adults use children's name, draw attention of children), 4 (Adults use symbols, pictures and props/real objects to reinforce language), 5 (Pacing: Adult uses a slow pace during conversation; gives children plenty of time to respond and takes turns in interacting with them), 6 (Pausing: Adult pauses expectantly and frequently during interactions with children to encourage their turn-taking and active participation), 8 (Imitating: Adult imitates and repeats what child says more or less exactly) and 9 (Commenting: Adult comments on what is happening or what children are doing at that time). While the teacher got down to the children's level and used good pacing and pausing, interaction was very limited in this classroom. The teacher was the main communicator in the classroom while the children were passive listeners. Children were discouraged from speaking out of turn and their responses were often limited by the teacher due to time constraints with regards to completing the lesson plan for that day.

Overall, the items that were most commonly occurring were numbers 1 (Adults use children's name, draw attention of children) 5 (Pausing: Adult pauses expectantly and frequently during interactions with children to encourage their turn-taking and active participation) and 6 (Pacing: Adult uses a slow pace during conversation; give children plenty of time to respond and take turns in interacting with them) with all 60 classrooms achieving scores for these items.

The items that were least commonly occurring were items 14 (Scripting: Adult provides a routine to the child for representing an activity) and 15 (Adult provides children with choices) with only 6 classrooms demonstrating evidence of these strategies. Other areas of difficulty were items 19 (Children's listening skills are praised) with only eight classrooms scoring on this item and 20 (Children's non-verbal communication is praised) with only seven classrooms scoring on this item. This indicates that while teachers are using basic communication practices, the finer aspects of language that encourage children to practice language in interactions are missing in classrooms. This may indicate that teaching styles in most classrooms remain didactic.

4.5.2.3 Additional observations

In the majority of classrooms that interactions were largely driven by the teacher and provided minimal opportunity for children to interact with teachers and peers. This was noted particularly in classes with large numbers of students. In some instances,

teachers would actively ignore communicative efforts of children, in an attempt to prevent them from speaking out of line thereby enforcing the rules of the classrooms. Minimizing discussions allowed the teacher to be in control of the classroom and cover the concepts required for the lesson. Furthermore, in classrooms where there were larger class sizes, teachers moved away from using children's names when communicating and avoided asking many open-ended questions. Props were mainly used in book reading tasks in the form of pictures and hardly to reinforce new concepts or provide opportunities for further learning. Confirmation was often used in lieu of open-ended questions whereby a teacher would put forward an idea and the children were required to agree rather than children being allowed to voice their own opinions. In the class in higher performing schools it was noted that technology was used in order to reinforce lessons, however, these methods meant that children were interacting with a laptop or projection rather than with the teachers or peers.

4.5.3 Describing Language Learning Opportunities

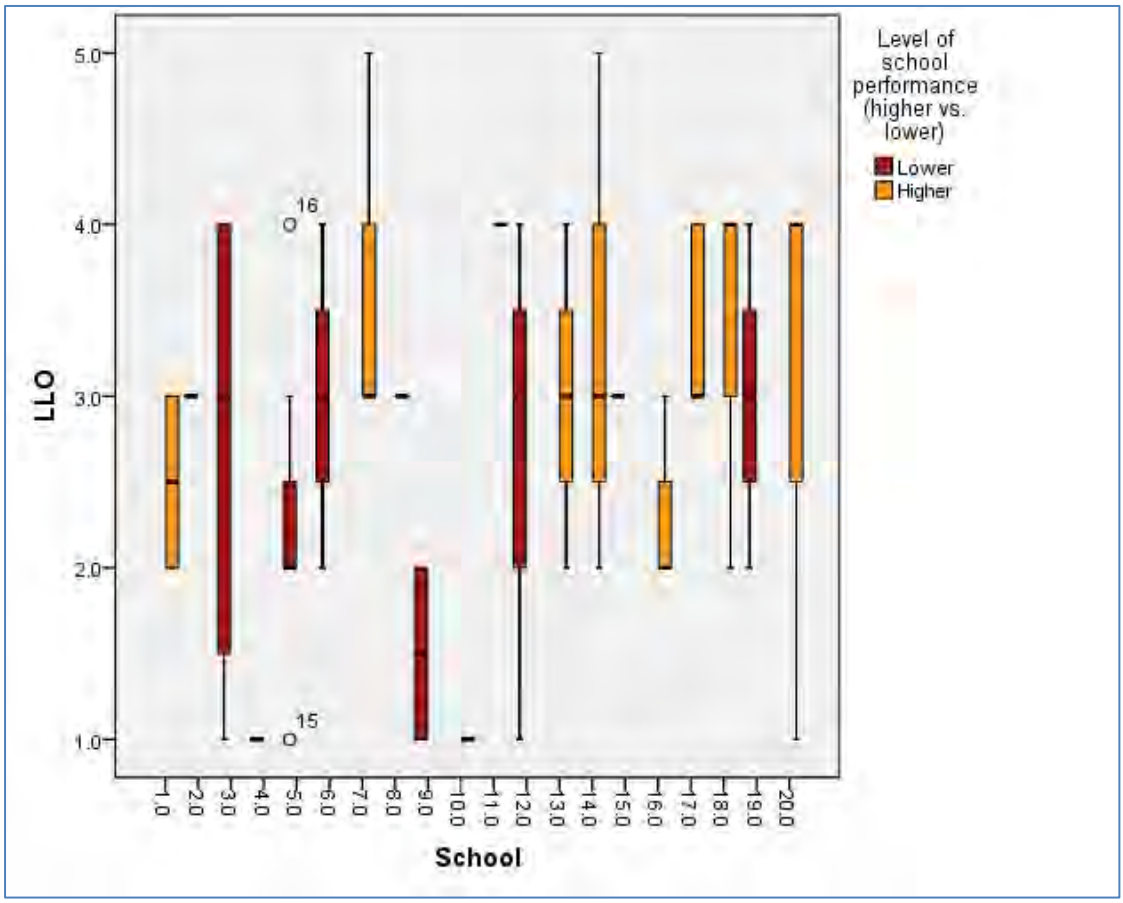


Figure 4.5.3 Box Plot of LLO scores

4.5.3.1 Overview

The category of language learning opportunities (LLO) provided some challenges in the analysis due to the fact that there are only five items within the subsection. However, these observations yielded interesting results that provided valuable insights into the Grade R curriculum and the influence this has on LLO, which will be discussed below. The box plots show large variations between some schools and no variation with others. Schools 1, 9 and 17 have no tails on the plots indicating that classrooms in these clusters scored within similar ranges.

Schools that have classes scoring the same in this area are represented as dots on the graph as there was no variation to plot scores. There were 6 clusters overall where classrooms scored the same in this area. However, most classrooms showed variation as can be seen by the large tails of the plots. Again, as there were only five items, this variation was to be expected with some schools exhibiting the entire range of scores (1 -5) while other schools were more uniform in their lesson structures and showed little variation.

Table 4.4.7

Classification of scores for LLO

	Poor	Average	Good
No. of classrooms	22	22	16

Table 4.4.8

Item Analysis Table for LLO

Language Learning Opportunities	**No. of classrooms that achieved this item (n=60)**
1. Small group (3 or more kids) work facilitated by an adult takes place.	45
2. Children have opportunities to engage in interactive book reading facilitated by an adult (for example: asking predictive questions, joining in with repetitions, story packs etc.).	18
3. Children have opportunities to engage in structured conversations with teachers and other adults.	59
4. Children have opportunities to engage in structured (at least three turns) conversations with peers (Talking partners).	27
5. Attempts are made to actively include all children in small group activities	17

The mean for this section was 2.8, reflecting that in general, there are average to poor LLO practices within classrooms. Overall, 22 classrooms had scores which fell in the poor category, 22 classrooms scored within the average range and 16 scored within the good range.

4.5.3.2. Item analysis and comparisons

A classroom rich in language learning opportunities as defined by the BCRP and CSCOT development team has frequent possibilities of interactive reading, small group work and structured opportunities for verbal exchanges with peers and adults (Dockrell et al., 2010). Within the sample, there were two best performing classrooms, classes 24 and 39, which scored a total of 5/5. All items in this area were achieved, both of these classrooms belonging to higher performing schools. There were also 8 poorly performing classrooms which achieved a score of 1/5. Of these eight classrooms which fell in the poor category, six classes, 7, 9, 10, 15, 28 and 33, belonged to lower performing schools and two classes, 29 and 59, belonged to higher performing schools. All six poorly performing classrooms only achieved item 3 (Children have opportunities to engage in structured conversations with teachers and other adults).

Overall, the item most commonly occurring was item 3 (Children have opportunities to engage in structured conversations with teachers and other adults) with 59 classrooms scoring in this area. The least commonly occurring items were item 2 (Children have opportunities to engage in interactive book reading facilitated by an adult – for example: asking predictive questions, joining in with repetitions, story packs, etc.) with 18 classes scoring in this area, and item 5 (Attempts are made to actively include all children in small group activities) with 17 classes scoring in this area. However, when it came to facilitating literacy learning, interactive reading appeared to be an area of difficulty in most classrooms. This range of scores indicates that while children have the opportunity to engage in structured conversation with adults, peer interaction is limited and literacy focussed items such as item 2 are often neglected in classrooms.

4.5.3.3. Additional observations

From observations, it seems as though many teachers follow a strict schedule set out by the Department of Basic Education, all which include prescribed lessons for different subjects and specified group work activities (Department of Basic Education, 2011). However, within these prescribed lessons, there were different practices in classrooms to achieve these outcomes, for example, item 1 (Small group – 3 or more kids – work facilitated by an adult takes place). In lower performing schools, these were more structured rote learning activities such as counting out bottle tops for a numeracy lesson while higher performing schools allowed some free thinking activities such as painting or drawing tasks related to the weekly theme. Different activities had various effects on the opportunities that children had to interact with teachers or peers.

In the structured activities, children were more focused on the task at hand and only interacted with peers to ask for help, to argue over the distribution of resources (one child had taken too many bottle tops and left none for the others) and in the time available between completing the task and awaiting further instruction. In the more loosely structured tasks, children had a greater opportunity to engage in discussion based on the kind of activity, for example, a drawing activity, children were able to discuss favourite colours and aspects of the theme, as well as comment on each other's work. Thus the nature and facilitation of the activities which formed the basis of observations, in turn impacted items 3 (Children have opportunities to engage in structured – at least three turns – conversations with peers/talking partners), 4 (Children have opportunities to engage in structured conversations with teachers and other adults) and 5 (Attempts are made to actively include all children in small group activities).

A final observation regarding interaction opportunities relates to class size. Teachers in smaller classes were able to engage more with learners during small group work and reading activities while often teachers of larger classrooms spent more time with children who had difficulties or children who worked through tasks quickly. Conversely, it was noted in some classes that children that had difficulties were often placed at a desk on their own which limited their opportunity to engage in language exchanges.

4.5.4. Identifying areas of strengths and weakness

The strengths and weaknesses found were relative to each area of the tool. Rather than being compared to a standardised outside source, each area of the tool was compared to the other. From the combination of CSCOT scores, item analysis and additional observations, it was determined that LLE and LLI were areas of relative weakness across classrooms when compared to LLO. Most classrooms scored within the average to poor range for LLE and LLI which indicates that these classrooms were unable to achieve optimal practices for supporting language learning environments. Even though the majority of classes scored within an average range, this is still not an ideal score as the majority of classrooms should be scoring within the good range in order to support communication development. In addition to this, there were more classrooms that performed less optimally in LLI than in LLE indicating that though they are both weak areas, therefore LLI is considered a relatively greater weakness than LLE.

The results for LLO were fairly evenly spread in the poor, average and good ranges. This was understandable given that there were only 5 items on the scale and categories that decided good, average and poor were very narrow. There were more classrooms performing in the average to poor range when compared to good. However, LLO produced the highest number of optimally performing classrooms when compared to LLE and LLI and can thus be considered a strength when compared to the other two areas.

For LLE, six classrooms scored in the poor category, 51 classrooms scored within the average category and three classrooms scored in the good category. For LLI, six classrooms had scores which fell in the poor category, 53 classrooms had scores in the average category and one classroom scored in the good category. For LLO, 22 classrooms had scores which fell in the poor category, 22 classrooms scored within the average range and 16 scored within the good range. This indicates that most classrooms had difficulties in all three areas.

4.6 Results for secondary aim 1

4.6.1 To describe the relationship between communication environments and school performance

For the purposes of the study, both researchers and assistants were blinded to the performance of each school. Schools were chosen by a third party and a randomized list consisting of 20 schools and 60 classrooms was given to the researcher. After the completion of observations, the performance of schools was revealed. The range of scores for each category of the CSCOT were represented using box plots which were then used to compare the results of the higher and lower performing schools.

Figure 4.6.1, 4.6.2 and 4.6.3 Box Plots representing LLE, LLI and LLO scores for higher and lower performing schools

Figure 4.6.1

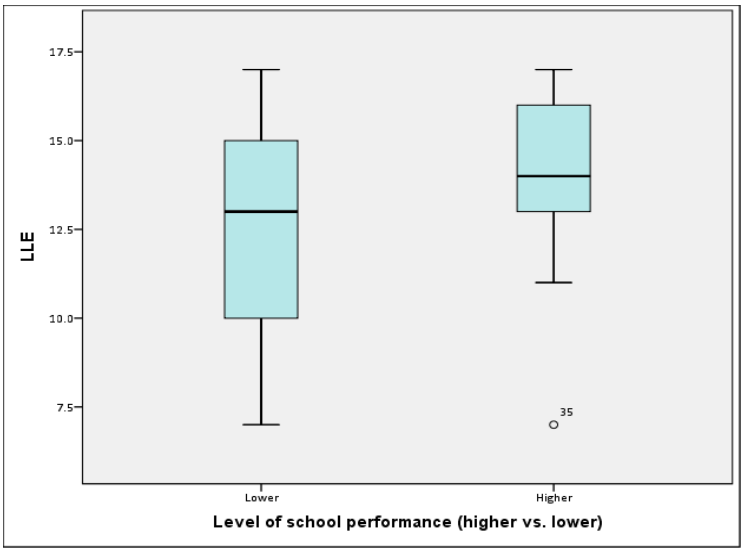


Figure 4.6.2

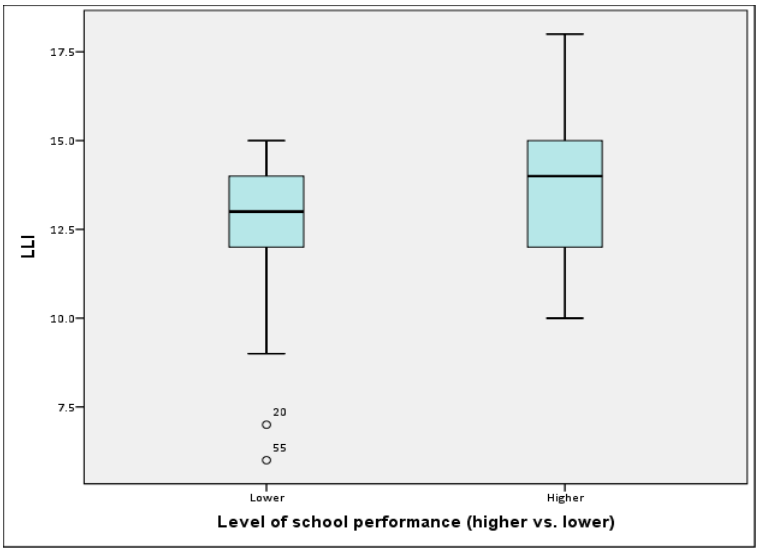
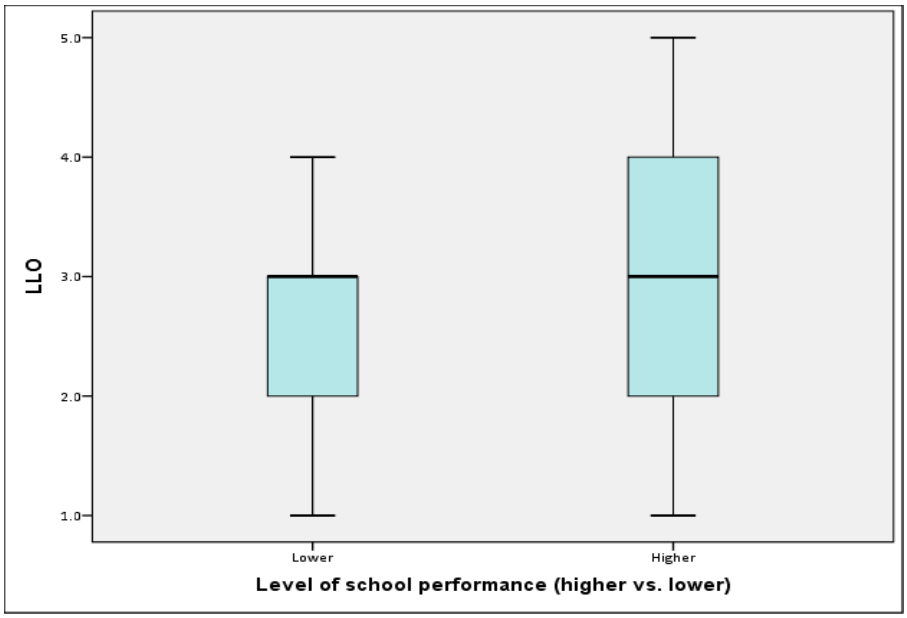


Figure 4.6.3



Language Learning Environment

The plot above represents the range of scores for LLE in higher and lower performing schools. As can be seen, there is some overlap between the scores, however, the lower performing schools have a larger range while the higher performing schools have a smaller range in the higher spectrum of scores. The inter quartile range of each plot indicates that more data for lower performing schools falls within a lower range when compared to higher performing schools. It is clear from the graph that there is a difference in scores between higher and lower performing schools with the lower performing schools scoring in the lower range. The discrepancies found in LLE in higher and lower performing schools were most notably in acquisition of adequate learning space and availability of resources.

Language Learning Interactions

In terms of LLI, there is again a fair amount of overlap between the higher and lower performing school scores with similar ranges. However, it is evident that the lower performing schools' range falls into the lower array of scores while the higher performing schools range falls in the upper spectrum. Through general observation it was noted that class size and teacher preference played a role in this area. Larger classes made it more difficult for the teacher to interact with students and keep order in the classroom and therefore kept discussions to a minimum. In addition, it was also noted that many of the experienced teachers preferred to use a more didactic teaching approach than the younger teachers.

Language Learning Opportunities

Finally, with regards to LLO, both higher and lower performing schools have comparable ranges which indicates that they are both performing at similar levels. However, there is a one-point difference in the higher performing classroom plot which gives it a higher upper limit and therefore a wider range. As mentioned previously, there are a number of factors such as class size and curriculum schedule that influence LLO in all classrooms. However, there were only five items in this area which means that the sample was too limited to draw significant comparisons.

4.7 Results for secondary aim 2

Secondary aim 2 explored the relationship between teacher experience in Grade R, school performance and class size on communication environment scores.

