

**EXPLORING CHILDHOOD DEVELOPMENT WITHIN THE  
AMATHOLE DISTRICT: A CASE STUDY UTILIZING THE GRIFFITHS  
MENTAL DEVELOPMENT SCALES - EXTENDED REVISED**



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**SITHEMBINKOSI DAWU-TSHUMA**

**EXPLORING CHILDHOOD DEVELOPMENT WITHIN THE AMATHOLE DISTRICT:  
A CASE STUDY UTILIZING THE GRIFFITHS MENTAL DEVELOPMENT SCALES -  
EXTENDED REVISED**

**SITHEMBINKOSI DAWU-TSHUMA**

Submitted in fulfillment of the requirements for the degree of



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**University of Fort Hare**  
*Together in Excellence*

in the Faculty of Social Science and Humanities at the University of Fort Hare

January 2015

Supervisor: Mrs. R Marais

## DECLARATION

I, Sithembinkosi Dawu-Tshuma, do hereby declare that except for references specifically indicated as such, this dissertation is wholly a product of my own research and has not been submitted in fulfillment of the requirements for degree purposes or for academic examination towards any qualification at any university.

31/01/2015

*Sithembinkosi Dawu-Tshuma*

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Alice



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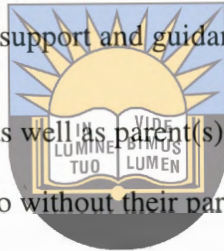
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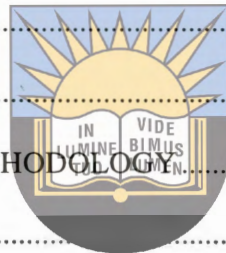
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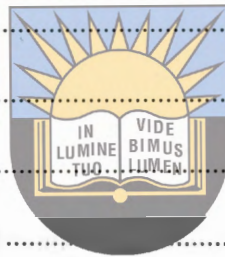
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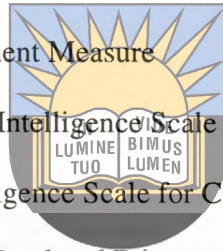
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## LIST OF ACRONYMS

SSAIS-R	Senior South African Individual Scale - Revised
JSAIS	Junior South African Individual Scales
SETT	School Readiness Evaluation by Trained Testers
LAP-P/B	Learning Readiness Assessment Procedure for Black Preschoolers (LAP-P) Learning Readiness Assessment Procedure for Black School Beginners (LAP-B)
SGSM	School Group Screening Measure
Herbst	Herbst Assessment Measure
SB5	Stanford-Binet Intelligence Scale Fifth Edition
WISC-IV	Wechsler Intelligence Scale for Children Fourth Edition
WPP SI-III	Wechsler Preschool and Primary Scale of Intelligence - III
Gesell	Gesell Scales <i>Together in Excellence</i>
McCarthy	McCarthy Scales of Children's Abilities
BSID-II	Bayley Scales of Infant Development - II
KABC-II	Kaufman Assessment Battery for Children Second Edition
Cattell	Cattell Infant Intelligence Scales
GMDS-ER	Griffiths Mental Development Scales – Extended Revised