Classroom variables

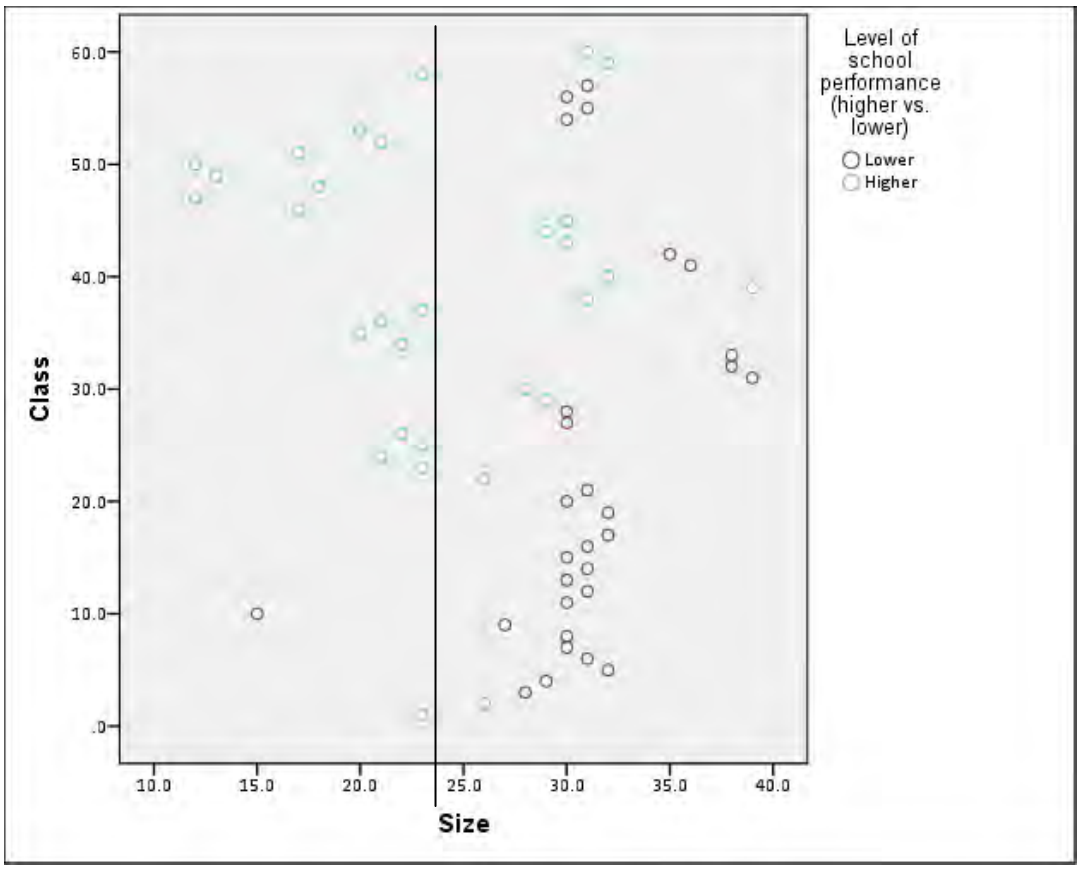


Figure 4.7 Scatter plot of class sizes in higher and lower performing schools

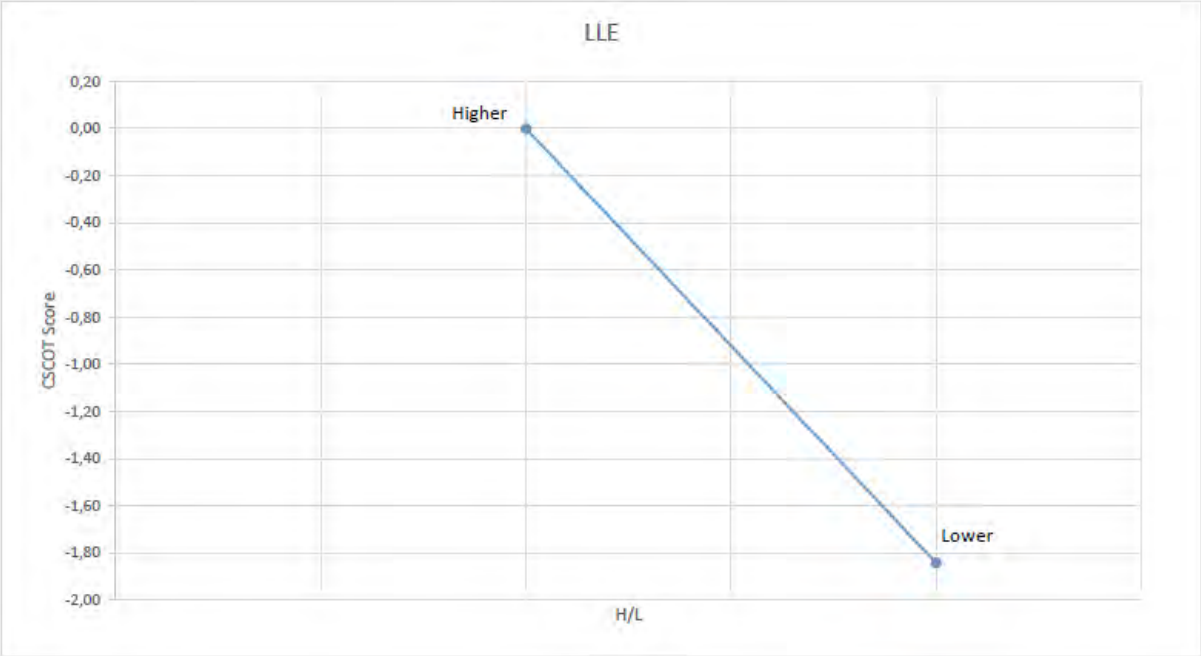
The scatter plot above represents the class sizes in higher and lower performing schools. Within the regression analysis, class size was found to have no statistically significant effect on scores. However, it also yielded interesting descriptive results that indicated class sizes are generally larger in lower performing schools. It is evident that higher performing schools generally have a range of 12 to 39 learners per classroom.

While it seems as though lower performing schools have a range of 15 - 39 children per class and have many classes above that of the average size found in the sample (27 children per class). Through observations at face value, it was evident that class size played a role in some aspects of the tool, ranging from the delivery of instructions by the teacher and the acknowledgement of communicative attempts to the opportunities to engage in language exchanges and distributing resources equally.

Teacher variables

As mentioned in Chapter 3, there were numerous variables that needed to be considered for this analysis but had to be narrowed down in order to fit the regression model. Teacher training was eliminated due to discrepancies in the data collected and vaguely worded questions on the questionnaires. In addition to this, teacher age, total years of experience and Grade R experience were highly correlated and so only one was chosen to fit in the model. A Spearman Correlation test was used on each variable pair. The correlation coefficient between total teaching experience and Grade R experience is 0.835 ($p<0.05$) which indicates a strong positive correlation between the two variables. Age of the teacher when compared to total teaching experience and Grade R experience had coefficients of 0.642 ($p<0.05$) and 0.541 ($p<0.05$) respectively, indicating that teacher age and years of experience are also correlated. At this stage of the analysis there were no statistically significant findings with regards to teacher experience and LLE, LLI and LLO. There were no other significant correlations found and consequently Grade R teacher experience was chosen as the variable to include in the model as it best related to the aims of the study.

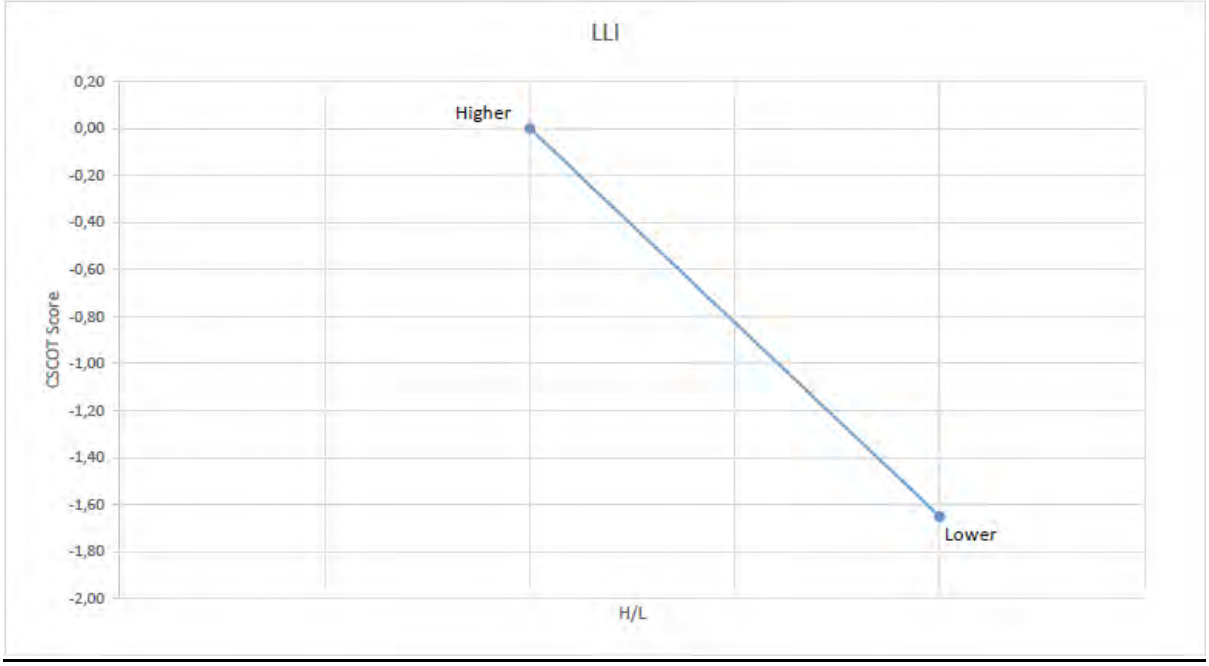
LLE



Graph 4.7.1 Adapted from Table 4.7.1 (a) in Appendix I

Graph 4.7.1, above, summarises the results of the multiple regression analysis evaluating the combined effect of teacher experience, school performance and class size on LLE scores. From the results, class size and teacher experience were found to have no effect on LLE in this context. However, it was found that lower performing schools scored approximately 1.84 points lower than higher performing schools. This is a significant finding ($p < 0.000$) indicating that there is a difference in LLE between higher and lower performing schools where lower performing schools had lower scores in this area. Given the distribution of resources and conditions of classrooms observed during data collection, this result was to be expected.

LLI



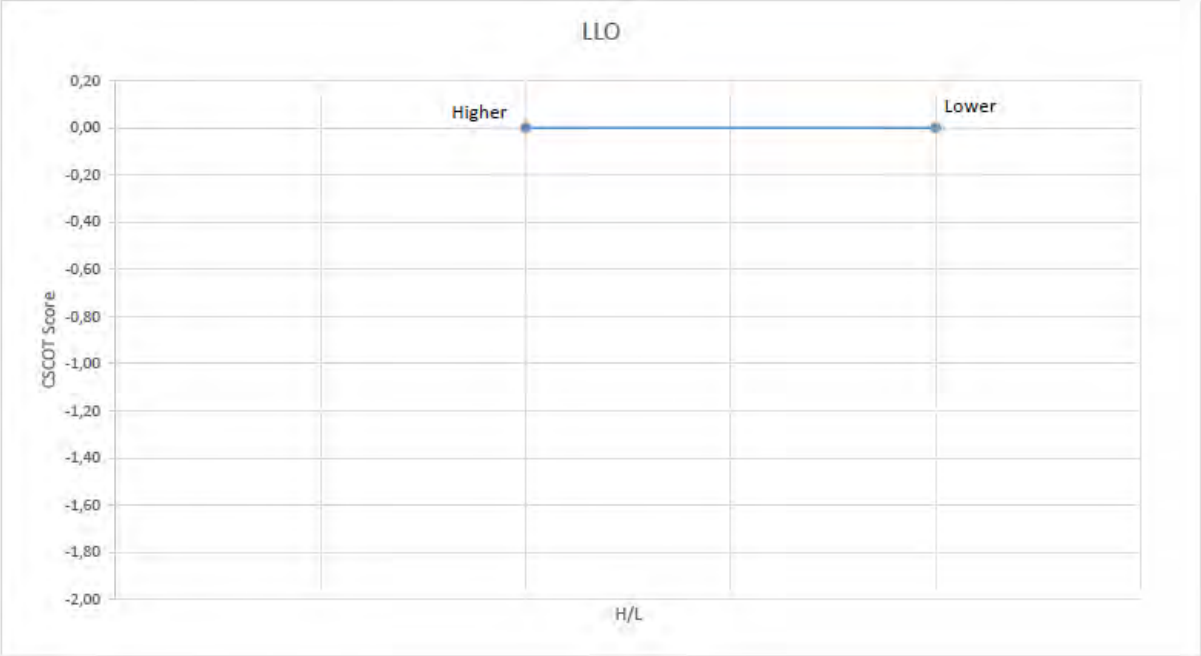
Graph 4.7.2 Adapted from Table 4.7.2 (b) in Appendix I

Graph 4.7.2, above, explores the relationship between the previously mentioned variables and LLI. Examining the results revealed that class size and teacher experience, again, did not have an effect on LLI scores. Though it was noted in observations that younger teachers tended to be more interactive during lessons, there was no significant difference found between years of teacher experience and interaction. However, lower performing schools were found to be scoring approximately 1.65 points lower than higher performing schools in the area of LLI, once again indicating a significant effect ($p < 0.000$) between school performance and the area of language learning interactions on the CSCOT.

The effects of teacher experience, though again not statistically significant, did highlight some differences within the classroom and delivery of instruction. There was a spread of young and old teachers across higher and lower performing schools though there was a higher concentration of younger teachers in lower performing schools than the higher performing schools.

The older teachers have to constantly adapt to developments of new curricula while younger teachers are less experienced and have to deal with the adjustment of entering a classroom straight out of training and may lose sight of the goals needed to be achieved (Hargreaves, 2003; Veenman, 1984). While both more and less experienced teachers used similar teaching styles, the main concern of younger teachers was keeping the class under control. This meant they adopted a didactic approach while the older teachers had no major concerns. However, it was observed that the older teachers had difficulty adapting to the more recent approaches to teaching and preferred to use a more instructive approach.

LLO



Graph 4.7.3 Adapted from Table 4.7.3 (c) in Appendix I

The final area explored was LLO and the relationship to the above mentioned variables. The table above indicates that none of the variables have a significant effect on LLO. However, this was expected due to the limitations of this area on the tool and restrictions that occurred with having only five items with which to measure this category. However, there was no significant difference in language learning opportunities between classrooms in lower and higher performing schools.

4.8 Summary of results

For aim 1, results indicated that although there was much overlapping between the data, there was much variation between schools and classrooms across all three areas of the CSCOT. Observations of classrooms pointed to LLE and LLI being relative areas of weakness in communication supporting classrooms when compared to LLO. LLO practices were difficult to accurately measure given the parameters of this area in the tool and the subsequent limitations, however, they did appear to present as a relative strength across classrooms and provide insight into how the structured Grade R curriculum impacts on different opportunities for language learning.

Results for secondary aim 1 displayed differences in higher and lower performing classrooms with regards to LLE, LLO and LLI. Class size was not a significant contributing factor toward differences between scores, however, there was an interesting difference noted in class size between higher performing and lower performing classrooms. Results indicated that lower performing classes generally had larger class sizes when compared to higher performing schools. While there was a large amount of variation and overlap between scores of higher and lower performing classrooms, there was evidence that lower performing classrooms had lower scores and larger ranges across all three areas of the tool.

Secondary aim 2 explored the relationship between class size, school performance, teacher experience and communication environments using a multiple regression analysis. Here results produced statistically significant correlations between LLE and LLI and school performance. Lower performing schools generally performed 1.84 points lower in the area of LLE and 1.65 points lower in the area of LLI when compared to higher performing schools. There was no significant difference between school performance and LLO, which may have been influenced by the limited number of items in this area.

CHAPTER FIVE

Discussion

5.1 Overview of the chapter

This chapter discusses the results of the study, based on the data analysis and explores the implications of these results within the literature and the context of the study. First, the classroom profiles will be discussed and thereafter the primary and secondary aims. Strengths and limitations of the study will be described and the CSCOT as a classroom observation tool will be evaluated. Finally, recommendations will be made for future research and the study conclusions will be presented.

5.2 Profile of classrooms

From the analysis of the results, it is apparent that there is a considerable amount of variation in communication environments, not only between schools, but within schools as well. However, this is to be expected given the constantly changing nature of the education system in South Africa as well as the existing gaps between the quality of learning taking place in schools (Prinsloo & Janks, 2002).The details and nature of this variation will therefore be discussed in this chapter. The profile of the classrooms provided interesting data with regards to Grade R classrooms, language use and matching in rural Western Cape. It was evident during observations that the Cape Winelands district has established Grade R classrooms in most public ordinary schools. This is an encouraging statistic given the relatively late introduction of Grade R into the official curriculum (Jansen, 2014).

South Africa as a country has region-based patterns of language and in the Cape Winelands District, Afrikaans is the dominant language (Connor & Geiger, 2009). Afrikaans was the most prominent language used with 76.7% of the classrooms having Afrikaans as the language of learning and teaching. Either English or isiXhosa were spoken in the remainder of the classroom, with the only one bilingual classroom in the sample. South Africa has 11 official languages which lends itself to a large degree of diversity in terms of languages used in the classroom (Connor & Geiger, 2009).

The home language of the teachers was largely matched to the language of the instruction in classrooms, however, there were some instances where Afrikaans first language speakers were required to teach in English medium classrooms, though this was a small part of the sample. This increases the amount of code-switching that occurs when teachers are unable to think of vocabulary or terms in the required language of the classroom instruction. This was most commonly done in order to make communication easier for the children but in some instances it was when teachers struggled with the LOLT. There were also a few occasions where languages of children were matched with the language of instruction. Out of the sample of 60 classrooms, less than half of the classrooms (n=27) matched the languages of children and the language of instruction. The remainder of the classes contained children with various language backgrounds.

In these classrooms, code-switching was noted occasionally in teacher and student conversations as well as lessons. This is a common practice in multi-lingual communities and often can appear in teacher or student discourse where languages are diverse or the teacher may be unfamiliar with the language of instruction (Sert, 2005). Teachers were noted to code switch in order to explain concepts with difficult vocabulary or to communicate with particular students who spoke a different language. In addition, it was noted during group work activities that children frequently reverted back to using their home language to communicate with each other even though they were being taught in a different language. It was reported by some teachers that children often act as informal translators for each other when teachers have difficulty communicating with children of different language backgrounds. It was also noted in some classrooms that basic greeting songs in the morning ring were sung in English, Afrikaans and isiXhosa, exposing all the children to these different languages. This can be seen as a positive strategy as it encourages interactions amongst peers.

In the past, concerns have been raised over the formal training of Grade R teachers (Green et al., 2011; Wium & Louw, 2013). Up until the 1990's, universities have focussed on training high school teachers, with training of primary school teachers conducted in poorer quality institutions (Green et al., 2011). It was only in 2001 that the focus of teacher education began to shift in order to provide consistent training and produce high quality foundation phase teachers as well (Green et al., 2011). Although almost all teachers in the sample had received formal training, few had trained specifically to teach Grade R. However, the results of this study indicated that 98.3% of teachers in the sample had received tertiary education in order to teach. The remaining 1.67% constituted of one teacher who had received a matric education but had been a teacher's assistant in a Grade R class for many years and was asked to take over a class due to the increase in numbers of Grade R students.

Although this is contrary to what is being reported in the media, the majority of Grade R teachers in a rural district in the Western Cape have received formal training, however, it is important to note that this is not always in order to teach Grade R. Grade R teachers are given limited support from the Department, as well as from the schools where they teach (Jansen, 2014). In addition to this lack of Grade R specific support, teacher training programmes do not take into account the uneven supply and demand for teachers in preschool versus primary and secondary schooling which results in an irregular distribution of staff in different grades (Hofmeyr & Draper, 2015).

While the results of this study are promising, reports have stated that only 13% of teaching graduates in 2012 had an official language (excluding English and Afrikaans) as their mother tongue (Hofmeyr & Draper, 2015). This indicates that many children are not being taught in their home language and are therefore being placed in classrooms where the medium of instruction creates a barrier to learning, especially in the younger years (Brock-Utne, 2015). However, contending this point is the rationale that providing schooling in every official language might be a costly process in terms of resources such as printing many different textbooks in different languages (Green et al., 2011).