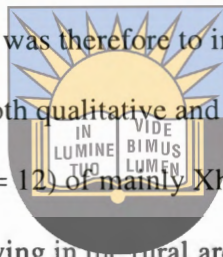


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## ABSTRACT

The history of psychological assessment in South Africa together with the cultural diversity of the nation poses a major challenge to the contemporary South African assessment setting. Valid and reliable measures that are comprehensive and applicable to a variety of cultures including African and rural children are needed for use in South Africa (Louw & Avenant, 2002; Foxcroft & Roodt, 2009). The Griffiths Mental Development Scales – Extended Revised (GMDS-ER) has been identified by various authors as a measure with the potential to meet the developmental assessment needs in South Africa if it can be adapted and standardized for use within the South African context (Kotras, 2003; Van Rooyen, 2005; Van Heerden, 2006). The development of South African norm groups for this measure which accommodates children from diverse ethnic, economic and geographic backgrounds can be enhanced by a thorough understanding of the developmental trends of African children from a rural setting. Considering the lack of norms for the GMDS-ER and the shortage of culture-fair measures applicable to the African child, the overall aim of this study was therefore to investigate childhood development of African children from a rural setting. Both qualitative and quantitative data were utilized in a multiple case study method. A sample (N = 12) of mainly Xhosa and English-speaking children between the ages of 5-years and 6-years living in the rural areas and enrolled in the playschools of the Amathole region was selected using a non-probability purposive sampling method. Quantitative scores from the Griffiths Mental Development Scales – Extended Revised (GMDS-ER) and qualitative interpretations retrieved from the clinical observations and biographical questionnaire were combined. Data obtained was processed through thematic and quantitative data analysis techniques. Guba's (1981) model for assessing the trustworthiness of qualitative data was also incorporated.

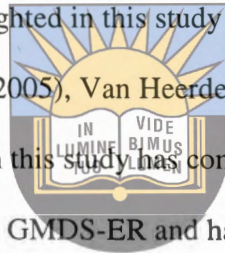


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The results showed an average mean IQ of the sample with none of the children showing superior or very superior levels of development. High average performance scores were attained by the sample in the Locomotor and Performance subscales, whilst average scores characterized the other four subscales. The weakest performance of the sample was in the Language subscale.

The influence of the lagging behind economic and infrastructural development and lack of resources at home and preschool, as well as limited knowledge on child development and stimulation were identified to be contributing factors influencing African children's development in a rural setting. However, the developmental utility of the GMDS-ER to assess children from diverse backgrounds was further highlighted in this study as in the previous studies done by researchers who include Van Rooyen (2005), Van Heerden (2007) and Von Weilligh (2012).

The information generated from this study has contributed to our knowledge base of the performance of African children on the GMDS-ER and has emphasized the need for culture fair assessment measures.



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**Key concepts:** General Childhood Development, Child Developmental Assessment, Griffiths Mental Development Scales, Griffiths Mental Development Scales-Extended Revised

CHAPTER ONE  
INTRODUCTION

The present study focuses on the developmental profiles of a sample of 5 to 6-year-old children on the Griffiths Mental Development Scales – Extended Revised (GMDS-ER) and forms part of a larger study concerned with the standardization of the GMDS-ER. It falls within the field of developmental assessment and specifically seeks to explore and describe the general development of African children from a rural setting across the six subscales of the GMDS-ER.

This introductory chapter will contextualize the study by highlighting the need for a developmental assessment measure that adequately meets the needs of children from diverse ethnic and geographical settings. This will be accomplished by briefly providing a discussion of child development and developmental assessment in contemporary South Africa. Particular attention is paid to the GMDS-ER, as it is the assessment measure utilized in this study.



Thereafter, a discussion of the aims of the study is provided. A thorough discussion of the factors mitigating the development of children from South Africa's rural settings and the need for relevant early child development interventions will be done in subsequent chapters of the treatise which will be outlined at the end of this chapter.

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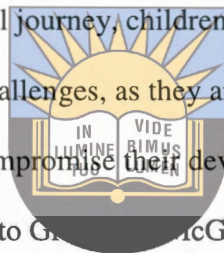
### 1.1 Child development in the contemporary South African context

Child development refers to the ordered emergence of interdependent skills of sensori-motor, cognitive-language, and social-emotional functioning (Engle et al., 2007). Most child psychologists assert that the preschool years, from about ages two to five, are among the most important, if not the most important, of all the stages of development. Preschool children between the ages of two and six need to develop their thought processes and in order for them to begin school the number of developmental milestones that they need to reach is vast (Craig &

Baucum, 2002). Theoretical writings and recent research have specifically alerted professionals to the importance of the effect that the early years of childhood exert on later development (Luiz, Foxcroft, & Tukulu, 2004). Most significant is the long term and intergenerational effects of the occurrences in the first years of life (Department of Basic Education, 2009; Harker, 2006; Biersteker, 2010; Hedman, Manley, van Ham, & Östh, 2012) as vital development occurs in all domains during this period. As such, pathology in the first years may distort or slow development. It is unquestionably during these early years of development that the foundations are laid for the complex behavioural structures that are built in a child's lifetime (Jakins, 2009).