Moreover, in all South African schools, English becomes the official language of learning in the intermediate phase which motivates many schools to promote English as the medium of instruction (Brock-Utne, 2015). Additionally, many parents prefer their children to be taught in English as they want their children to have full access to the language in order to ensure academic success (Janks, 2004). Perhaps one of the most concerning aspects of teacher training as found in the literature is that while formal training is being provided, few teachers understand the process of language-learning in children (Green et al., 2011). According to Jansen (2014), few teachers understand the importance of language-learning through play-based approaches and, as such, tend to focus on the structured curriculum provided by the Department of Education rather than on more informal interaction-based activities.

5.3 Discussion of aim 1

5.3.1 Language Learning Environments

Though most classrooms achieved average scores in the area of LLE, with an average score of 13.2 across classrooms, a few general trends were noted with scores. In classrooms that were small (e.g., previously shipping containers), teachers had little room to display resources or organise the classroom as desired. Access to adequate space and carefully thought out arrangements of the classroom have been shown to positively influence learning experiences (Read et al., 1999). As a result, these classrooms achieved lower scores in this area. The tool here did not allow sufficient consideration in the South African context. The tool did not account for the discrepancies in availability of resources that can be caused by political and economic influences. For example, shipping containers used as classrooms are not commonly found internationally, however, they are cost effective and more freely available in South Africa and are therefore used in poorer communities lacking resources (Moloi & Chetty, 2011).

However, when space was available this score also appeared to rely on the teacher's own preference for the classroom environment. Some teachers preferred to pack all resources away in favour of neat, uncluttered classrooms while others had laid out the classroom in order for the resources to be accessible to the children.

In addition, some teachers preferred to display children's own work but where storage space was limited, work was commonly pasted into workbooks rather than displayed on the walls. Research has previously shown that teacher personality and preference have an influence on learning outcomes (Fisher & Kent, 1998). These findings reinforce the idea that classrooms are shaped by teachers and teachers' own views of learning can influence the classroom environment.

Though most classes had access to basic resources as supplied by the Department of Basic Education, some classrooms were more well-resourced than others, particularly in terms of books, print rich posters and other visual stimulation (pictures). Access to appropriate books in preschool classrooms is often identified as a crucial factor in developing early literacy skills (McGill-franzen, Allington, Yokoi, & Brooks, 1999). However, it has been found that many low income and rural communities have less access to books at home as well as at school (McGill-franzen et al., 1999). In this study, 23 classrooms did not have access to books.

While observations were made following the guidelines of the CSCOT, additional observations were also recorded in a comments section on the tool. These observations opened to discussion what could be considered "good" environments and what the requirements would be for South African classes. These comments typically captured the rural school environment in more detail. In a number of classrooms, items such as open space and classroom displays were available, however, important equipment such as desks and chairs were lacking. Research continues to demonstrate that there is a strong link between the physical classroom and learning outcomes, more so that adequate furniture is needed to ensure a productive and positive environment for students (Lyons, 2001; Mwamwenda & Mwamwenda, 1987). Yet, some children were placed at desks while others were required to find space on the floor to work. Though LLE was shown to be the most reliably scored area by raters, it did not skew the accuracy of scores because of the ease of completion when compared to the other two areas. The scores on the tool directly reflect the observations made in classrooms.

5.3.2 Language Learning Interactions

While many teachers scored well in the broader aspects of LLI such as using a slow pace (n=60) and getting down to the children's level when interacting with them (n=56), the complexities of language such as commenting, extending and scripting were rarely used. Research shows that teachers seem to dominate interactions within the classrooms using verbal language as the primary mode of communication while using visual stimulation and written language to reinforce concepts (Martin, 2006). In these situations, children often respond with gestures or gestures coupled with a short verbal response, usually in reaction to something the teacher has said (Kathard & Pillay, 2008; Pianta et al., 2002). A similar pattern was noted in the classrooms observed with an average LLI score of 13.2.

This result was expected due to the variability of teaching styles observed in the classrooms. Some teachers in lower performing schools reported that they receive limited support from the Department of Education outside of curriculum related guidance which often means that teachers may be unsure as to how to foster appropriate language-learning environments. In addition to these factors, the tool itself details the finer characteristics of language learning that can often be overlooked on a broad scale such as a classroom environment. However, documenting which items teachers use infrequently helps speech-language pathologists to identify areas which would benefit from additional in-service training.

It was noted in some classrooms that when technology was readily available, it was used during lesson time. It was not uncommon to see YouTube videos being shown in the lesson to reinforce a concept. However, this limited the interactions between teacher and student as the focus was on the projector rather than engaging with each other. This is a common finding in more modern classrooms and a growing concern that technology, while useful in many ways, may be detracting from conventional interactions within the classroom (OECD, 2014).

Research now needs to focus on how to ensure that teachers facilitate learning and provide meaningful experiences instead of just relaying relevant knowledge and subject concepts to children (Aldridge, Fraser, & Sebela, 2004). In order to move teachers away from the more didactic approach, professional development is needed to introduce new methods of teaching that can positively influence learning outcomes and foster communication (Kwakman, 2003).

5.3.3 Language Learning Opportunities

LLO was a difficult area to assess, given the nature of this section in the tool. There were only five items in this area that looked at very specific opportunities which were found to be good practices for language development and provided opportunities for children to practice their language skills (Dockrell et al., 2010). There were a wide range of scores for each school in this area with an average LLO score of 2.8. Group work and reading activities are part of the Grade R curriculum set out by the Department of Education and therefore these areas can be considered a strength of the Grade R classrooms within this study (Department of Basic Education, 2011). Most classrooms (n=45) also engaged in some kind of group work activity during the observation period, however, the amount and quality of interaction depended on the type of task, as well as the noise levels in the classrooms. Some teachers tended to quiet the class down when noise levels reached a certain level and thereafter actively discouraged talking.

Teacher-student interaction was particularly difficulty in larger classes as the teacher did not have the time to interact with individual learners but rather oversaw the classroom as a whole. This was different in smaller classes and classes with assistants where the teacher had more opportunities to interact with the students. However, when it came to facilitating literacy learning, interactive reading appeared to be an area of difficulty in most classrooms with only 18 classrooms using this practice. In most classrooms, reading was usually teacher led with minimal chance for student participation. Teachers in smaller classes were more open to the idea of engaging students in reading activities as the classroom was easier to control, whereas teachers in larger classes restricted this shared reading opportunity to participate in order to keep the class under control.

5.4 Strengths and weaknesses

As mentioned, the strengths and weaknesses that were found were relative to each area of the tool. An area of relative strength was LLO, while areas of relative weakness were LLE and LLI. Out of all three areas, LLI seemed to be the area of most difficulty. This was the area that contained the most complicated aspects of the tool. It contained the finer details of communication that sometimes were overlooked in classrooms. Didactic approaches were taken in most classrooms which limited opportunities for interactions and discussions (Gillies & Boyle, 2010). The area of LLE also provided a measure of difficulty, some classrooms being poorly resourced while others were well resourced. Most classrooms had basic provisions that were supplied to them by the Department of Education (Department of Basic Education, 2009). These included posters for the walls and occasionally books for lessons.

While these resources were available in the majority of classrooms, the area that lacked the most were literacy specific areas with only two classrooms having these present. LLO provided a challenge due to the scoring but as mentioned above it did contribute interesting insights into the Grade R curriculum. The curriculum allowed for some aspects of LLO to be compulsory. Tasks like group discussion were compulsory in all classrooms but the quality of these discussions depended on both the teachers and the children. Scoring was spread fairly evenly across poor, average and good but relative to the other areas, can be considered a strength.

5.5 Discussion for secondary aim 1

The results of the CSCOT indicated that there were differences in scores between lower and higher performing schools. Overall, higher performing schools have statistically higher average scores in the areas of LLE and LLI. The higher performing schools scored in the upper range of scores while the lower performing schools ranged from low to high scores. In South Africa, schools are classified as higher performing or lower performing based on systemic results of assessments carried out in Grades 1 to 6 (Department of Basic Education, 2011). However, achievement on these assessments are influenced by a number of factors including the child, and the institution itself (Binkowski, Cordeiro, & Lwanicki, 1995). The environments at home and at school have also been shown to influence language learning and outcomes (Lackney, 1994).

In higher performing schools, it was noted that most classrooms had access to high quality learning spaces including a wide range of books, large classrooms, visually stimulating surroundings, educational toys and areas for imaginative play. Lower performing schools, while generally adequately resourced, lacked the finer elements of the classroom that encouraged language learning. Fewer books were found in these classrooms with limited access to high quality toys and minimal visual stimulation when compared to their higher performing counterparts. In addition to this, the LOLT in 53.3% of classrooms in higher performing schools were matched to student's home language whereas in lower performing schools only 36.7% of classrooms matched student with their home language. This is a vitally important observation for SLPs as language of instruction is one of the most important aspects of language and literacy learning. Though there has been research indicating a critical period for language learning, students exposed to their home language in classrooms does play a role in language and communication development (Gee, 2004).

Research has shown that teaching methods differ from teacher to teacher based on the environment in which they are required to practice (Stipek, 2004). In terms of LLI, it has been theorised that some teachers take the didactic approach to teaching when they believe that children require basic learning before advanced learning can occur and therefore resort to more direct methods of transferring knowledge (Stipek, 2004). However, when teachers feel as though students have a basic understanding of concepts, they play the role of guide rather than instructor and begin to provide opportunities for children to further their knowledge (Stipek, 2004). In most classrooms, a didactic approach was taken. Though most teachers attempted to include students, this role was often restricted to answering questions rather than being allowed to engage with discussions. The LLO for practising language in classrooms was therefore limited because of this approach to teaching.

5.6 Discussion for secondary aim 2

In this aim of the study, teacher experience in Grade R, class size and school performance were the variables used to compare classroom communication scores. The results revealed that school performance had an influence on both LLE and LLI scores while class size and teacher experience had no effect. Class size averaged 27 learners per classroom. According to a report released by the Organisation for Economic Co-Operation and Development (OECD, 2014) in 2014, the average class size in primary schools in Group of 20 (G20) countries as of 2012 is approximately 24, which indicates that South African rural classrooms in the Western Cape have larger class sizes when compared to other countries of similar developing backgrounds (OECD, 2014). However, this is also marginally lower than other countries such as China where the average primary school class size is 37 (OECD, 2014). This above average class size compared to the OECD averages, is to be expected due to the rising number of Grade R students in both public and independent schools in the country (Jansen, 2014).

Generally, lower performing schools scored 1.84 and 1.65 units lower on the LLE and LLI scales respectively. These results fit the current picture given about the state of South African Grade R classes (Prinsloo & Janks, 2002; B. N. Spaull, 2012). Children in lower performing schools have less opportunity to acquire basic literacy skills when compared to their higher performing counterparts based on the access to resources and quality of instruction (O'Carroll & Hickman, 2012). However, this study also highlights a greater number of classrooms in lower performing schools where there is a mismatch between the children's home language and the language of learning and teachings. This factor may also contribute towards maintaining the disparity in outcomes between these two groups of schools as children's home language may not be supported to the same degree in lower performing classrooms as it is in the classrooms of the higher performing schools (Corallo & McDonald, 2001).

Characteristics of higher performing schools include high quality teaching, collaborative relationships, strong leadership, equitable spread of resources and supportive learning environments (Bergeson et al., 2007). Though this was just a preliminary observation these qualities were noted in the majority of higher performing schools in this study. Teachers were able to get down to the children's level and engage in meaningful discussions during morning ring or other lessons. Each child was given time to express their opinions or opportunities to practice conversational skills with adults and peers. This is often easier to do when teachers are able to teach in their home language and learners are allowed to learn in their home language.

However, SLPs have the expertise and knowledge which allows them to coach teachers to become better at some aspects of interaction that they battle with in situations where this is not the case. Resources for educational benefit or free play were readily available and there were good channels of communication between teachers and between teachers and principals. Meanwhile in the lower performing schools it was evident that there were difficulties with regard to maintenance of classrooms and access to resources, which indicates that the socio-economic status of the more rural areas was lower than urban areas (Corallo & McDonald, 2001) . However, these qualities were not all noted in lower performing schools observed; the teachers in this group seemed to be dedicated. This was supported by the fact that many remained at their posts for extended periods of time. However, in this case, it seems as though lack of teacher support, resources and large class sizes affected learning environments (Jordan, Mendro, & Weerasinghe, 1997). Furthermore, many schools in rural areas had no access to Speech Therapy services and though children with difficulties were identified, no support was provided to teacher or student.

Though not statistically significant, it was evident that lower performing schools have larger class sizes and at face value, this affects the levels of interactions. A trend in large classes was that teachers discouraged discussion in order to maintain discipline. Teachers were also unable to engage with each child due to the large number in the class.

This approach was vastly different when compared to the environment in higher performing classes mentioned above. Though class size does not directly affect communication environments, these secondary outcomes as a result of differences in class sizes do (Biddle & Berliner, 2002). However, given the sample size, the full effects of class size may not be seen.

5.7 Additional observations outside of the Communication Supporting Classrooms Observational Tool

From an SLP perspective, one of the most concerning aspects of the classroom was the lack of SLP support for teachers. Most teachers were often very aware of the children who had speech, language and learning difficulties and were easily able to identify the learners that presented with these difficulties, however, there was no follow up or intervention as teachers were unsure where to refer children to in their area.

Another difficult factor is substance abuse in households where caregivers often neglect parental duties such as assisting with school work at home (most homework is returned incomplete), simple maintenance of uniforms (some children have no shoes or have worn jerseys that do little against the cold) and ensuring the general health of their child (children sometimes come to school with injuries such as cuts and scrapes having had no treatment at home). Often these duties fall under the responsibility of the teacher.

As with many developing countries, nutrition is often a factor that contributes to development language and otherwise. Though many schools have feeding schemes, in overcrowded classrooms, not every child has access to adequate nutrition. Most school based feeding schemes supply one to two meals a day. Some teachers reported that the food children get at school are their only meals for the day let alone the only nutrition to fuel them for hours of learning.

5.8 Strengths and limitations of the study

Given that this is a first time study; the results provide a broad overview of communication environments in rural schools within the Western Cape. A strength is that this research provides a foundation on which to build further studies in order to improve language learning in schools. The study uses a relatively robust sample size, however, this meant that only a few schools out of an entire district were observed and so the results cannot be generalised to the larger population.

This study also allowed the SLP department at the University of Cape Town an opportunity to form relationships with rural/remote schools in another district. Careful thought was put into meetings with principals in order to ensure that they understood the aims of the project and the benefits the project would have for their school. Spending time with the teachers further strengthened this relationship, providing them with an opportunity to let their concerns and opinions be heard. In addition to these strengths, the tool can be reliably used to collect data in classrooms with different languages to the tool istelf. Furthermore, the tool can be used reliably by non SLP raters, with sufficient training, which was a major contribution to the study.

The most difficult limitation to overcome was recruiting schools to participate. Schools were often unwilling to have researchers in the classrooms even though no recording, intervention or interaction with the children took place. There were a number of reasons given, such as inappropriate timing as observations were done at the beginning of the year, or a reluctance to overcrowd classrooms with student SLP observers from different universities. Additionally, principals were reluctant to grant permission as researchers often complete the research in the schools without making real contributions outside of writing up a dissertation. For the purposes of this study, feedback to schools and teachers was an essential part the research process. The recruitment process was a long and difficult one, however once schools were engaged, they were keen to participate and looked forward to the outcomes of the study.

There was also miscommunication between principals and teachers in some schools in that researchers would arrive for scheduled observations only to be told by the teachers that they were not expected. Though observations were given the go ahead once the principal was informed, this created an uncomfortable climate for both teachers and researchers. Due to the distances travelled and a strict time frame, observations could not be rescheduled as a result of these miscommunications. However, researcher expectations in schools were also often quite high and did not always account for the very real and unpredictable climates of the research environment. Cluster sampling was also used in the study which meant that the data analysis had to account for this. However, due to time constraints and logistics, this was the only way in which the data could be timeously and efficiently collected. Time constraints also had an impact on the training procedure, where a large amount of information was presented to raters in a short amount of time. Though training was short, it was rigorous and more time would be useful for raters to take in all the information.

The CSCOT was an appropriate tool to use in the study, given the exploratory nature of the research. It provided a general overview of communication environments and allowed researchers to identify areas of strengths and weaknesses in classrooms. It was simple and easy to use and therefore made training other researchers with no background in education or language-learning a relatively straightforward process. The comments area on the tool allowed researchers to make additional observations in each area which was very useful. In addition, the ease of filling out the tool coupled with the precautionary measures taken to ensure reliability, meant that video recordings, though useful, were unnecessary in this study.

A disadvantage is that the CSCOT is not a commonly used tool and in analysing the data, there was little to compare the results to. There is also no overall score which would allow researchers to give classrooms one score to represent the quality of the communication environment and use the sub-scores to indicate areas of strengths and weaknesses. The tool also provided an observation of one moment in time which is useful in studies which aim to provide broad, descriptive pictures. However, it lacks detail that would be useful in planning future studies and informing future intervention.

For example, the nature of instruction such as the tone and pitch of the teacher were not measured on the tool and yet these factors also play a role in creating supportive communication environments (Pianta et al., 2010). Furthermore, the area of LLO was limited as a scale with few items with which to measure opportunities children have to practice language. The tool was also not fully applicable to the South African population. It would be useful to have more interaction items which should focus on multilingualism and language matching as well as code switching. In the area of LLE, items surrounding the actual classroom building should be considered as some classrooms were in sheds and shipping containers. Opportunities to engage in unstructured literacy specific activities should also be considered because while the environment measured the resources, opportunities should measure how they are used.

5.9 Recommendations for future research

The following areas of research would contribute towards a greater understanding of how to facilitate language learning within the classroom environment:

1. Observing communication environments using a more in depth tool that explores the intricacies of language-learning that takes place within classrooms.

2. The CSCOT could also be adapted, by adding in additional items which reflect issues specific to the South African environment, for example, the use of code switching in interactions and being equipped with basic furniture such as desks and chairs, in the environment.

3. The area of language learning opportunities should be further investigated and items should be added to the tool in order to improve the robustness of observations of results obtained on the tool.

4. To continue research in rural/remote areas in order to improve our understanding of what impacts on language-learning outcomes by investigating associations between communication environments and quintiles and other relevant classroom characteristics such as quintiles, districts, etc.

5. To develop and test training materials and intervention strategies to strengthen the areas of weakness, namely LLE and LLI. For SLP purposes, perhaps LLI provides more of a weakness than LLE and the process should not only include observation and intervention but also active collaboration with teachers and schools, engaging all perspectives in order to make appropriate changes.

6. To obtain more comprehensive teacher demographics – including specific training received, more in depth language based information and teacher perspectives and opinions.

7. To systematically evaluate the current syllabus outlined for the training of teachers as well as the curriculum for Grade R, in order to identify the areas where SLPs could contribute towards teacher training.

5.10 Conclusion

The results of this study found that there are large variations between language-learning environments, language-learning interactions and language-learning opportunities across classrooms and schools in rural/remote areas. The areas of LLE and LLI proved to be areas of particular weakness in classrooms while LLO can be considered a relative strength. The analysis of the effect of classroom variables, teacher experience and class size on communication environments yielded no significant results. However, school performance was shown to be a significant variable, with lower performing schools presenting with poorer LLE and LLI scores when compared to higher performing schools. It is easy to assume that LLE is related to resourcing but future research needs to explore the factors which are associated with variance in LLI scores. In addition to this, it was found that the CSCOT is a tool that can be used by raters in different languages, and by non-specialist raters in multilingual classrooms.