However, in their developmental journey, children especially in developing countries may encounter several obstacles and challenges, as they are frequently exposed to multiple and cumulative risks which increasingly compromise their development and hinder their developmental progression. According to Gray & McGregor et al., (2007) more than 200 million children under five years fail to reach their potential in cognitive development and education performance in developing countries because of poverty, poor health and nutrition and deficient care. This is particularly evident in South Asia and Sub-Saharan Africa.

More devastatingly, the lives of children, especially in the deep rural areas are directly affected by poverty, unemployment, abuse, crime, malnutrition, poor health, social change, family disharmony and non-stimulating home environments (Louw & Louw, 2007; United Nations Children's Fund (UNICEF), 2007; Von Wielligh, 2012). Though not confined to race, poverty is prevalent amongst South Africans, women and rural residents (Armstrong, Lekezwe, & Siebrits, 2010; Everatt, 2003; Ozoemena, 2010; World Bank, 2012). According to Gasperini (2003), people in the rural areas commonly suffer from unequal access to education, health care, infrastructure, technology, institutional support and markets. As such, the lack of access to



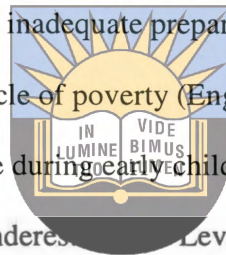
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essential resources and services which include the marginalization of the rural population as well as unsupportive family environments puts children in the rural areas of South Africa at higher risks of poor development (Understanding poverty and development, n.d.).

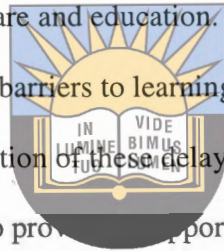
A great challenge still faced in South Africa is the effects of the apartheid system. Though the system was dismantled by the democratic elections of 1994, the legacy of segregation, squandered assets and inappropriate production and investment strategies remains a burden especially in the rural areas (May, 1998; World Bank, 2012). These risks often co-occur and interfere with children's development, thereby contributing to poor health, lack of readiness for school, poor academic performance, inadequate preparation for economic opportunities, and perpetuation of the intergenerational cycle of poverty (Engle et al., 2007).

Although the strongest influence during early childhood is often the immediate family, the influence of the school cannot be underestimated. Levels of exposure to formal schooling, the availability of quality day care centers and preschools with structured activities geared to meet South African childrens' needs means exposure to vigorous, active play which develops children's senses, imagination and skills in using large muscles (Read, Gardner, & Mahler, 1993) and helps stimulate their development through early intervention (Rossi & Stuart, 2007). Stimulation during these years serves as both a primary prevention and early intervention strategy (Donald, Lazarus, & Lolwana, 2002) which can help prevent the loss of potential in affected children and enhance occurrence of rapid improvements.

According to Forget-Dubois et al., (2007) early childhood care and education are linked to an increase in school readiness which is an important predictor of early school achievement. Unfortunately, in some cases, the child entering primary school is already so limited by his earlier experiences that he is unable to respond to, or benefit from, the enriching environment



provided within the school setting and thus optimal learning does not take place (Luiz, Foxcroft, et al., 2004). Furthermore, Donald et al., (2002) and Motala et al., (2007) postulate that the combined effects of malnutrition, poverty, and diseases such as HIV/AIDS has created a much higher proportion of children who experience barriers to learning and development in South Africa than in more advantaged countries. Families affected by the burden of poverty and/or HIV and AIDS may not prioritize or have the resources to meet children's overall needs. As a result, children from poor and deprived families and communities are themselves deprived of opportunities to develop the skills, values, and attitudes expected of first grade learners (Rossi & Stuart, 2007) through early childhood care and education.