References

Adam, E. K. (1999). Investing in our children: What we know and don't know about the costs and benefits of early childhood interventions. *Children and Youth Services Review*, *21*(4), 339–342. doi:10.1016/S0190-7409(99)00024-9

Aldridge, J., Fraser, B., & Sebela, M. (2004). Using teacher action research to promote constructivist learning environments in South Africa. *South African Journal of Education*, *24*(4), 245–253. Retrieved from http://www.ajol.info/index.php/saje/article/view/24996

Allen, J., Gregory, A., Lun, J., Hamre, B., & Pianta, R. (2013). Observations of Effective Teacher – Student Interactions in Secondary School Classrooms : Predicting Student Scoring System — Secondary, *42*(1), 76–98.

Ambridge, B., & Lieven, E. V. M. (2011). *Child Language Acquisition: Contrasting Theoretical Approaches*. New York: Cambridge University Press.

Anderson, L. M., Shinn, C., Fullilove, M. T., Scrimshaw, S. C., Fielding, J. E., Normand, J., & Carande-Kulis, V. G. (2003). The effectiveness of early childhood development programs: A systematic review. *American Journal of Preventive Medicine*, *24*(3 SUPPL.), 32–46. doi:10.1016/S0749-3797(02)00655-4

Arnold, J. (2005). Cooperative language learning and affective factors. In *Affect in Language Learning* (4th ed., pp. 226 – 245). New York: Cambridge University Press.

Arnold, M. L., Newman, J. H., Gaddy, B. B., & Dean, C. B. (2005). A Look at the Condition of Rural Education Research : Setting a Direction for Future Research. *Journal of Research in Rural Education*, *20*(6), 1–25.

Barnett, W. S. (1992). Benefits of Compensatory Preschool Education. *The Journal of Human Resources*, *62*(3), 278–291.

Bartlett, J. E., Kotrlik, J. W., & Higgins, C. C. (2001). Organizational Research : Determining Appropriate Sample Size in Survey Research. *Information Technology, Learning, and Performance Journal*, *19*(1), 43–50.

Basic Education. (2009). NATIONAL EARLY LEARNING AND DEVELOPMENT STANDARDS FOR CHILDREN BIRTH TO FOUR YEARS (NELDS) Department of Basic Education.

Bercow, J. (2008). *The Bercow Report: A review of services for children and young people (0-19) with speech, language and communication needs.* London. Retrieved from http://dera.ioe.ac.uk/8405/1/7771-dcsf-bercow.pdf

Bergeson, T., Shannon, S., & Ed, D. (2007). *The Nine Characteristics of High-*

Performing Schools: A research-based resource for schools and districts to assist with improving student learning. (2nd Ed.). Olympia, WA: OSPI. Washington.

Berlinski, S., Galiani, S., & Gertler, P. (2009). The effect of pre-primary education on primary school performance. *Journal of Public Economics*, *93*(1-2), 219–234. doi:10.1016/j.jpubeco.2008.09.002

Biddle, B. J., & Berliner, D. C. (2002). Small class size and its effects. *Educational Leadership*, *59*(5), 12–23. Retrieved from http://www.westonk12-ct.org/uploaded/documents/Central_Office/Educational_Services/Synopsis_of_Class_Size_Literature.pdf

Binkowski, K., Cordeiro, P., & Lwanicki, E. (1995). *A Qualitative Study of Higher and Lower Performing Elementary Schools*.

Blaikie, N. (2003). *Analyzing Quantitative Data: From Description to Explanation*. London: Sage Publications.

Blaine, D., & Mwamwenda, T. (1994). Education in Southern Africa: Current Conditions and Future Directions. *International Review of Education*, *40*(2), 113–134.

Blatchford, P. (1994). The Issue of Class Size for Young Children in Schools : what can we learn from research ? *Oxford Review of Education*, *20*(4), 411–428.

Blatchford, P., Bassett, P., & Brown, P. (2011). Examining the effect of class size on classroom engagement and teacher-pupil interaction: Differences in relation to pupil prior attainment and primary vs. secondary schools. *Learning and Instruction*, *21*(6), 715–730. doi:10.1016/j.learninstruc.2011.04.001

Bloch, C. (1999). The potential of early childhood for developing and sustaining literacy in Africa. *Social Dynamics*, *25*(1), 101–129. doi:10.1080/02533959908458664

Block, D., & Cameron, D. (2002). *Globalization and Language Teaching*. London: Routledge.

Booren, L. M., Downer, J. T., & Vitiello, V. E. (2012). Observations of Children's Interactions with Teachers, Peers, and Tasks across Preschool Classroom Activity Settings. *Early Education & Development*, *23*(4), 517–538. doi:10.1080/10409289.2010.548767

Bowman, B. T., Donovan, S., & Burns, M. S. (2000). *Eager to Learn: Educating Our Preschoolers*. Washington DC: National Academy Press.

Brigman, G. A., & Webb, L. D. (2003). Teaching Kindergarten students school successes.pdf. *The Journal of Educational Research*, *96*(5), 286 – 294.

Brock-Utne, B. (2015). Decolonisation , Globalisation : Language-in- Education Policy and Practice . New Perspectives on Language and Education. In *Second International Handbook on Globalisation, Education and Policy Research*. Netherlands: Springer.

Cambourne, B. (1995). Toward an educationally relevant theory of literacy learning: Twenty years of inquiry. *Reading Teacher*, *49*(3), 182. doi:10.1598/RT.49.3.1

Carpenter, M., Nagell, K., Tomasello, M., & Butterworth, G. (1998). Social Cognition, Joint Attention, and Communicative Competence from 9 to 15 Months of Age. *Monographs of the Society for Research in Child Development, 63*(4), 1–174.

Cazden, C. B. (1986). Classroom discourse. *Handbook of Research on Teaching*. doi:10.1016/0346-251X(90)90014-V

Census. (2011). *Census Information Guide*.

Chandra, R. K. (1997). Nutrition and the Immune System: An Introduction. *The American Journal of Clinical Nutrition*, *66*(2), 460–463.

Cheng, Y. C., & Tam, W. M. (1997). Multi-models of quality in education. *Quality Assurance in Education*, *5*(1), 22–31.

Chingos, M. M., & Peterson, P. E. (2011). It ' s easier to pick a good teacher than to train one : Familiar and new results on the correlates of teacher effectiveness. *Economics of Education Review*, *30*(3), 449–465. doi:10.1016/j.econedurev.2010.12.010

Chisholm, L. (2005). *State of the Nation: South Africa 2004-2005*. (J. Daniel, R. Southall, & J. Lutchman, Eds.). Cape Town: HSRC Press.

Clark, E. V. E. V. (2008). *First Language Acquisition*. New York: Cambridge University Press. doi:10.1017/CBO9780511806698

Collins, A., Joseph, D., & Bielaczyc, K. (2004). Design Research : Theoretical and Methodological Issues. *The Journal of the Learning Sciences*, *13*(1), 15–42.

Connor, J. O., & Geiger, M. (2009). Challenges facing primary school educators of English Second (or Other) Language learners in the Western Cape. *South African Journal of Education*, *29*, 253–269.

Corallo, C., & McDonald, D. (2001). What Works with Low-Performing Schools: A Review of Research Literature on Low-Performing Schools. *ERIC*.

Crabbe, D. (2003). The Quality of Language Learning Opportunities. *TESOL Quarterly*, *37*(1), 9–34.

Creswell, J. W. (2003). *Research design* (Second.). USA: Sage Publications.

Curby, T. W., LoCasale-Crouch, J., Konold, T. R., Pianta, R. C., Howes, C.,

Burchinal, M., … Barbarin, O. (2009). The Relations of Observed Pre-K Classroom Quality Profiles to Children's Achievement and Social Competence. *Early Education & Development*, *20*(2), 346–372. doi:10.1080/10409280802581284

Curby, T. W., Rimm-Kaufman, S. E., & Ponitz, C. C. (2009). Teacher–child interactions and children's achievement trajectories across kindergarten and first grade. *Journal of Educational Psychology*, *101*(4), 912–925. doi:10.1037/a0016647

Currie, J. (2001). Early Childhood Education Programns. *The Journal of Economic Perspectives*, *15*(2), 213–238.

Darling-Hammond, L. (1999). *Teacher Quality and Student Achievement : A Review of State Policy Evidence* (Vol. 1999). USA.

Department of Basic Education. (2011). *National Curriculum Statement (NCS)*.

Department of Education. (1995). *White Paper on Education and Training*. Cape Town.

Department of Education. (1996). *Interim Policy for Early Childhood Development*.

Department of Education. (2001). *National ECD Pilot Project*.

Department of Health. (2008). Better Communication: An action plan to improve services for children and young people with speech, language and communication needs. London. doi:10.1119/1.2339701

Diamond, K. E., Reagan, A. J., & Bandyk, J. E. (2000). Parents' Conceptions of Kindergarten Readiness: Relationships With Race, Ethnicity, and Development. *The Journal of Educational Research*, *94*(2), 93–100. doi:10.1080/00220670009598747

Dickinson, D. K., & Caswell, L. (2007). Building support for language and early literacy in preschool classrooms through in-service professional development: Effects of the Literacy Environment Enrichment Program (LEEP). *Early Childhood Research Quarterly*, *22*(2), 243–260. doi:10.1016/j.ecresq.2007.03.001

Dobbs-Oates, J., Kaderavek, J. N., Guo, Y., & Justice, L. M. (2011). Effective behavior management in preschool classrooms and children's task orientation: Enhancing emergent literacy and language development. *Early Childhood Research Quarterly*, *26*(4), 420–429. doi:10.1016/j.ecresq.2011.02.003

Dockrell, Bakopoulou, I., Law, J., & Spencer, S. (2010). *Developing a communication supporting classrooms observation tool*. London.

Dockrell, J. E., Bakapoulou, I., Law, J., Spencer, S., & Lindsay, G. (2012). *Better*

Communication Research Programme: Communication Supporting Classroom Observation Tool. London.

Dufresne, R. J., Gerace, W. J., Leonard, W. J., Mestre, J. P., & Wenk, L. (1996). Classtalk: A classroom communication system for active learning. *Journal of Computing in Higher Education*, *7*(2), 3 – 47.

Dunst, C. J., Bruder, M. B., Trivette, C. M., Hamby, D., Raab, M., & McLean, M. (2001). Characteristics and Consequences of Everyday Natural Learning Opportunities. *Topics in Early Childhood Special Education*, *21*(2), 68–92. doi:10.1177/027112140102100202

Dunst, C. J., Hamby, D., Trivette, C. M., Raab, M., & Bruder, M. B. (2000). Everyday Family and Community Life and Children's Naturally Occurring Learning Opportunities. *Journal of Early Intervention*, *23*(3), 151–164. doi:10.1177/10538151000230030501

Dustmann, C., Rajah, N., & Soest, A. Van. (2003). Class Size, Education, and Wages. *The Economic Journal*, *113*(485).

Ehren, B. J., Ed, D., & Ehren, T. C. (2001). New or Expanded Literacy Roles for Speech-Language Pathologists : Making It Happen in the Schools. *Seminars in Speech and Language*, *22*(3), 233–244.

Ehren, B. J., Montgomery, J., Rudebusch, J., & Whitmire, K. (2009). *Responsiveness To Iintervention: New roles for speech-language pathologists*. USA.

Ejieh, M. U. C. (2005). Pre-Primary Education in Nigeria : Policy Implementation and Problems. *Elementary Education ONline*, *5*(1), 58–64.

Elardo, R., Bradley, R., & Caldwell, B. M. (1977). Development at Age Three A Longitudinal Study of the Relation of Infants ' Home Environments to Language Development at Age Three. *Child Development*, *48*(2), 595–603.

Engle, P. L., Black, M. M., Behrman, J. R., Cabral de Mello, M., Gertler, P. J., Kapiriri, L., … Young, M. E. (2007). Strategies to avoid the loss of developmental potential in more than 200 million children in the developing world. *Lancet*, *369*(9557), 229–242. doi:10.1016/S0140-6736(07)60112-3

Fillmore, L. W., & Snow, C. E. (2000). *What Teachers Need to Know About Language*. USA.

Fisher, D. L., & Kent, H. B. (1998). Associations Between Teacher Personality and Classroom Environment. *Journal of Classroom Interaction*, *33*(1), 5–13. doi:10.2307/23870338

Foorman, B. R., Anthony, J., Seals, L., & Mouzaki, A. (2002). Language development and emergent literacy in preschool. *Seminars in Pediatric*

Neurology, *9*, 173–184. doi:10.1053/spen.2002.35497

Foster, M. a., Lambert, R., Abbott-Shim, M., McCarty, F., & Franze, S. (2005). A model of home learning environment and social risk factors in relation to children's emergent literacy and social outcomes. *Early Childhood Research Quarterly*, *20*(1), 13–36. doi:10.1016/j.ecresq.2005.01.006

Fraenkel, J. R., & Wallen, N. E. (2012). *How to Design and Evaluate Research in Education* (Seventh.). San Francisco: McGraw-Hill International.

Fraenkel, & Wallen, N. E. (2000). *How to Design and Evaluate Research in Education.* (Seventh.). USA: McGraw-Hill INternational.

Fraser, B. J. (2014). Classroom Learning Environments. In N. G. Lederman & S. K. Abell (Eds.), *Handbook of Research on Science Education Vol. 2* (pp. 104–119). New York: Routledge.

Gamoran, A. (1987). The Stratification of High School Learning Opportunities. *Sociology of Education*, *60*(3), 47–63.

Garces, E., Thomas, D., & Currie, J. (2000). *Long Term Effects of Head Start*. Los Angeles.

Gee, J. P. (2004). *Situated Language and Learning: A Critique of Traditional Schooling*. Psychology Press.

Gibbons, S., & Silva, O. (2011). Economics of Education Review School quality , child wellbeing and parents ' satisfaction. *Economics of Education Review*, *30*(2), 312–331. doi:10.1016/j.econedurev.2010.11.001

Gillies, R. M. (2013). Developments in classroom-based talk. *International Journal of Educational Research*, *63*, 63–68. doi:10.1016/j.ijer.2013.05.002

Gillies, R. M., & Boyle, M. (2010). Teachers' reflections on cooperative learning: Issues of implementation. *Teaching and Teacher Education*, *26*(4), 933–940. doi:10.1016/j.tate.2009.10.034

Grantham-McGregor, S., Cheung, Y. B., Cueto, S., Glewwe, P., Richter, L., & Strupp, B. (2007). Developmental potential in the first 5 years for children in developing countries. *Lancet*, *369*.

Green, W., Parker, D., Deacon, R., & Hall, G. (2011). Foundation phase teacher provision by public higher education institutions in South Africa. *South African Journal of Childhood Education*, *1*(1), 109 –122.

Hall, J. K., & Walsh, M. (2002). classroom interaction and language learning.pdf. *Annual Review of Applied Linguistics*, *22*(1), 186–203.

Hannum, E. (2008). Beyond cost: Rural perspectives on barriers to education. *Creating Wealth and Poverty in China*, (January). Retrieved from

http://works.bepress.com/cgi/viewcontent.cgi?article=1001&context=emily_hannum

Hanushek, E. a, & Allen, W. (1998). *Institute of The Evidence on Class Size*.

Harber, C., & Muthukrishna, N. (2000). School Effectiveness and School Improvement in Context: The Case of South Africa. *School Effectiveness and School Improvement*, *11*(4), 421–434. doi:10.1076/sesi.11.4.421.3559

Hargreaves, A. (2003). *Teaching in the Knowledge Society: Education in the Age of Insecurity*. New York: Teachers College Press.

Harms, T., Clifford, R. M., & Cryer, D. (2015). *Early Childhood Environment Rating Scale*. New York: Teachers College Press.

Harty, M., Ariefdien, I., Bhabha, T., Hammar, M., Hellberg, J., Marlow, L., … Tu, C. (2013). *Describing the language-learning environment within foundation phase classrooms in an informal settlement in the Western Cape, using a classroom observation tool.* University of Cape Town.

Heath, S. B. (1986). Sociocultural contexts of language development. Beyond language: Social and cultural factors in schooling language minority students.

Hedeker, D., Gibbons, R. D., & Flay, B. R. (1994). Random-effects regression models for clustered data with an example from smoking prevention research. *Journal of Consulting and Clinical Psychology*, *62*(4), 757–765. doi:10.1037/0022-006X.62.4.757

Heyneman, S. P., & Loxley, W. A. (1983). The Effect of Primary-School Quality on Academic Achievement across Twenty-nine High- and Low-Income Countries ’. *American Journal of Sociology*, *88*(6), 1162–1194.

Hoff, E. (2006). How social contexts support and shape language development. *Developmental Review*, *26*(1), 55–88. doi:10.1016/j.dr.2005.11.002

Hofmeyr, J., & Draper, K. (2015). Teachers in SA: Supply and demand - CDE. *politicsweb*. Retrieved July 28, 2015, from http://www.politicsweb.co.za/news-and-analysis/teachers-in-sa-supply-and-demand--cde

Hora, M. T., & Ferrare, J. J. (2013). *A Review of Classroom Observation Techniques in Postsecondary Settings* (No. 2013-1). USA.

Howes, C., Burchinal, M., Pianta, R., Bryant, D., Early, D., Clifford, R., & Barbarin, O. (2008). Ready to learn? Children’s pre-academic achievement in pre-Kindergarten programs. *Early Childhood Research Quarterly*, *23*(1), 27–50. doi:10.1016/j.ecresq.2007.05.002

Howes, C., Wishard Guerra, A., Fuligni, A., Zucker, E., Lee, L., Obregon, N. B., & Spivak, A. (2011). Classroom dimensions predict early peer interaction when

children are diverse in ethnicity, race, and home language. *Early Childhood Research Quarterly*, *26*(4), 399–408. doi:10.1016/j.ecresq.2011.02.004

Huck, S. W. (2012). *Reading Statistics and Research* (Sixth.). USA: Pearson.

Hunt, R. J. (1986). Percent agreement, Pearson's correlation, and kappa as measures of inter-examiner reliability. *Journal of Dental Research*, *65*(2), 128–130. doi:10.1177/00220345860650020701

Ingram, D. (1999). *First language acquisition : method, description, and explanation*. Melbourne: Cambridge University Press.

Jackson, B., Larzelere, R., St. Clair, L., Corr, M., Fichter, C., & Egertson, H. (2006). The impact of HeadsUp! Reading on early childhood educators' literacy practices and preschool children's literacy skills. *Early Childhood Research Quarterly*, *21*(2), 213–226. doi:10.1016/j.ecresq.2006.04.005

Jacobsen, K. H. (2012). *Introduction to health research methods: A practical guide*. London: Jones & Bartlett learning.

Jaesook, G., & Griebling, S. (2013). Essential Elements for Preparing Future Teachers in Early Childhood Education Using Common Core Standards. *Kentucky Journal of Excellence in College Teaching and Learning*, 47–54.

Janks, H. (2004). The Access Paradox. *English in Australia*, *139*, 33–42.

Jansen, L. (2014). Grade R increasing inequality gap. *The Mercury*. Durban. Retrieved from http://www.iol.co.za/news/south-africa/kwazulu-natal/grade-r-increasing-inequality-gap-1.1725907#.VbdKse8ViP8

John, V. (2015). With Grade R comes great responsibility. *Mail & Guardian Africa*. Retrieved from http://mg.co.za/article/2015-08-14-with-grade-r-comes-great-responsibility

Johnson, M. B. (1999). *Communication In the Classroom*.