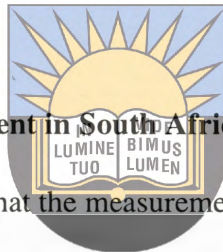


Although stimulation can offset barriers to learning, ensuring that children are able to reach their potential, for many the detection of these delays (in the form of developmental assessment), which is crucial in order to provide opportunity for the child to catch up developmentally (Foxcroft & Lombard, 2000), will never happen and will be done too late. It has been internationally recognized that the early assessment of a child's development is crucial in order not to miss the window of opportunity when the child is still young enough to respond optimally to intervention (Shah, 2013). The earlier developmental problems are identified and the earlier the intervention can be implemented, the greater the child's chances are in overcoming their developmental difficulties (Biersteker, 2010; Luiz & Jansen, 2001). However, if developmental problems are not detected in early childhood, the future development of the child can be significantly stunted thus resulting in a lifetime of lowered, untapped potential (Schröder, 2004).

Notably in South Africa, developmental assessment remains elusive to most vulnerable and disadvantaged population groups, including children from a rural setting (Luiz & Jansen,

2001). Even though some of these rural children with developmental delays are identified early, they are assessed using measures which are not standardized for these groups. As a result, the need for fair, continuous, and authentic assessment of all children in South Africa cannot be underestimated if early childhood schools and centers are to help in the education of children in spite of their social, economic, or cultural background and challenges (May, 1998).

In view of the poor prevailing conditions, significantly so in the rural areas, a majority of South African children can be classified as “being at risk” (Foxcroft & Roodt, 2006 p.25). With these challenges arises the need for a holistic perspective on the developmental assessment of these children.

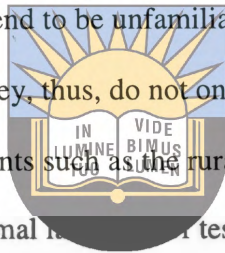


## 1.2 Child Developmental Assessment in South Africa

Brookes-Gunn (1990) stressed that the measurement of the well-being of a child should include the assessment of their physical, cognitive, social and emotional development. Luiz and Jansen (2001) concur that a comprehensive developmental assessment measure should include these four aspects of functioning, which are not mutually exclusive. This view of developmental assessment enhances a subsequent holistic understanding and intervention of a child's development and is similar to Griffiths' holistic model which focuses on four basic avenues of learning of physiological processes, locomotor skills, performance, and speech (Griffiths, 1954) and underpins the Griffiths Scales.

Luiz and Jansen (2001) further elaborate that diagnostic measures, compared to screening measures, are more comprehensive in that they provide numerical scores and age equivalents for both overall performance as well as for each specific area assessed. They thus become the most relevant measures to achieve a holistic perspective in understanding and enhancing child development. Centralizing the definition of child well-being offered by Brookes-Gunn as the

goal for South African children and contrasting it with the current developmental assessment landscape of South Africa a complex scenario is sketched. South Africa's multi-cultural context presents with it challenges for multi-cultural developmental assessment. More specifically, in the multi-cultural South African context as identified by Allan (1992), many assessment measures cannot be used diagnostically with Black, Coloured and Indian children. This can be allied to the realization that all groups in the multicultural society in South Africa are not always adequately represented in the standardization samples used to derive norm tables for South African developed measures (Sibaya, Hlongwane, & Mukunga, 1996). Furthermore, historically disadvantaged groups in South Africa tend to be unfamiliar with the material used in psychological tests (Murphy, 2002). They, thus, do not only grow up in socially and educationally disadvantaged environments such as the rural areas of South Africa, but they also have minimal exposure to the more formal tests associated with books and literacy (Claassen, 1997). To further substantiate the implications of this shortcoming Van Rooyen (2005) states that tests not standardized for specific ethnic or cultural groups may lead to a misdiagnosis if used on these groups. This may further hinder the adoption and implementation of appropriate interventions to deal with the correct and genuine developmental needs of these children.



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Transformation with regards to culture-fair assessment measures applicable to South African children, while momentous, is slow, particularly as it is taking place within an infrastructure that for years catered only for a specific group. In review of the state of the developmental measures in South Africa, Foxcroft and Roodt (2001, 2006) have found that during the last decade, concerted effort has been made by researchers to attend to the need for more reliable and valid developmental measures for use with South African children. The focus

has been on the construction of new culture-reduced tests and adapting, revising and norming assessment measures that have been extensively used in other countries and thus proved to be reliable and valid (Foxcroft & Roodt, 2001, 2006). Although positive attempts have been made, amongst other steps, the development of South African norm groups which accommodates children from diverse ethnic, economic and geographic backgrounds in South Africa is needed to fully realize these positive attempts. According to Jansen (1991) there is no such thing as a 'culture-free' test as psychological tests are samples of behaviour, which are affected by the cultural milieu in which the individual is reared. Thus, a more realistic approach to developing a culture-free test is to develop a test with content that is based on experiences which are common across cultures and thus proves to be 'culture-fair' (Baker, 2005).

### 1.2.1 The Griffiths Mental Development Scales -- Extended Revised (GMDS-ER)

The Griffiths Mental Development Scales -- Extended Revised (GMDS-ER) plays a key role in the context discussed above. Together, they provide a complete picture of the child's developmental abilities as suggested by Brookes-Gunn (1990) but also has a culture-fair element. The concept of play, whilst perhaps in different forms across cultures, is a universal behaviour, and the Griffiths Scales were developed by observing children in their natural environments, and whilst engaged in natural activities (Allan, Luiz, & Foxcroft, 1992). As a result, in spite of the identified shortcomings in assessment measures, the GMDS-ER has been identified by various authors as a possible culture fair measure with the potential to meet the developmental assessment needs in South Africa if it can be adapted for use within the South African context (Kotras, 2003; Van Heerden, 2007; Van Rooyen, 2005). Emphasis has been put on the standardization of the GMDS-ER and the establishment of South African norms (Van Heerden, 2007; Van Rooyen, 2005) to enhance the appropriateness, applicability, and accuracy of this

developmental measure within the diverse South African context. This process of norm development can be enhanced by a thorough understanding of the general development of children from diverse settings, including a South African rural setting.

Dr. Griffiths was bestowed the title of the “architect of the most carefully constructed infant scales for her development of the Griffiths Scales” (Luiz, 1994b, p. 5). The Griffiths Scales were originally developed to assess child development across five Subscales, from birth to two years of age. In the 1960s, the Scales were revised and extended to cover the period from birth to eight years four months. A sixth subscale, named Practical Reasoning, was added to the Extended Griffiths Scales after Griffiths realized that certain skills and items of learning could not logically be fitted into any of the five subscales. Griffiths believed that the assessment of mental development should involve a comprehensive investigation of a child’s abilities, including motor, social and cognitive abilities. This was done through observation, testing and reports from caregivers (Luiz, Barnard, et al., 2006). She was mindful of the importance of interactions between the various learning avenues and developed a broad-based approach to the developmental assessment of children (Luiz, Barnard, et al., 2006). It is in this regard that the GMDS-ER was selected as the psychometric measure for the present study in order to generate information on the developmental profiles of 5 to 6-year-old preschool children from a rural setting.



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Research on the Griffiths Scales has primarily been conducted in two areas, namely clinical and technical studies. Since the revision of the Scales, several studies have focused on the performance of clinical and normal populations on the original Griffiths Scales and on the GMDS-ER. In addition, technical studies have been conducted on the Subscales of the GMDS-ER, its psychometric properties and its validity and reliability as a developmental assessment.