Jordan, H. R., Mendro, R. L., & Weerasinghe, D. (1997). *Teacher Effects on Longitudinal Student Achievement*. Texas.

Julious, S. a. (2005). Sample size of 12 per group rule of thumb for a pilot study. *Pharmaceutical Statistics*, *4*(4), 287–291. doi:10.1002/pst.185

Justice, L. M. (2004). Creating Language- Rich Preschool Classroom Environments. *Teaching Exceptional Chidlren*.

Justice, L. M., & Wiggins, A. K. (2008). Preschool Teachers ' Fidelity in Implementing a Comprehensive Language-Rich Curriculum. *Language, Speech, and Hearing Services in Schools*, *39*(July), 329–342.

Kapil, U. (2002). Integrated Child Development Services (ICDS) scheme: a program

for holistic development of children in India. *Indian Journal of Pediatrics*, *69*(7), 597–601. doi:10.1007/BF02722688

Kathard, H., Pascoe, M., Ramma, L., Jordaan, H., Moonsamy, S., Wium, A.-M., … Khan, N. (2011). How can speech-language therapists and audiologists enhance language and literacy outcomes in South Africa ? (And why we urgently need to). *South African Journal of Communication Disorders*, *58*(December), 59–71.

Kathard, H., & Pillay, M. (2008). Talking about Communication and Education: A Case Study of a South African Classroom. *International Journal of Learning*, *14*(9), 155 – 161.

Kendall, N. (2007). Education for All Meets Political Democratization: Free Primary Education and the Neoliberalization of the Malawian School and State. *Comparative Education Review*, *51*(3), 281–305. doi:10.1086/518478

Kendeou, P., van den Broek, P., White, M. J., & Lynch, J. S. (2009). Predicting reading comprehension in early elementary school: The independent contributions of oral language and decoding skills. *Journal of Educational Psychology*, *101*(4), 765–778. doi:10.1037/a0015956

Korth, B. B., Sharp, a. C., & Culatta, B. (2010). Classroom Modeling of Supplemental Literacy Instruction: Influencing the Beliefs and Practices of Classroom Teachers. *Communication Disorders Quarterly*, *31*(2), 113–127. doi:10.1177/1525740109333239

Kramsch, C. (2003). *Language Acquisition and Language Socialization: Ecological Perspectives*. London: Bloomsbury publishing.

Krueger, A. B. (2003). Economic Considerations and Class Size. *The Economic Journal*, *113*(485).

Kwakman, K. (2003). Factors affecting teachers' participation in professional learning activities. *Teaching and Teacher Education*, *19*(2), 149–170. doi:10.1016/S0742-051X(02)00101-4

Lackney, J. a. (1994). *Educational Facilities: The impact and role of the Physical Environment of the school on teaching, learning, and educational outcomes*.

Levin, K. A. (2006). Study design III: Cross-sectional studies. *Evidence-Based Dentistry*, *7*(1), 24–5. doi:10.1038/sj.ebd.6400375

Lindsay, G., Dockrell, J., Law, J., & Roulstone, S. (2010). *The Better Communication Research Programme : Improving provision for children and young people with speech , language and communication needs*. London.

Lindsay, G., Dockrell, J., & Sue, J. L. (2010). *Better communication programme : 2nd interim report*. London.

Lonigan, C. J., Burgess, S. R., & Anthony, J. L. (2000). Development of Emergent Literacy and Early Reading Skills in Preschool Children : Evidence From a Latent-Variable Longitudinal Study, *36*(5), 596–613. doi:10.1037//OOI2-1649.36.5.596

Lyons, J. B. (2001). *Do School Facilities Really Impact A Child ' s Education ? CEFPI Brief*.

Martin, S. H. (2006). The classroom environment and children's performance - is there a relationship? In C. Spencer & M. Blades (Eds.), *Children and Their Environments: Learning, Using and Designing Spaces* (pp. 91 – 105). New York: Cambridge University Press.

Mashburn, A. J., Pianta, R. C., Barbarin, O. A., Bryant, D., Hamre, K., Downer, J. T., … Mashburn, J. (2008). Measures of Classroom Quality in Prekindergarten and Children' s Development of Academic, Language, and Social Skills. *Child Development*, *79*(3), 732–749.

Mathers, N., Hunn, A., & Fox, N. (2009). *Surveys and Questionnaires*. London.

McCardle, P., Scarborough, H. S., & Catts, H. W. (2001). Predicting , Explaining , and Preventing Children ' s Reading Difficulties ∗. *Learning Disabilities Research & Practice*, *16*(4), 230–239.

McCartney, K. (1984). Effect of quality of day care environment on children's language development. *Developmental Psychology*, *20*(2), 244–260. doi:10.1037//0012-1649.20.2.244

McCrum-Gardner, E. (2008). Which is the correct statistical test to use ? *British Journal of Oral and Maxillofacial Surgery*, *46*, 38–41. doi:10.1016/j.bjoms.2007.09.002

McGill-franzen, A., Allington, R. L., Yokoi, L., & Brooks, G. (1999). Putting Books in the Classroom Seems Necessary But Not Sufficient. *The Journal of Educational Research*, *93*(2), 67–74. doi:10.1080/00220679909597631

McGraw, K. O., & Wong, S. P. (1996). Forming inferences about some intraclass correlation coefficients. *Psychological Methods*, *1*(1), 30–46. doi:10.1037/1082-989X.1.1.30

McLoyd, V. C. (1998). Socioeconomic disadvantage and child development. *The American Psychologist*, *53*(2), 185–204. doi:10.1037/0003-066X.53.2.185

Moloi, M. Q., & Chetty, M. (2011). Policy brief: Quality of primary school inputs in South Africa. *Sacmeq*, *2*(2), 1–6.

Montie, J. E., Xiang, Z., & Schweinhart, L. J. (2006). Preschool Experience in 10 Countries: Cognitive and Language Performance at Age 7. *Early Childhood Research Quarterly*, *21*, 313–331.

Morrow, L. M. (1990). Preparing the classroom environment to promote literacy during play. *Early Childhood Research Quarterly*, *5*(4), 537–554. doi:10.1016/0885-2006(90)90018-V

Mosteller, F. (1995). The Tennessee Study of Size in the Class Grades. *The Future of Children*, *5*(2), 113–127. doi:10.2307/1602360

Muijs, D. (2010). Introduction to Quantitative Research. In *Doing quantitative research in education with SPSS.* (pp. 1–10). USA: Sage Publications.

Mulkeen, A. (2006). *Teachers for rural schools: A challenge for Africa*. *Effective Schools and Quality Improvement*.

Mwamwenda, T. S., & Mwamwenda, B. B. (1987). School Facilities and Pupils' Academic Achievement. *Comparative Education*, *23*(2), 225–235.

Neuman, S. B., & Cunningham, L. (2008). The Impact of Professional Development and Coaching on Early Language and Literacy Instructional Practices. *American Educational Research Journal*, *46*(2), 532–566. doi:10.3102/0002831208328088

Neuman, S. B., & Roskos, K. (2005). The state of state pre-kindergarten standards. *Early Childhood Research Quarterly*, *20*(2), 125–145. doi:10.1016/j.ecresq.2005.04.010

Nores, M., & Barnett, W. S. (2010). Benefits of early childhood interventions across the world: (Under) Investing in the very young. *Economics of Education Review*, *29*(2), 271–282. doi:10.1016/j.econedurev.2009.09.001

Nye, B., Konstantopoulos, S., & Hedges, L. V. (2004). How Large Are Teacher Effects ? *Educational Evaluation and Policy Analysis*, *26*(3), 237–257.

O'Carroll, S., & Hickman, R. (2012). *Narrowing the literacy gap*. South Africa.

O'Connor, M., Arnott, W., McIntosh, B., & Dodd, B. (2009). Phonological awareness and language intervention in preschoolers from low socio-economic backgrounds: A longitudinal investigation. *British Journal of Developmental Psychology*, *27*(4), 767–782. doi:10.1348/026151008X372492

OECD. (2014). *Education at a Glance 2014: OECD Indicators*.

Orb, A., Eisenhauer, L., & Wynaden, D. (2001). Ethics in Qualitative Research. *Journal of Nursing Scholarship*, *33*(1), 93–96.

Papadaki-D'Onofrio, E. (2003). *Beginnings Workshop: Childcare Information Exchange*.

Paro, K. M. La, Hamre, B. K., Locasale-Crouch, J., Pianta, R. C., Bryant, D., Early, D., … Burchinal, M. (2009). *Quality in Kindergarten Classrooms: Observational Evidence for the Need to Increase Children's Learning Opportunities in Early*

Education Classrooms. *Early Education & Development* (Vol. 20). doi:10.1080/10409280802541965

Paro, K. M. La, Pianta, R. C., & Stuhlman, M. (2004). The Classroom Assessment Scoring System: Findings from the Prekindergarten Year. *The Elementary School Journal*, *104*(5), 409. doi:10.1086/499760

Phurutse, M. C. (2005). *Factors affecting teaching and learning in South African public schools*. Cape Town: HSRC Press.

Pianta, Howes, C., Burchinal, M., Bryant, D., Clifford, R., Early, D., … Early, D. (2010). Features of Pre-Kindergarten Programs , Classrooms , and Teachers : Do They Predict Observed Classroom Quality and Child-Teacher Interactions ? Features of Pre-Kindergarten Programs , Classrooms , and Teachers : Do They Predict Observed Classroom Quality, (February 2015), 37–41. doi:10.1207/s1532480xads0903

Pianta, R. C., la Paro, K. M., Payne, C., Cox, M. J., & Bradley, R. (2002). The Relation of Kindergarten Classroom Environment to Teacher, Family, and School Characteristics and Child Outcomes. *The Elementary School Journal*, *102*(3), 225. doi:10.1086/499701

Pianta, R. C., Paro, K. M., Payne, C., Cox, M. J., Bradley, R., & Paro, K. M. La. (2010). The Relation of Kindergarten Classroom Environment to Teacher , Family , and School Characteristics and Child Outcomes. *The Elementary School Journal*, *102*(3), 225–238.

Prinsloo, J., & Janks, H. (2002). Critical literacy in South Africa: Possibilities and constraints in 2002. *English Teaching: Practice and Critique*, *1*(1), 20–38.

Putnam, R. T., & Borko, H. (2000). What Do New Views of Knowledge and Thinking Have to Say about Research on Teacher Learning? *American Educational Research Association*, *29*(1), 4 – 15.

Ramsay, J., Hooker, G., & Graves, S. (2009). *Functional Data Analysis*. New York, NY: Springer New York. doi:10.1007/978-0-387-98185-7

Raudys, S. J., & Jain, A. K. (1991). Small Sample Size Effects in Statistical Pattern Recognition: Recommendations for Practitioners. *IEEE Transactions on Pattern Analysis and Machine Intelligence*, *13*(3), 252–263.

Read, M. a., Sugawara, a. I., & Brandt, J. a. (1999). Impact of Space and Color in the Physical Environment on Preschool Children's Cooperative Behavior. *Environment and Behavior*, *31*(3), 413–428. doi:10.1177/00139169921972173

Reynolds, a J., & Temple, J. a. (1998). Extended early childhood intervention and school achievement: age thirteen findings from the Chicago Longitudinal Study. *Child Development*, *69*(1), 231–246. doi:10.2307/1132082

Rodriguez, E. T., Tamis-LeMonda, C. S., Spellmann, M. E., Pan, B. a., Raikes, H., Lugo-Gil, J., & Luze, G. (2009). The formative role of home literacy experiences across the first three years of life in children from low-income families. *Journal of Applied Developmental Psychology*, *30*(6), 677–694. doi:10.1016/j.appdev.2009.01.003

Roskos, K. a., Christie, J. F., & Richgels, D. J. (2003). The Essentials of Early Literacy Instruction.

Rothstein, R., Krueger, A. B., Hanushek, E. a, & Rice, J. K. (2002). *The Class Size Debate*. (L. Mishel & R. Rothstein, Eds.). Washington DC: Economic Policy Institute.

Rumberger, R. W., & Thomas, S. L. (2000). The Distribution of Dropout and Turnover Rates among Urban and Suburban High Schools. *Sociology of Education*, *73*(1), 39–67. doi:10.1126/science.135.3503.554

Ruxton, G. D. (2006). The unequal variance t-test is an underused alternative to Student's t-test and the Mann-Whitney U test. *Behavioral Ecology*, *17*(4), 688–690. doi:10.1093/beheco/ark016

Sandelowski, M. (2000). Focus on Research Methods Whatever Happened to Qualitative Description ? *Research in Nursing & Health*, *23*, 334–340.

Sauer, P. J. J. (2002). Research in children . A report of the Ethics Working Group of the CESP. *European Journal of Paediatrics*, *161*(2), 1–6. doi:10.1007/s00431-001-0855-y

Schneider, M. (2002). Do School Facilities Affect Academic Outcomes? *National Clearinghouse for Educational Facilities, Washington, DC*. doi:November 2002

Schulz, K. F., & Grimes, D. A. (2002). Epidemiology series Blinding in randomised trials : hiding who got what. *Lancet*, *359*, 696–700.

Seidman, E., & Tseng, V. (2011). Changing social settings: A framework for action. In *Empowering settings and voices for social change* (pp. 12–37). New York: Oxford University Press.

Seltman, H. J. (2009). Mixed models. A flexible approach to correlated data. In *Experimental Design and Analysis.* (pp. 357 – 377). Pittsburgh: Statistics Department Carnegie Mellon University.

Sert, O. (2005). The functions of code switching in ELT classrooms. *The Internet TESL Journal*, *11*(8). Retrieved from http://iteslj.org/Articles/Sert-Code\nSwitching.html

Shaughnessy, a., & Sanger, D. (2005). Kindergarten Teachers' Perceptions of Language and Literacy Development, Speech--Language Pathologists, and Language Interventions. *Communication Disorders Quarterly*, *26*(2), 67–84.

doi:10.1177/15257401050260020601

Shonkoff, J. P., & Phillips, D. A. (2000). *From Neurons to Neighborhoods: The Science of Early Childhood Development.* Washington DC: National Academy Press.

Sims, J. M. (2010). DIMENSION A Brief Review of the Belmont Report. *Dimensions of Critical Care Nursing*, *29*(4), 173–174.

Spaull, B. N. (2012). *Poverty & Privilege : Primary School Inequality in South Poverty & Privilege : Primary School Inequality in South Africa* (No. 13/12). Stellenbosch.

Spaull, N. (2015). *Education Quality in South Africa and Sub-Saharan Africa: An Economic Approach*. The University of Stellenbosch.

SPSS Technical Report. (2005). *Linear Mixed-Effects Modeling in SPSS : An Introduction to the MIXED Procedure*.

Stigler, J. W., Gallimore, R., & Hiebert, J. (2010). Using Video Surveys to Compare Classrooms and Teaching Across Cultures: Examples and Lessons From the TIMSS Video Studies. *Educational Psychologist*, *35*(June 2010), 37–41. doi:10.1207/S15326985EP3502

Stipek, D. (2004). Teaching practices in kindergarten and first grade: Different strokes for different folks. *Early Childhood Research Quarterly*, *19*(4), 548–568. doi:10.1016/j.ecresq.2004.10.010

Stipek, D., Daniels, D., Galluzzo, D., & Milburn, S. (1992). Characterizing early childhood education programs for poor and middle-class children. *Early Childhood Research Quarterly*, *7*(1), 1–19. doi:10.1016/0885-2006(92)90015-Q

Stipek, D., Milburn, S., Clements, D., & Daniels, D. H. (1992). Parents' beliefs about appropriate education for young children. *Journal of Applied Developmental Psychology*, *13*(3), 293–310. doi:10.1016/0193-3973(92)90034-F

Strickland, D. S., Morrow, L. M., Neuman, S. B., Roskos, K., Schickedanz, J. a, Vukelich, C., & Dewey, J. (2004). The Role of Literacy in Early Childhood Education. *The Reading Teacher*, *58*(1), 86–100. doi:10.1598/RT.58.1.9

Stuhlman, M. W., Hamre, B. K., Downer, J. T., & Pianta, R. C. (2010a). *What should classroom Observation measure?* USA.

Stuhlman, M. W., Hamre, B. K., Downer, J. T., & Pianta, R. C. (2010b). *Why should we use classroom Observation*. USA.

Swartz, A. (2009). *AN EVALUATION OF THE SCHOOL FEEDING PROGRAMME AS A SERVICE DELIVERY MECHANISM TO IMPROVE ACADEMIC PERFORMANCE OF NEEDY LEARNERS IN BONTEHEUWEL*.

Sykes, A. (1993). *An introduction to regression analysis*. USA: University of Chicago.

Retrieved from http://www.law.uchicago.edu/files/files/20.Sykes_.Regression.pdf?utm_source=twitterfeed&utm_medium=twitter

Thompson, S. K. (1991). Biometrika Trust. *Biometrika Trust*, *78*(2), 389–397.

Tudge, J., Gray, J. S., & Hogan, D. M. (1996). Ecological perspectives in human development: A comparison of Gibson and Bronfenbrenner. *Comparisons in Human Development: Understanding Time and Context*. doi:http://dx.doi.org/10.1017/CBO9780511720345.004

UNESCO. (1990). World Declaration On Education For All. In *World Conference on Education for All Meeting Basic Learning Needs*. Jomtien: UNESCO.

van Teijlingen, E., & Hundley, V. (1998). The importance of pilot studies. *Nursing Standard (Royal College of Nursing (Great Britain) : 1987)*, *16*(40), 33–6. doi:10.7748/ns2002.06.16.40.33.c3214

Veenman, S. (1984). Perceived Problems of Beginning Teachers. *Review of Educational Research*, *54*(2), 143–178. doi:10.3102/00346543054002143

Walters, F. (2014). *Changes in peers' attitudes towards children who stutter after the administration of the Classroom Communication Resources.* University of Cape Town.

Wasik, B. A., & Bond, M. A. (2001). Beyond the Pages of a Book : Interactive Book Reading and Language Development in Preschool Classrooms, *93*(2), 243–250. doi:10.1037//0022-O663.93.2.243

Wells, G. (2009). *The Meaning Makers: Learning to Talk and Talking to Learn* (2nd ed.). Bristol: Multilingual Matters.

Western Cape Education Department. (2014). Annual Report 2013/2014. doi:10.1007/s13398-014-0173-7.2

Western Cape Government. (2009). *Educating Cape 2040 : Building Blocks of Future Prosperity FuturesCape Policy Brief Executive Summary*. Cape Town.

Western Cape Government. (2013). *Regional Development Profile Cape Winelands District Working paper*.

Western Cape Government. (2014). *Regional Development Profile Cape Winelands District Working paper*.

Wilkinson, L. C., & Silliman, E. R. (2000). Classroom Language and Literacy Learning. In *Handbook of Reading Research, Volume 3* (pp. 337 – 360). New York: Routledge.

Wium, A., Louw, B., & Eloff, I. (2010). Speech-language therapists supporting foundation-phase teachers with literacy and numeracy in a rural and township

context. *South African Journal of Communication Disorders*, *57*(December), 14–21.

Wium, & Louw, B. (2011). Teacher support – an exploration of how foundation-phase teachers facilitate language skills. *South African Journal of Communication Disorders*, *58*(December), 86–94.

Wium, & Louw, B. (2013). Revisiting the roles and responsibilities of speech-language therapists in South African schools. *South African Journal of Communication Disorders*, *60*(December), 31–37. doi:10.7196/SAJCD.247

WMA General Assembly. (2013). *Declaration of Helsinki - Ethical Principles for Medical Research Involving Human Subjects*. Fortaleza, Brazil.

Wren, Y., Roulstone, S., & Hall, B. (2001). A model for a mainstream school-based speech and language therapy service. *Child Language Teaching and Therapy*, *6590*(01), 108–126.

Yeager, C., Piasta, S. B., Justice, L. M., & Connell, A. O. (2014). Language- and literacy-learning opportunities in early childhood classrooms : Children ' s typical experiences and within-classroom variability. *Early Childhood Research Quarterly*, *29*(4), 445–456. doi:10.1016/j.ecresq.2014.05.004

Young, M. (2002). *From Early Child Development to Human Development: Investing in Our Children*. Washington DC: World Bank.

Zar, J. H. (1998). Spearman rank correlation. In *Encyclopedia of Biostatistics.*

Zikmund, W., Babin, B., Carr, J., & Griffin, M. (2012). Chapter 11 : Observation Methods. In *Business Research Methods* (pp. 238 – 256). USA: Cengage Learning.

Appendix A: Communication Supporting Classrooms Observational Tool (CSCOT)

2012

BETTER COMMUNICATION RESEARCH PROGRAMME

School:

Date:

Completed by:

Class:

No pupils:

No staff (excluding observer):

COMMUNICATION SUPPORTING CLASSROOMS OBSERVATION TOOL

- The observation checklist below is designed to be used in an observation of a classroom or a learning space.
- The observation checklist can be used in Reception, Year 1 and Year 2 classrooms and learning spaces.
- The average length of time necessary to collect a representative sample of behaviour is one hour. The recording of the first dimension (Language Learning Environment) can be done during break time or school assembly.
- It is recommended that the observation takes place during a regular classroom session (usually a morning session starting with the class register).
- The language learning dimensions are recorded as either present or absent during the observation. For some items, there is a record of a Language Learning Opportunity being 'Present' and being 'Used during the Observation'.
- For the dimensions of 'Language Learning Opportunities' and 'Language Learning Interactions', each different occurrence is recorded up to a maximum of
- 5 times during the observation period. Each recorded observation is a new/different occurrence of the behaviour/activity.

Dockrell, J.E., Bakopoulou, I., Law J., & Spencer, S (2012) *The Communication Supporting Classrooms Observation Tool* from *Developing a Communication Supporting Classrooms Observation* Tool - Report for the Better Communication Research Programme Funded by the Department of Education in England

DIMENSIONS		NOT SEEN	OBSERVED		COMMENTS
LANGUAGE LEARNING ENVIRONMENT- *This dimension involves the physical environment and learning context*					
1	The classroom is organised to emphasise open space.				
2	Learning areas are clearly defined throughout the classroom.				
3	Learning areas are clearly labelled with pictures/words throughout the classroom.				
4	There is space for privacy or quiet areas where children can retreat to have 'down time' or engage in smaller group activities. These areas are less visually distracting.				
5	Children's own work is displayed and labelled appropriately.				
6	Some classroom displays include items that invite comments from children.				
7	Book specific areas are available.				
8	Literacy specific areas are available.				
9	Background noise levels are managed consistently throughout the observation, and children and adults are able to hear one another with ease.				
10	Transition times are managed effectively, so that noise levels are not excessive and children know what to expect next.				
11	There is good light.				
12	The majority of learning resources and materials are labelled with pictures/words.				
13	Resources that are available for free play are easily reached by the children or easily within their line of vision.				
14	An appropriate range of books is available in the book area (for example, traditional stories, bilingual/dual language books and a variety of genres and books related to children's own experiences).				
15	Non-fiction books, books on specific topics or interests of the children are also available in other learning areas.				
16	Outdoor play (if available) includes imaginative role play.				
17	Good quality toys, small world objects and real / natural resources are available.		Present:	Used:	
18	Musical instruments and noise makers are available.		Present:	Used:	
19	Role play area is available.		Present:	Used:	
TOTAL LLE SCORE:	**/19**				

Dockrell, J.E., Bakopoulou, I., Law J., & Spencer, S (2012) *The Communication Supporting Classrooms Observation Tool* from *Developing a Communication Supporting Classrooms Observation* Tool - Report for the Better Communication Research Programme Funded by the Department of Education in England

DIMENSIONS		Not Seen	Observed (5 times)					COMMENTS
LANGUAGE LEARNING OPPORTUNITIES - *This dimension involves the structured opportunities that are present in the classroom to support language development*								
1	Small group work facilitated by an adult takes place.							
2	Children have opportunities to engage in interactive book reading facilitated by an adult (for example: asking predictive questions, joining in with repetitions, story packs etc.).							
3	Children have opportunities to engage in structured conversations with teachers and other adults.							
4	Children have opportunities to engage in structured conversations with peers (Talking partners).							
5	Attempts are made to actively include all children in small group activities.							
TOTAL LLO SCORE:	/5							

Dockrell, J.E., Bakopoulou, I., Law J., & Spencer, S (2012) *The Communication Supporting Classrooms Observation Tool* from *Developing a Communication Supporting Classrooms Observation* Tool - Report for the Better Communication Research Programme Funded by the Department of Education in England

DIMENSIONS		Not Seen	Observed					Observed By All Staff in Classroom	COMMENTS
LANGUAGE LEARNING INTERACTIONS - *This dimension involves the ways in which adults in the setting talk* ***with*** *children.*									
1	Adults use children's name, draw attention of children.								
2	Adults get down to the child's level when interacting with them.								
3	Natural gestures and some key word signing are used in interactions with children.								
4	Adults use symbols, pictures and props (real objects) to reinforce language.								
5	Pacing: Adult uses a slow pace during conversation; give children plenty of time to respond and take turns in interacting with them.								
6	Pausing: Adult pauses expectantly and frequently during interactions with children to encourage their turn-taking and active participation.								
7	Confirming: Adult responds to the majority of child utterances by confirming understanding of the child's intentions. Adult does not ignore child's communicative bids.								
8	Imitating: Adult imitates and repeats what child says more or less exactly.								
9	Commenting: Adult comments on what is happening or what children are doing at that time.								

Dockrell, J.E., Bakopoulou, I., Law J., & Spencer, S (2012) *The Communication Supporting Classrooms Observation Tool* from *Developing a Communication Supporting Classrooms Observation* Tool - Report for the Better Communication Research Programme Funded by the Department of Education in England

10	Extending: Adult repeats what child says and adds a small amount of syntactic or semantic information.								
11	Labelling: Adult provides the labels for familiar and unfamiliar actions, objects, or abstractions (e.g. feelings).								
12	Adult encourages children to use new words in their own talking.								
13	Open questioning: Adult asks open-ended questions that extend children's thinking (what, where, when, how & why questions).								
14	Scripting: Adult provides a routine to the child for representing an activity (e.g. First, you go up to the counter. Then you say 'I want milk..') and engages the child in known routines (e.g. 'Now it is time for circle time. What do we do first?').								
15	Adult provides children with choices (for example: 'Would you like to read a story or play on the computer?').								
16	Adult uses contrasts that highlight differences in lexical items and in syntactic structures.								
17	Adult models language that the children are not producing yet.								
18	Turn-taking is encouraged.								
19	Children's listening skills are praised.								
20	Children's non-verbal communication is praised.								
TOTAL LLI SCORE:	**/20**								

Dockrell, J.E., Bakopoulou, I., Law J., & Spencer, S (2012) *The Communication Supporting Classrooms Observation Tool* from *Developing a Communication Supporting Classrooms Observation* Tool - Report for the Better Communication Research Programme Funded by the Department of Education in England

Appendix B: Principal and Educator Consent Form

UNIVERSITY OF CAPE TOWN

Faculty of Health Sciences

Department of Health and Rehabilitation Sciences

Division of Communication Sciences and Disorders

F45 Old Main Building, Groote Schuur Hospital, Observatory 7925

Tel: +27 (0) 21 406 7667

Fax: +27 (0) 21 406 6323

Internet: www.uct.ac.za

Dear Principal

I am a Speech-Language Pathology Master's student from the University of Cape Town. I would like to conduct research at your school under the supervision of my advisor from the Department of Communication Sciences, Professor Harsha Kathard. Ethics approval from the University of Cape Town's Faculty of Health Sciences Human Research Ethics committee (UCT FHS HREC) has been obtained (Ethics reference number 481/2014). Permission has also been obtained from the Western Cape Education Department (WCED).

The purpose of my study is to describe the communication environments within Grade R classrooms in a rural district. By the end of the study, I hope to describe language learning environments focusing on three main areas (i.e., physical environment, interaction and opportunities). Your school was randomly selected within the chosen districts of the Western Cape. I aim to collect information for this project by conducting a formal observation within one classroom, using the Communication Supporting Classrooms Observation Tool.

My focus is not on the teaching abilities within the classroom, but rather observing the natural teaching and learning process.

The research process will take place for a duration of 1 hour during a typical school day (suited to your time preference) in the first school term. No rewards are awarded for your participation as well as no risks or discomforts are foreseen with this research. Confidentiality of your staff and students will be upheld at all times. At any time during the research process you decide you do not want your Grade R classrooms to be observed you may discontinue the research at your school.

Once the research has been completed, results will be analysed and computed into a thesis document which will be made available to you and your school.

If you have any queries, feel free to contact the supervisor or the student researcher:

Supervisor: Harsha Kathard 083 287 8196

Student researcher: Prianka Parusnath 083 679 2810

Your participation will be greatly appreciated.

Please complete the consent form on the following page.

The Chair, Prof M Blockman of the University of Cape Town Faculty of Health Sciences Human Research Ethics Committee can be contacted on 021 406 6492 if participants have any questions regarding their rights or welfare as research subjects on the study.

UNIVERSITY OF CAPE TOWN

Faculty of Health Sciences

Department of Health and Rehabilitation Sciences

Division of Communication Sciences and Disorders

F45 Old Main Building, Groote Schuur Hospital, Observatory 7925

Tel: +27 (0) 21 406 7667

Fax: +27 (0) 21 406 6323

Internet: www.uct.ac.za

Principal Consent Form

I. Research Background

Title of the Study

Communication supporting environments of Grade R classrooms in a Rural District of the Western Cape.

(What is meant by rural: Areas outside of cities and towns)

Name and contact details of researcher

Prianka Parusnath 083 679 2810

Name and contact details of supervisor

Harsha Kathard 083 287 8196

II. Agreement (to be completed by the principal)

1. I, _____, principal of _____ school give permission /do not give permission to allow researchers to conduct observation at my school (DELETE WHERE APPLICABLE).
2. I understand / do not understand the project information provided (DELETE WHERE APPLICABLE).

3. I understand that my personal information as well as that of the staff and students at this school will remain confidential.
4. I understand that all information obtained will be used for research purposes only.
5. I understand that I may withdraw my school from the project at any time without it affecting the reputation of my school.

The Chair, Prof M Blockman of the Human Research Ethics Committee can be contacted on 021 406 6492 if participants have any questions regarding their rights or welfare as research subjects on the study.

_____

Principal Signature

OFFICIAL SCHOOL STAMP

Educator Consent Letter

UNIVERSITY OF CAPE TOWN

Faculty of Health Sciences

Department of Health and Rehabilitation Sciences

Division of Communication Sciences and Disorders

F45 Old Main Building, Groote Schuur Hospital, Observatory 7925

Tel: +27 (0) 21 406 7667

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Dear Educator

I am a Speech-Language Pathology Master's student from the University of Cape Town. I would like to conduct research in your classroom under the supervision of my advisor from the Department of Communication Sciences, Professor Harsha Kathard. Ethics approval from the University of Cape Town's Faculty of Health Sciences Human Research Ethics committee (UCT FHS REC.HREC) has been obtained (Ethics reference number 481/2014). Permission has also been obtained from the Western Cape Education Department (WCED).

The purpose of my study is to describe the communication environments within Grade R classrooms in a rural district. By the end of the study, I hope to describe language learning environments focusing on three main areas (i.e., physical environment, interaction and opportunities). Your classroom was randomly selected as it is a Grade R class which forms a part of the selection criteria of this research. I aim to collect information for this project by conducting a formal observation within all the foundation phase classrooms, using the Communication Supporting Classrooms Observation Tool. My focus is not on your teaching abilities within the classroom, but rather observing the natural teaching and learning process.

The research process will take place for a duration of 1 hour during a typical school day (suited to your time preference) in the first school term. There are no direct benefits to taking part in the study. No rewards are awarded for your participation as well as no risks or discomforts are foreseen with this research. Refusing to take part or withdrawing from the study will not negatively affect current or future employment at the school or with the WCED. Your confidentiality and that of your students will be

upheld at all times. At any time during the research process you decide you do not want your class to be observed you may discontinue the research in your classroom.

Once the research has been completed, results will be analysed and computed into a thesis document which will be made available to you and your school.

If you have any queries, feel free to contact the supervisor or the student researcher:

Supervisor: Harsha Kathard 083 287 8196

Student researcher: Prianka Parusnath 083 679 2810

Your participation will be greatly appreciated.

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Educator Consent Form

I. Research Background

Title of the Study

Communication supporting environments of Grade R classrooms in a Rural District of the Western Cape.

(What is meant by rural: Areas outside of cities and towns)

Name and contact details of researcher

Prianka Parusnath 083 679 2810

Name and contact details of supervisor

Harsha Kathard 083 287 8196

II. Agreement (to be completed by the educator)

1. I, _____, educator of grade _____ give permission /do not give permission to allow researchers to conduct observation in my classroom (DELETE WHERE APPLICABLE).

2. I understand / do not understand the project information provided (DELETE WHERE APPLICABLE).
3. I understand that my personal information will remain confidential.
4. I understand that all information obtained will be used for research purposes only.
5. I understand that I may withdraw my class from the project at any time without it affecting me or my pupils standing at the school.

_____ _____

Teacher Signature Date

Appendix C: Parent Information Letter

UNIVERSITY OF CAPE TOWN

Faculty of Health Sciences

Department of Health and Rehabilitation Sciences

Division of Communication Sciences and Disorders

F45 Old Main Building, Groote Schuur Hospital, Observatory 7925

Tel: +27 (0) 21 406 7667

Fax: +27 (0) 21 406 6323

Internet: www.uct.ac.za

February 2015

Dear Parent/Guardian

Your child is being invited to participate in an observational study that will take place in Grade R classrooms of his/her school. My name is Prianka Parusnath. I am a Master's student at the University of Cape Town and my project will focus on observing the classroom communication environments in Grade R.

Title of the project

Communication supporting environments of Grade R classrooms in a Rural District of the Western Cape.

(What is meant by rural: Areas outside of cities and towns)

Why is the project being done?

I want to understand how the classroom environment helps your child to learn language. It is important for research to be conducted early on in the school years as skills learnt in pre-primary school have shown to impact on future development.

Who will be taking part?

60 schools from around the district have been asked to participate, teachers of Grade R and their classes will be involved.

Why are you being asked to take part?

Your child's Grade R class is attached to a public school which falls within a rural district.

How long will the project last?

Myself or a trained research assistant will only require one hour in your child's classroom to complete our observations of daily classroom activities.

Benefits of participation

There are no direct benefits to your child if they choose to participate, however, if you do allow your child to take part, you will help me understand how your child is learning language and how to improve your child's school environment in the future. No rewards (e.g., money or food) will be given if you choose to participate.

Risks of participation

There are no risks towards your child if you choose for him/her not to participate in the project.

You or your child have the right to change your mind at any time about being part of the project.

What will happen when the project is over:

The information gathered will be analysed and brought together into a report. This report will be shared with my community partner WordWorks and the UCT Knowledge Co-Op.

Please note:

- I will not share any of your personal details:

  - Your child's identity will be kept safe and private (no information regarding school, class, teacher or student will be indicated in the report)

  - No names, surnames or telephone numbers will be given out.

If you do not want your child to take part in this project, then he/she will not be observed. If you do not want your child to take part, you need to fill in the slip below and return it to the school as soon as possible.

If you have any questions about the project, you can call me on: Prianka Parusnath: 083 679 2810 or my supervisor Harsha Kathard: 083 287 8196

Thank you for your time and cooperation.

The Chair, Prof M Blockman of the University of Cape Town Faculty of Health Sciences Human Research Ethics Committee can be contacted on 021 406 6492 if participants have any questions regarding their rights or welfare as research subjects on the study.

_____ _____

Prianka Parusnath Prof. H. Kathard

MSc Speech-Language Pathology Student Supervisor

Title of the project: Communication supporting environments of Grade R classrooms in a Rural District of the Western Cape.

I understand what will happen during this project.

1. I understand that information about my child will remain safe and private.

2. I understand that this information will be used in this project only.

3. I understand that I may take my child out of the project at any time. My child will not be treated any differently at school because of my choice.

However after reading this I, _____

parent / guardian of _____ DO NOT want my child to take part in this research project.

Please sign below:

_____ _____

Parent/Guardian Date

Appendix D: Modified CSCOT

Language Learning Environment (Total score___/19)	**Seen**
The classroom is organised to emphasise open space.	
Comment:	
Learning areas are clearly defined throughout the classroom.	
Comment:	
Learning areas are clearly labelled with pictures/words throughout the classroom.	
Comment:	
There is space for privacy or quiet areas where children can retreat to have “down time” or engage in smaller group activities. These areas are less visually distracting.	
Comment:	
Children’s own work is displayed and labelled appropriately.	
Comment:	
Some classroom displays include items that invite comments from children.	
Comment:	
Book specific areas are available.	
Comment:	
Literacy specific areas are available (writing, reading activities - colouring, etc.).	
Comment:	
Background noise levels are managed consistently throughout the observation, and children and adults are able to hear one another with ease.	
Comment:	
Transition times are managed effectively, so that noise levels are not excessive and children know what to expect next.	
Comment:	
There is good light.	
Comment:	

The majority of learning resources and materials are labelled with pictures/words.	
Comment:	
Resources that are available for free play are easily reached by the children or easily within their line of vision.	
Comment:	
An appropriate range of books is available in the book area (for example, traditional stories, bilingual/dual language books and a variety of genres and books related to children's own experiences).	
Comment:	
Non-fiction books, books on specific topics or interests of the children are also available in other learning areas.	
Comment:	
Outdoor play includes imaginative role play (constructive language display).	
Comment:	
Good quality toys, small world objects and real / natural resources are available.	
Comment:	

Musical instruments and noise makers are available.	
Comment:	
Role play area is available (shopping, dress up, building designated area).	
Comment:	

Language Learning Interactions (Total Score (___ /20)					
Adults use children's name, draw attention of children.	1	2	3	4	5
Comment:					
Adults get down to the child's level when interacting with them.	1	2	3	4	5
Comment:					
Natural gestures (action to support what is being said "pop") and some key word signing are used in interactions with children.	1	2	3	4	5
Comment:					
Adults use symbols, pictures and props (real objects) to reinforce language.	1	2	3	4	5
Comment:					
Pacing: Adult uses a **slow pace during conversation**; give children plenty of time to respond and take turns in interacting with them.	1	2	3	4	5
Comment:					
Pausing: Adult pauses expectantly and frequently during interactions with children to encourage their turn-taking and active participation.	1	2	3	4	5
Comment:					
Confirming: Adult responds to the majority of child utterances by confirming understanding of the child's intentions. Adult does not ignore child's communicative bids. ("Yeah, mm, yes, ok, really")	1	2	3	4	5
Comment:					
Imitating: Adult imitates and repeats what child says more or less exactly.	1	2	3	4	5
Comment:					
Commenting: Adult comments on what is happening or what children are doing at that time.	1	2	3	4	5
Comment:					
Extending: Adult repeats what child says and adds a small amount of syntactic or semantic information.	1	2	3	4	5
Comment:					
Labelling: Adult provides the labels for familiar and unfamiliar actions, objects, or	1	2	3	4	5

abstractions (e.g., feelings).					
Comment:					
Adult encourages children to use new words (what are the new words?) in their own talking.	1	2	3	4	5
Comment					
Open questioning: Adult asks open-ended questions that extend children's thinking (what, where, when, how & why questions).	1	2	3	4	5
Comment:					

Scripting: Adult provides a routine to the child for representing an activity (e.g., "First, you go up to the counter. Then you say 'I want milk'.") and engages the child in known routines (e.g., "Now it is time for circle time. What do we do first?").	1	2	3	4	5
Adult provides children with choices (for example, "Would you like to read a story or play on the computer?").	1	2	3	4	5
Comment:					
Adult uses contrasts that highlight differences in lexical items and in syntactic structures. (Opposites; Big, small, and plurals and verbs; -ed, -es)	1	2	3	4	5
Comment:					
Adult models language that the children are not producing yet.	1	2	3	4	5
Comment:					
Turn-taking is encouraged.	1	2	3	4	5
Comment:					
Children's listening skills are praised.	1	2	3	4	5
Comment:					
Children's non-verbal communication is praised.	1	2	3	4	5
Comment:					

Language Learning Opportunities (Total Score ___ /5)					
Small group (3 or more kids) work facilitated by an adult takes place.	1	2	3	4	5
Comment:					
Children have opportunities to engage in interactive book reading facilitated by an adult (for example: asking predictive questions, joining in with repetitions, story packs, etc.).	1	2	3	4	5
Comment:					
Children have opportunities to engage in structured conversations with teachers and other adults.	1	2	3	4	5
Comment:					
Children have opportunities to engage in structured (at least three turns) conversations with peers (Talking partners).	1	2	3	4	5
Comment:					
Attempts are made to actively include all children in small group activities.	1	2	3	4	5
Comment:					

Appendix E: Pilot Phase Consent – Principal Consent

UNIVERSITY OF CAPE TOWN

Faculty of Health Sciences

Department of Health and Rehabilitation Sciences

Division of Communication Sciences and Disorders

F45 Old Main Building, Groote Schuur Hospital, Observatory 7925

Tel: +27 (0) 21 406 7667

Fax: +27 (0) 21 406 6323

Internet: www.uct.ac.za

Dear Principal

We are Speech-Language Pathology Master's students from the University of Cape Town. We would like to conduct research at your school under the supervision of our advisor from the Department of Communication Sciences, Professor Harsha Kathard. Ethics approval from the University of Cape Town's Faculty of Health Sciences Human Research Ethics committee (UCT FHS HREC) has been obtained (Ethics reference number 20140730-33842). Permission has also been obtained from the Western Cape Education Department (WCED).