Research relating to the clinical utility of the Scales has provided evidence that the Scales are useful in the clinical assessment and diagnosis of children from normal as well as diverse population groups. Stewart (2005) further points out that the value of the Griffiths Scales is illustrated in the fact that they can be administered across all clinical populations and “have proved to be a most effective and efficient tool in the assessment of young children, in a diversity of cultural and social contexts” (p. 25).

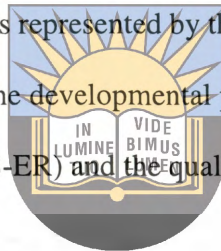
Since the introduction of the GMDS-ER, this updated measure has significantly contributed to our growing knowledge base of child development within clinical samples. Clinical studies utilizing the GMDS-ER have focused on: autistic children (Gowar, 2003), HIV positive/AIDS infants (Kotras, 2001; Sandison, 2005), hearing impaired children (Schröder, 2004), children with cochlear implants (Makowem, 2005), children with attention deficit hyperactivity disorder (Baker, 2005), and a comparison of first and second born twins (Davidson, 2008). Research relating to technical studies has shown that the GMDS-ER is a reliable and valid assessment measure (Griffiths, 1984; Mothuloe, 1990; Worsfold, 1993; Stewart, 1997). The recent revision and re-standardization of the GMDS-ER has necessitated investigations into its psychometric properties. Considerable effort has been made to meet this need in numerous research findings based on studies conducted on the subscales of the GMDS-ER (Barnard, 2000; 2004; Kotras, 2003; Knoesen, 2005; Moosajee, 2007; Povey, 2008). Other studies have focused on comparing a sample of normal South African children with a sample of British children (Smit, 2008; Van Heerden, 2007; Van Rooyen, 2005; Von Wielligh, 2012).

As is evident above, research has been done on the applicability of the GMDS-ER in the South African context, however limited research has been done focusing on African children from a rural setting, hence the focus and scope of the present study.

### 1.3 Aims

The primary aim of the study was to explore and describe the developmental performance of African children between the ages of 5 and 6-years from Alice, Hogsback, and Middeldrift communities in the Amathole region, using the Griffiths Mental Development Scales – Extended Revised. The specific aims derived from the primary aim are the following:

- To explore and describe the developmental profiles of African children from a rural setting by utilizing the general developmental quotient of the GMDS-ER.
- To explore and describe the developmental profiles of African children from a rural setting across the six developmental areas as represented by the subscales of the GMDS-ER.
- To make qualitative links between the developmental profiles of African children from a rural setting (as based on the GMDS-ER) and the qualitative information gained from clinical interviews and observations.



The first two aims of the study therefore focused on gathering quantitative data whereas the third aim focused on qualitative aspects of the study. The results of the study provided exploratory information on the developmental profiles of African children between the ages of 5 and 6- years from a rural setting. This information is a significant step towards understanding the influence of a rural setting on the general development of South African children.

### 1.4 Chapters of the Study

Given the important role of developmental assessment in school readiness, it is crucial that misdiagnosis does not occur by utilizing norms that are not relevant to a population. A good understanding of the development of children from diverse settings is essential to enhance informed conclusions and decisions (Owens, 2010). As a result, Chapter 2 will provide a comprehensive discussion of child development in a rural South African setting, focusing on

some of the factors impacting development. The discussion is primarily based on Vygotsky's socio-cultural theory of child development. Chapter 3 focuses extensively on the applicability of the GMDS-ER in the multi-cultural South African context and its potential to satisfy the existing developmental assessment needs. Developmental assessment in the multi-cultural South African context and the various assessment measures developed and adapted for use in South Africa, as well as their shortcomings will also be discussed. Chapter 4 delineates the specific problem investigated and the general aims of the study. The methods employed in conducting the study are also outlined. A description and discussion of the results of the research findings is done in Chapter 5. Finally, Chapter 6 presents the conclusions reached in the study and offers recommendations for future research on the developmental assessment of children from a rural South African setting. A discussion of the limitations of the study is also done.