The purpose of our study is to describe the communication environments within Grade R classrooms in a rural district. By the end of the study, we hope to describe language learning environments focusing on three main areas (i.e. physical environment, interaction and opportunities). Your school was randomly selected to participate in the pilot study within the chosen districts of the Western Cape. We aim to collect information for this project by conducting a formal observation within one classroom, using the Communication Supporting Classrooms Observation Tool (CSCOT). Our focus is not on the teaching abilities within the classroom, but rather observing the natural teaching and learning process.

Before we are able to move on with the main study, a pilot study needs to be conducted. This will be done to ensure that the CSCOT will be applicable in Afrikaans and isiXhosa as well as English classrooms. In order to this, a video-recording of at least one hour will be made preferably during a language-literacy lesson, in English, Afrikaans and isiXhosa speaking classrooms, to cover the three main languages of the Western Cape.

Bilingual speakers will be recruited and trained extensively in order to use the tool. Observers will be required to use the tool on the video of the English speaking classroom, once training has been completed, and thereafter on the video of either the Afrikaans or isiXhosa speaking classroom. Scores will be compared in order to determine if the tool is reliable.

We understand the importance of confidentiality and privacy of video recording data. The video will be stored in a folder on a laptop belonging to the researchers. This folder will be password protected and will only be accessible by the researchers. The video will only be used for training purposes and to determine reliability of the tool. After the 2-year period of the study, the video data will be discarded.

No rewards are awarded for your participation as well as no risks or discomforts are foreseen with this research. Confidentiality of staff and students will be upheld at all times. At any time during the research process you decide you do not want your Grade R classrooms to be observed you may discontinue the research at your school.

Once the research has been completed, results will be analysed and computed into a thesis document which will be made available to you and your school.

If you have any queries feel free to contact the supervisor or the student researcher:

Supervisor: Harsha Kathard 083 287 8196

Student researcher: Prianka Parusnath 083 679 2810

Student researcher: Maaliyah Orrie 083 245 9103

Your participation will be greatly appreciated.

Please complete the consent form on the following page.

The Chair, Prof M Blockman of the University of Cape Town Faculty of Health Sciences Human Research Ethics Committee can be contacted on 021 406 6492 if participants have any questions regarding their rights or welfare as research subjects on the study.

UNIVERSITY OF CAPE TOWN

Faculty of Health Sciences

Department of Health and Rehabilitation Sciences

Division of Communication Sciences and Disorders

F45 Old Main Building, Groote Schuur Hospital, Observatory 7925

Tel: +27 (0) 21 406 7667

Fax: +27 (0) 21 406 6323

Internet: www.uct.ac.za

Principal Consent Form

I. Research Background

Title of the Study

Communication supporting environments of Grade R classrooms in a Rural District of the Western Cape.

Name and contact details of researchers

Prianka Parusnath 083 679 2810

Maaliyah Orrie 083 245 9103

Name and contact details of supervisor

Harsha Kathard 083 287 8196

II. Agreement (to be completed by the principal)

1. I, _____, principal of _____ school give permission /do not give permission to allow researchers to conduct observation for the pilot study at my school (DELETE WHERE APPLICABLE).

2. I understand / do not understand the project information provided (DELETE WHERE APPLICABLE).

3. I understand that my personal information as well as that of the staff and students at this school will remain confidential.

4. I understand that all information obtained will be used for research purposes only.

5. I understand that I may withdraw my school from the project at any time without it affecting the reputation of my school.

The Chair, Prof M Blockman of the Human Research Ethics Committee can be contacted on 021 406 6492 if participants have any questions regarding their rights or welfare as research subjects on the study.

_____
Principal Signature

OFFICIAL SCHOOL STAMP

Educator Consent

UNIVERSITY OF CAPE TOWN

Faculty of Health Sciences

Department of Health and Rehabilitation Sciences

Division of Communication Sciences and Disorders

F45 Old Main Building, Groote Schuur Hospital, Observatory 7925

Tel: +27 (0) 21 406 7667

Fax: +27 (0) 21 406 6323

Internet: www.uct.ac.za

Dear Educator

We are Speech-Language Pathology Master's students from the University of Cape Town. We would like to conduct research in your classroom under the supervision of our advisor from the Department of Communication Sciences, Professor Harsha Kathard. Ethics approval from the University of Cape Town's Faculty of Health Sciences Human Research Ethics committee (UCT FHS REC.HREC) has been obtained (Ethics reference number 20140730-33842). Permission has also been obtained from the Western Cape Education Department (WCED).

The purpose of our study is to describe the communication environments within Grade R classrooms in a rural district. By the end of the study, we hope to describe language learning environments focusing on three main areas (i.e. physical environment, interaction and opportunities). Your classroom was randomly selected as part of the pilot study as it is a Grade R class which forms a part of the selection criteria of this research. We aim to collect information for this project by conducting a formal observation within all the foundation phase classrooms, using the Communication Supporting Classrooms Observation Tool (CSCOT). Our focus is not on your teaching abilities within the classroom, but rather observing the natural teaching and learning process.

Before we are able to move on with the main study, a pilot study needs to be conducted. This will be done to ensure that the CSCOT will be applicable in Afrikaans and isiXhosa as well as English classrooms. In order to this, a video-recording of at least one hour will be made preferably during a language-literacy lesson, in English, Afrikaans and isiXhosa speaking classrooms, to cover the three main languages of the Western Cape.

Bilingual speakers will be recruited and trained extensively in order to use the tool. Observers will be required to use the tool on the video of the English speaking classroom, once training has been completed, and thereafter on the video of either the Afrikaans or isiXhosa speaking classroom. Scores will be compared in order to determine if the tool is reliable.

We understand the importance of confidentiality and privacy of video recording data. The video will be stored in a folder on a laptop belonging to the researcher. This folder will be password protected and will only be accessible by the researchers. The video will only be used for training purposes and to determine reliability of the tool. After the 2-year period of the study, the video data will be discarded.

There are no direct benefits to taking part in the study. No rewards are awarded for your participation as well as no risks or discomforts are foreseen with this research. Refusing to take part or withdrawing from the study will not negatively affect current or future employment at the school or with the WCED. Your confidentiality and that of your students will be upheld at all times. At any time during the research process you decide you do not want your class to be observed you may discontinue the research in your classroom.

Once the research has been completed, results will be analysed and computed into a thesis document which will be made available to you and your school.

If you have any queries feel free to contact the supervisor or the student researcher:

Supervisor: Harsha Kathard 083 287 8196

Student researcher: Prianka Parusnath 083 679 2810

Student researcher: Maaliyah Orrie 083 245 9103

Your participation will be greatly appreciated.

Please complete the consent form on the following page.

The Chair, Prof M Blockman of the University of Cape Town Faculty of Health Sciences Human Research Ethics Committee can be contacted on 021 406 6492 if participants have any questions regarding their rights or welfare as research subjects on the study.

UNIVERSITY OF CAPE TOWN

Faculty of Health Sciences

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F45 Old Main Building, Groote Schuur Hospital, Observatory 7925

Tel: +27 (0) 21 406 7667

Fax: +27 (0) 21 406 6323

Internet: www.uct.ac.za

Educator Consent Form

I. Research Background

Title of the Study

Communication supporting environments of Grade R classrooms in a Rural District of the Western Cape.

Name and contact details of researchers

Prianka Parusnath 083 679 2810

Maaliyah Orrie 083 245 9103

Name and contact details of supervisor

Harsha Kathard 083 287 8196

II. Agreement (to be completed by the educator)

1. I, _____, educator of grade _____ give permission /do not give permission to allow researchers to conduct observation for the pilot study in my classroom (DELETE WHERE APPLICABLE).

2. I understand / do not understand the project information provided (DELETE WHERE APPLICABLE).
3. I understand that my personal information will remain confidential.
4. I understand that all information obtained will be used for research purposes only.
5. I understand that I may withdraw my class from the project at any time without it affecting me or my pupils standing at the school.

---------- ----------

Teacher signature Date

Parent Consent

UNIVERSITY OF CAPE TOWN

Faculty of Health Sciences

Department of Health and Rehabilitation Sciences

Division of Communication Sciences and Disorders

F45 Old Main Building, Groote Schuur Hospital, Observatory 7925

Tel: +27 (0) 21 406 7667

Fax: +27 (0) 21 406 6323

Internet: www.uct.ac.za

August 2014

Dear Parent/Guardian

Your child is being invited to participate in the pilot phase of an observational study that will take place in Grade R classrooms of Golden Grove Pre-Primary School. My name is Prianka Parusnath, my colleague Maaliyah Orrie and I are Master's students at the University of Cape Town and our projects will focus on observing the classroom communication environments in Grade R.

Title of the project

Communication supporting environments of Grade R classrooms in a Rural District of the Western Cape.

Why is the project being done?

We want to understand how the classroom environment helps your child to learn language. It is important for research to be conducted early on in the school years as skills learnt in pre-primary school have shown to impact on future development.

Pilot Study and Video Recording

Before we are able to move on with the main study, a pilot study needs to be conducted. This will be done to ensure that the CSCOT will be applicable in Afrikaans and isiXhosa as well as English classrooms. In order to this, a video-recording of at least one hour will be made preferably during a language-literacy lesson, in English, Afrikaans and isiXhosa speaking classrooms, to cover the three main languages of the Western Cape.

Bilingual speakers will be recruited and trained extensively in order to use the tool. Observers will be required to use the tool on the video of the English speaking classroom, once training has been completed, and thereafter on the video of either the Afrikaans or isiXhosa speaking classroom. Scores will be compared in order to determine if the tool is reliable.

We understand the importance of confidentiality and privacy of video recording data. The video will be stored in a folder on a laptop belonging to the researchers. This folder will be password protected and will only be accessible by the researchers. The video will only be used for training purposes and to determine reliability of the tool. After the 2-year period of the study, the video data will be discarded.

Who will be taking part?

60 schools from around the district have been asked to participate, teachers of Grade R and their classes will be involved.

Why are you being asked to take part?

Your child's Grade R class is attached to a public school which falls within our chosen districts.

How long will the project last?

We will only require one hour in your child's classroom to complete our observations of daily classroom activities.

Benefits of participation

If your child takes part, you will help us understand how your child is learning language and how to improve your child’s school environment in the future. There are no direct benefits to the child associated with taking part in the study. No rewards (e.g., money or food) will be given if you choose to participate.

Risks of participation

There are no risks towards your child if you choose for him/her not to participate in the project.

You or your child has the right to change your mind at any time about being part of the project.

What will happen when the project is over:

The information gathered will be analysed and brought together into a report. This report will be shared with our community partner Wordworks as well as the University of Cape Town Knowledge Co-Op.

Please note:

- We will not share any of your personal details.

  - Your child's identity will be kept safe and private (no identifying information of school, class, teacher or student will be used in the report)

  - No names, surnames or telephone numbers will be given out.

- During the project, the classes will be videotaped. These videos will not be shared with anyone who is not part of the project.

If you do not want your child to take part in this project, then he/she will not be observed or recorded. If you allow your child to take part, you need to fill in the slip below and return it to the school as soon as possible.

If you have any queries feel free to contact the supervisor or the student researcher:

Supervisor: Harsha Kathard 083 287 8196

Student researcher: Prianka Parusnath 083 679 2810

Student researcher: Maaliyah Orrie 083 245 9103

Thank you for your time and cooperation.

_____	_____
Prianka Parusnath	Maaliyah Orrie
MSc Speech-Language Pathology Student	MSc Speech-Language Pathology Student

The Chair, Prof M Blockman of the University of Cape Town Faculty of Health Sciences Human Research Ethics Committee can be contacted on 021 406 6492 if participants have any questions regarding their rights or welfare as research subjects on the study.

UNIVERSITY OF CAPE TOWN

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Tel: +27 (0) 21 406 7667

Fax: +27 (0) 21 406 6323

Internet: www.uct.ac.za

Parent/Guardian Consent Form

Title of the project:

Communication supporting environments of Grade R classrooms in a Rural District of the Western Cape.

1. I understand what will happen during this project.
2. I understand that this information will be used in this project only.
3. I understand that I may take my child out of the project at any time. My child will not be treated any differently at school because of my choice.
4. I agree to have my child be included in the video recording of his/her classroom for the pilot study:

☐ Yes ☐ No

After reading this I,_____

parent / guardian of _____ allow my child to take part in this research project.

Please sign below:

_____ _____

Parent/Guardian Date

Appendix F: Training Protocol

The training process was vital to the success of the pilot. In order to achieve the aims, set out by the researchers, the training protocols had to be revised several times for various reasons which will be discussed further. There were two separate, one hour long, video recordings of English classrooms. One was used for practice purposes while the other was used for reliability testing.

The first training session as documented in the methodology focussed on familiarizing raters to the research project. The project background and aims were explained in depth in a presentation. The tool was then introduced and each item explained and discussed. In addition to this, the scoring procedures were explained and demonstrated. After the this was done, raters were shown half hour long video of a classroom and required to score the tool based on their observations. The researchers had previously watched the recording and prepared a "model answer" or expert opinion to compare with the raters.

After this set of training, researchers found that the scores of the raters and scores of the expert opinion did not match for most items in all the areas. This was mainly due to the understanding the items and the scoring procedure itself. Therefore, the training protocol had to be revised. The training also added another layer in that, researchers were more comfortable with deciding what was "acceptable" and "unacceptable" scoring. When discrepancies in scoring occurred between the expert opinion and the raters it was easy to determine whether this was due to video quality or understanding of the tool. From there, adjustments could be made to the training strategy and content accordingly. A major concern after this phase of the training was actually achieving rater reliability. Researchers did not predict such large discrepancies between rater scores and expert observations at this stage. Scoring seemed to be a point of confusion and items themselves were not fully understood.

Researchers discussed the outcomes of the first training session and made further changes to the program. It seemed as though video quality did effect the scoring on LLE as raters did not have a full view of the classroom which was an error made by researchers during the recording. As this was the first time researchers had made recordings, these errors were noted for the Afrikaans and isiXhosa classrooms and shots of the whole classrooms were included. To compensate for the video in the English classrooms, items in LLE that did not apply to the video were removed from the tool. For the area of LLI and LLO, the difficulty in scoring was based on the scoring procedure itself and on the understanding of the items. After this round, the researchers, in conjunction with BCRP scoring and previous projects (Dockrell et al., 2010; Harty et al., 2013) decided frequency scoring within two points of the expert opinion were acceptable as well as overall scores within two points of the expert opinion. This was the goal that researchers worked toward in training before reliability could be tested.

For the second round of training, the focus was shifted to concentrate on accurate scoring and understanding of the items. In order to improve the understanding of items, the researchers used the CSCOT guide to explain each item and use examples that relate to a South African context (See Appendix G). This was a useful step in the training protocol as it clarified the confusion raters had about the items and content of the tool. The videos were also then shortened into more manageable time slots. The scoring of the tool in this session focussed first only on seen and unseen aspects of the tool and then on frequency.

Introducing this process of scoring was especially helpful to the raters as it allowed them to focus on each item rather than how many times they had seen it. It also allowed them to become more comfortable with the tool and scoring multiple items at one time during observations. Here, rater responses were measured against expert opinions.

Once researchers were satisfied with the overall scores within the decided two-point range, the frequency scoring was introduced. The same process was followed, shorter video segments were shown and after each video results were compared, until once again, raters fell within the two-point range of frequency as decided by the researchers.

Only once the researchers had achieved these outcomes was it deemed acceptable to move on to the reliability testing. This training session was much longer than the first and a suggestion for the future would be that it can be split into two different sessions focussing on accuracy of scoring for seen/unseen and then for frequency. This would not only help reduce rater fatigue but also give raters more time to master each area of scoring the tool.

The third stage of the training was where raters had to watch hour long videos of the English, Afrikaans and isiXhosa videos. The rater responses were collected and then reliability tested thereafter.

Appendix G: CSCOT Guidance

2012

BETTER COMMUNICATION

RESEARCH PROGRAMME

Developed by CsC Team –

Dockrell, J. E., Bakopoulou, I., Law, J., Spencer, S & Lindsay, G.

GUIDANCE ON COMPLETING

COMMUNICATION SUPPORTING CLASSROOMS OBSERVATION TOOL

This document provides guidance for completing the communication supporting classroom observation tool and the evidence base that was used to derive the items. The full report of the development of the tool is available from

https://www.education.gov.uk/publications/standard/publicationDetail/Page1/DFE-RR247-BCRP8

Or Julie.dockrell@ioe.ac.uk

LANGUAGE LEARNING ENVIRONMENT: *This dimension involves the physical environment and learning context.*		
	EXAMPLE	**NOTES**
The classroom is organised to emphasise open space. 1,4,6		
Learning areas are clearly defined throughout the classroom. 2,3,4,5,6,7,8,12	Different learning areas, such as small world play, reading corner, maths area, construction, topic table, computer area are available within the classroom.	
Learning areas are clearly labelled with pictures/words throughout the classroom. 1, 2,3,4,5,6,7,8,12	Symbols and pictures are used to label different areas, such as the kitchen and book areas.	
There is space for privacy or quiet areas where children can retreat to have 'down time' or engage in smaller group activities. These areas are less visually distracting. 1,3,4,5,6,7,8	There is a big tent for children to go into with a book. A corner of the classroom has an entrance like a castle.	This item is specifically for quiet spaces. Classrooms may have spaces such as a house corner, hospital area, or growing station. While these are interesting learning areas, they do not get a score for this item.
Children's own work is displayed and labelled appropriately. 5,6,7,8	Self-portraits with labels and descriptions. Children's drawings, potato prints.	
Some classroom displays include items that invite comments from children. 5,6,7,8	Can you order your numbers here? How much did you enjoy our trip to the zoo? Children are encouraged to rate	This item refers to displays which have space for children to contribute.
Book specific areas are available. 1, 3,4,5,6,7,8	Book displays, shelves within easy reach.	
Literacy specific areas are available. 1, 3,4,5,6,7,8	Desks with paper, whiteboards, pens and books to practice spelling, handwriting or reading.	Literacy specific areas may include materials for writing or practicing handwriting.

Background noise levels are managed consistently throughout the observation, and children and adults are able to hear one another with ease. 4,6,9,10,11	Noise levels are managed well throughout the observation. Soft music playing in the background during free play.	
Transition times are managed effectively, so that noise levels are not	The adult rings a bell and all children stop and put both hands in the air and wait for instructions. A tambourine is used to signal the children have to wait and listen for the next instruction.	
There is good light. 4,5,6,8,12		
The majority of learning resources and materials are labelled with pictures/words. 4,5,6,7,13		
Resources that are available for free play are easily reached by the children or easily within their line of vision. 4,5,6,7,8	Blocks, play dough, toy animals, number lines within easy reach.	
An appropriate range of books is available in the book area (for example, traditional stories, bilingual/dual language books and		
Non-fiction books, books on specific topics or interests of the children are also available in other learning areas. 13	o n	
Outdoor play (if available) includes imaginative role	Children dressed up as construction workers (hi vis jackets and hard hats)	

Good quality toys, small world objects and real / natural resources are available. 1, 2,4,5,6,7,8,37	Zoo toys, shells, pebbles, seeds. Castle set and toys related to topic.	
Musical instruments and noise makers are available. 1,2,4,5,6,7,8,37	Adult uses the tambourine to get children's attention. Adult plays the guitar during story time.	

Role play area is available. 1, 2,4,5,6,7,8,37	Kitchen area. Puppets and soft animals used for imaginary play. In the kitchen area there are different outfits for children to wear.	

LANGUAGE LEARNING INTERACTIONS:

*This dimension involves the ways in which adults in the setting talk **with** children.*

LANGUAGE LEARNING OPPORTUNITIES:

This dimension involves the structure opportunities that are present in the setting to support language development.

	EXAMPLES	**NOTES**
Small group work facilitated by an adult takes place. 16, 17, 18, 19,58	Phonics groups (children grouped by ability). Letter-sound matching activity within small groups. Counting practice group.	
Children have opportunities to engage in interactive book reading facilitated by an adult (for example: asking predictive questions, joining in with repetitions, story packs etc.). 14,15, 17, 19, 20, 21,	Teacher reads two books brought in by a child from home. During the reading she asks two questions ('Why would Mr Stick be scared of a dog?' 'What are baby butterflies?')	
Children have opportunities to engage in structured conversations with teachers and other adults. 19, 20, 21, 22, 23, 24, 33,34,58	Adult sits at the free play tables and answer children's questions, comments on their activities, asks questions and follows up conversation. Children approach adult with news	Conversations are structured by following the child's lead, attending to the child and talking about what the child is doing or is interested in with an emphasis on
Children have opportunities to engage in structured conversations with peers (Talking partners) 35	Children discuss a topic with the child sitting next to them during carpet time and give a joint answer to the whole-group	Children are given prompts and support by adults to engage in a specific conversation about
Attempts are made to actively include all children in small group activities. 23,37,58,62	Less talkative children are identified by adults, who invite them to sit on their knee to have a conversation. Additional modification of language is used by adults to include less- talkative children in whole-class discussions	

	EXAMPLES	NOTES
Adults use children's name, draw attention of children. 1,38,39,40,41,44,45,46,47	Adult says the name of each child before giving them a counting task (e.g. Sarah – 3+4!) During greetings at the start of the day. Adult uses the child's name to get their attention *before* asking them a specific question during 'show and tell' session.	If an adult does this repetitively during one activity (e.g. a counting task), but does not use this strategy during the rest of the session, you may wish to count the incidence as 'once' (rather than counting the individual occurrences within the one task)
Adults get down to the child's level when interacting with them. 1,38,39,40,41,44,45,46,47	Adult sits on the carpet with the children to complete maths activity. Adult sits on small chairs designed for children during free activity time.	
Natural gestures and some key word signing are used in interactions with children. 39,40,41,42,43,44,45,46,47	Thumbs up. Use a gesture for 'big' (tower). Use the 'where' Makaton sign. Gestured when saying 'I can see a long way'. Fingers to signal 3 hats. Five minutes (hand gesture for 5). Knock it over (gesture for knock!). When instructing in an ICT lesson, teachers use gestures for up/down/left/right/high/low.	
Adults use symbols, pictures and props (real objects) to reinforce language.[1]	Visual timetable displayed, with a focus on a child who has recently moved to the area from abroad and a child with ASD. Pointing at pictures when reading a story. Holding a wooden train toy and referring to it when talking	
Pacing: Adults use a slow pace during conversation; give children plenty of time to respond and take turns in interacting with them.[1,19,21,34,39,40,41,44,45,46,47]	When explaining how to log on to the computers, the adult takes lots of pauses and talks slowly.	

Pausing: Adults pause expectantly and frequently during interactions with children to encourage their turn-taking and active participation.[1,19,21,44,45,46,47]	Counting activity '– 2, 4, 6 .....!' A: 'How do we call this? It's a..... pancake!' A: 'What day is it today, do you know?.... It was Monday yesterday so it's..... Today is - Tuesday!'	
Confirming: Adults respond to the majority of child utterances by confirming understanding of the child's intentions. Adults do not ignore child's communicative bids. [1,19,44,45,46,47,48]	Adult confirms if answer to counting was correct? Child: 'My grandmother has rabbits in her garden'. Adult: 'That sounds interesting, tell me about the rabbits later' Child: 'Look Miss!' Adult: 'Oh look what you've done! He's	

Imitating: Adults imitate and repeat what child says more or less exactly. 1,19,44,45,46,47,48	Child: 'It is my sister's birthday on Saturday'. Adult: 'Is it really herbirthday? How exciting'. Child: 'Miss look at my tower'. Adult: 'Oh wow…look at your tower!'	
Commenting: Adults comment on what is happening or what children are doing at that time. 1,19,44,45,46,47,49,50, 51	Adult: 'Charlie, that's a great design'.	In order to be scored, the adult's comment should be directed at the child(ren) and be about the immediate situation.
Extending: Adults repeat what child says and add a small amount of syntactic or semantic information. 1,19,44,45,46,47,48,49,50, 51	Child: 'Because Cinderella was scared of her sisters'. Adult: 'That's right. Cinderella was scared of her two horrible sisters'. Child: 'My mummy brought me	
Labelling: Adults provide the labels for familiar and unfamiliar actions, objects, or abstractions (e.g. feelings).[54,55,56,58,59,60]	Child: 'I need to be careful.' Adult: 'That's right. You need to be precise' Adult: 'What's another word for punch? (Pause) Starts with 'h'	
Adults encourage children to use new words in their own talking. 54,55,56,58,59,60	What's another word for that...? Submarine (what did we call that one again?)	
Open questioning: Adults ask open-ended questions that extend children's thinking (what, where, when, how & why questions). 1,19,44,45,46,47,52,53,57,58	How does it change from one to another? What did you like about the way Tiara read the story? What do you know about a giant's house? Why do you think they might be hot? How's it different to a square? And what's this book about?	

Scripting: Adults provide a verbal routine to the child for representing an activity (e.g. First, you go up to the counter. Then you say 'I want milk..') and engage the child in known routines (e.g. 'Now it is time for circle time. What do we do first?'). [1,19,44,45,46,47,58]	When we do a book review, we say 'I gave Cinderella three stars because…'	Scripts provide children with accurate verbal information about those situations or activities they may encounter. The situation or activity is described in detail providing the child with a script of what to say or do, what might be expected of him them and why. This item should not be scored if the adult just gives directions (e.g. Adult: 'Now go to your tables and start the task').
Adults provide children with choices (for example: 'Would you like to read a story or play on the computer?'). [1]	Do you want to go outside or go on the computer? Do you want to show us a magic trick or tell us about last night (in	
Adults use contrasts that highlight differences in lexical items and in syntactic structures.[51,54,55,56,58,59,60,61]	Amphibian crafts versus hovercrafts! Smaller v smallest.	

Appendix H: Process Control Charts

Figure 4.3.1 Process Control Chart for LLE by classroom

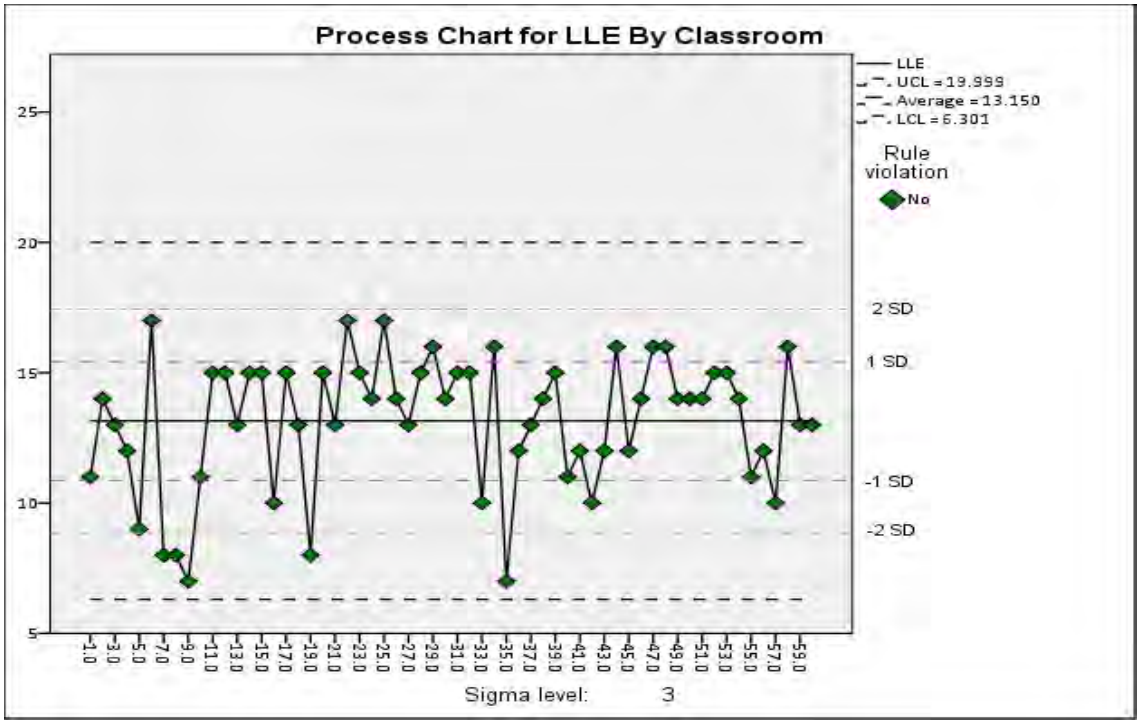


Figure 4.3.2 Process Control Chart for LLI By Classroom

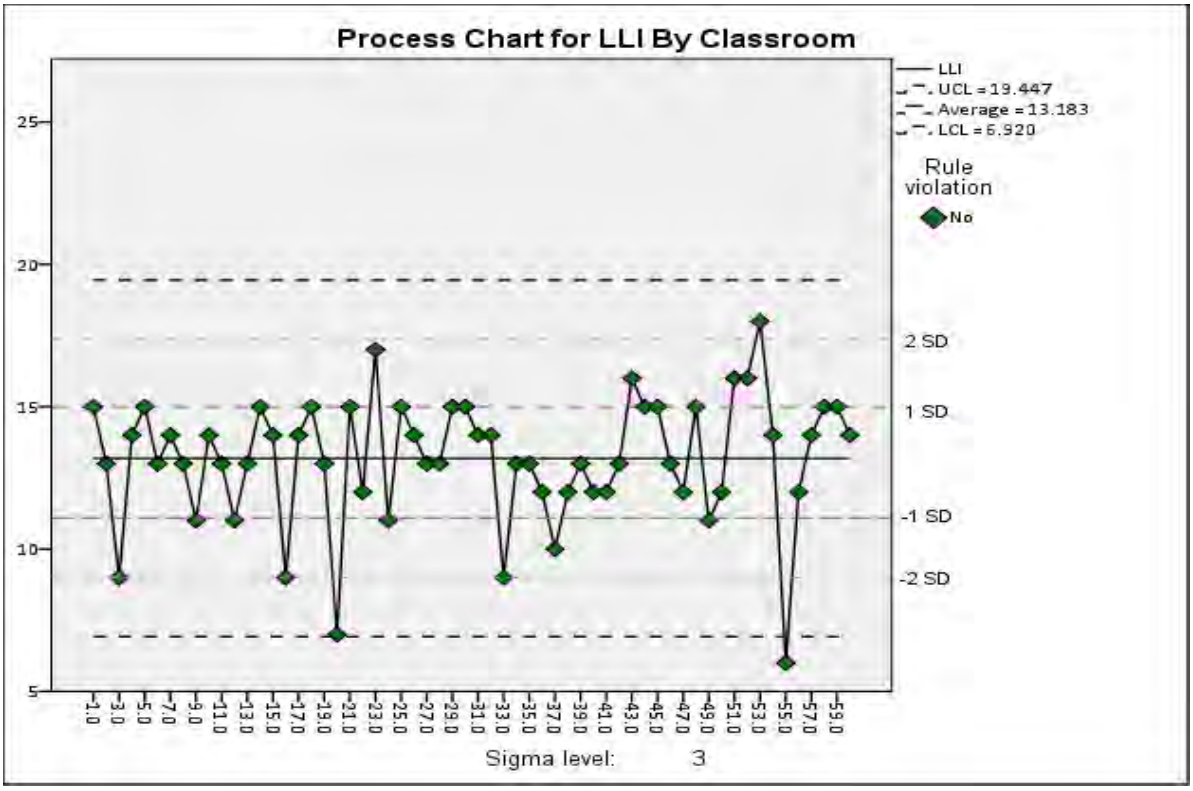
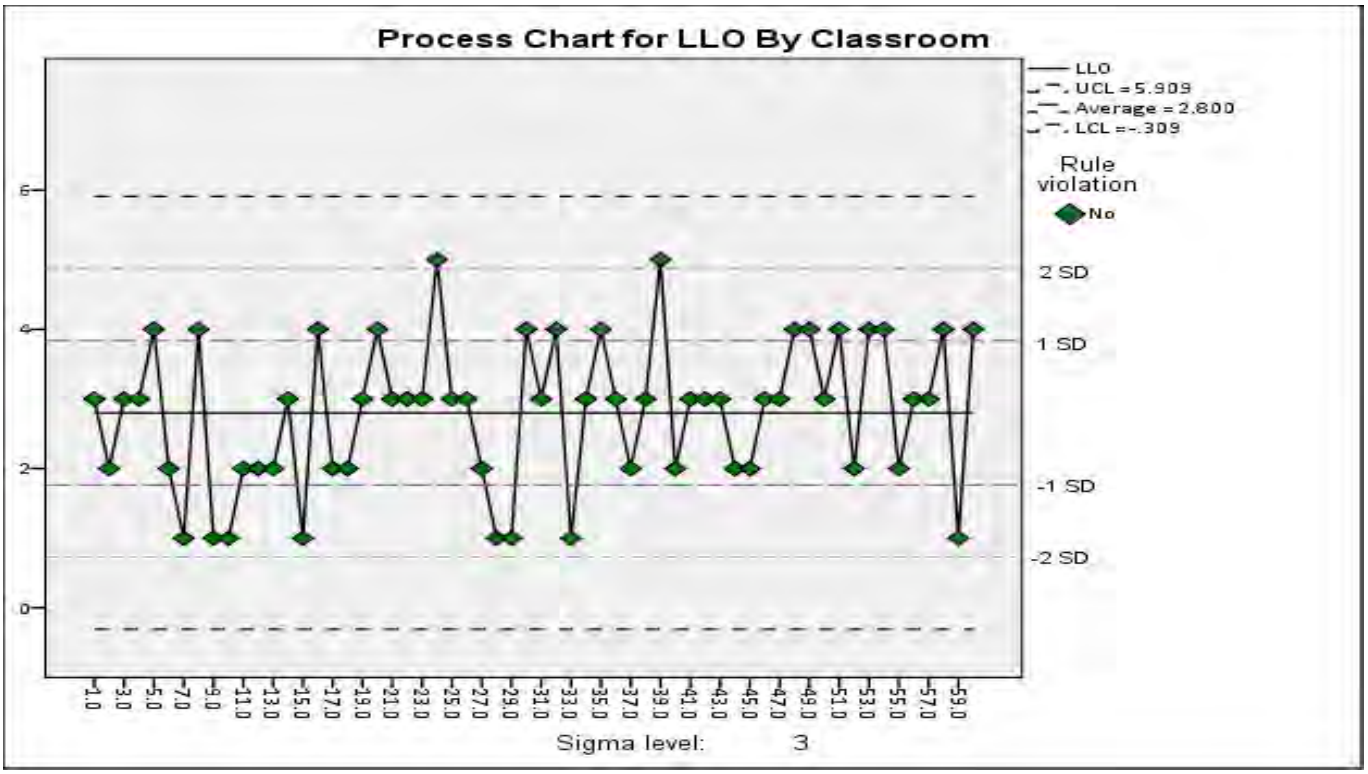


Figure 4.3.3 Process Control Chart for LLO by Classroom



Appendix I: Regression Analysis Tables

Table 4.7.1 (a)

Estimates of Fixed Effects[a]

Parameter	Estimate	Std. Error	df	t	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Intercept	13.842982	1.664253	25.671	8.318	.000	10.419928	17.266035
[HL=1.0]	-1.841516	.864299	24.566	-2.131	.043	-3.623168	-.059865
[HL=2.0]	0[b]	0	.	.	.	.	.
TeacherEXPGrR	.011388	.043074	53.969	.264	.792	-.074971	.097748
Size	.003169	.067521	29.761	.047	.963	-.134773	.141111

a. Dependent Variable: LLE.

b. This parameter is set to zero because it is redundant.

Table 4.7.2 (b)

Estimates of Fixed Effects[a]

Parameter	Estimate	Std. Error	df	t	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Intercept	13.312939	1.356618	54	9.813	.000	10.593083	16.032796
[HL=1.0]	-1.650621	.702971	54	-2.348	.023	-3.059993	-.241249
[HL=2.0]	0[b]	0	.	.	.	.	.
TeacherEXPGrR	-.020343	.037938	54	-.536	.594	-.096403	.055717
Size	.030239	.055691	54	.543	.589	-.081414	.141892

a. Dependent Variable: LLI.

b. This parameter is set to zero because it is redundant.

Table 4.7.3 (c)

Estimates of Fixed Effects[a]

Parameter	Estimate	Std. Error	df	t	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Intercept	3.109015	.654155	54	4.753	.000	1.797514	4.420517
[HL=1.0]	-.459140	.338969	54	-1.355	.181	-1.138732	.220452
[HL=2.0]	0[b]	0	.	.	.	.	.
TeacherEXPGrR	.012068	.018293	54	.660	.512	-.024608	.048744
Size	-.006051	.026854	54	-.225	.823	-.059890	.047788

a. Dependent Variable: LLO.

b. This parameter is set to zero because it is redundant.