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## CHAPTER TWO

### CHILD DEVELOPMENT IN THE RURAL SOUTH AFRICAN CONTEXT

#### 2.1 INTRODUCTION

Child development is a complex phenomenon influenced by various genetic and environmental factors. South African children grow up in diverse environments in terms of cultural heritage and degree of acculturation, health, rural or urban location, socio-economic status, and educational level of parents amongst other factors influencing development (Lloyd & Payne, 2002; SARPN, 2006). Considering the South African rural context, there are many children who fall within the disadvantaged bracket as their environment is often depicted by the deprivation of technological development, recreational facilities, learning opportunities, and needed resources and services (Biersteker & Kvalsvig, 2007; Everatt, 2003). This deprivation is characteristic of rural areas in South Africa which carry a legacy of marginalized development and are characterized by poverty. It thus becomes expedient to understand the development of children from diverse South African settings.



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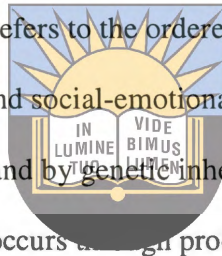
This chapter thus seeks to explore child development in the rural South African context. More specifically, the chapter will explore child development according to domains and provide an overview of the influence of various factors in a rural setting on child development. It will further outline the importance of early childhood development, specifically stimulation and developmental assessment. Vygotsky's socio-cultural theory will be utilized to enhance an understanding of child development in a multi-cultural context. The chapter will end by introducing developmental assessment within a multi-cultural South African context as an essential intervention strategy in further understanding and enhancing the development of rural South African children.

## 2.2 GENERAL CHILDHOOD DEVELOPMENT

Development is defined as age-related changes that take place in a directive, cumulative and ordered fashion (Dehart, Sroufe, & Cooper, 2004). It is the orderly and sequential changes that occur with the passage of time as an organism moves from conception to death (Crandell, Crandell, & Vander Zanden, 2011). Human development occurs in various ways, in different stages of development and at different rates, but it should be kept in mind that these variables are all related and that they progress simultaneously during the development of an individual.

General childhood development is an excerpt of human development which focuses on the overall development of children. It refers to the ordered emergence of interdependent skills of sensory-motor, cognitive-language and social-emotional functioning, all of which are affected by psychosocial and biological factors and by genetic inheritance (Engle et al., 2007). According to Crandell et al., (2011) development occurs through processes that are biologically programmed within the organism and processes of interaction with the environment that transform the organism. General childhood development is thus thought to be determined by the transaction between characteristics of the child and the environmental context in which the child develops (Von Wielligh, 2012).

Taking into consideration this presumption, it becomes commonly accepted that most aspects of a child's development are a product of the interaction of nature and nurture wherein nature refers to an organism's biological inheritance whilst nurture refers to its environmental experiences (Santrock, 2011). Some researchers argue that genetic factors should rather be regarded as the raw materials required for development that will determine the parameters within which development will take place (Bjorklund, 2005). As such, Gallahue and Ozmun (2006) emphasize that heredity sets the limits of development whilst contextual factors are an integral



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part of the nature of development. Parke (2004) postulated that it is important to understand which developmental processes and outcomes are universal, which are universal but modulated by culture, and which are determined by culture. This view emphasizes the need for a more culturally sensitive field, which increases the focus on context in understanding development (Owens, 2010; Parke, 2004).

Furthermore, Bronfenbrenner (1979) emphasizes the importance of culture as he defines child development as the phenomenon of the human child adapting to, influencing and being influenced by the demands of the context in which it finds itself. This definition puts emphasis on the need to consider unique environmental factors in understanding child development.

Further, utilization of this definition supports the need to investigate the development of children from a rural South African setting as their developmental needs could be significantly different to that of children from urban or higher socioeconomic status (SES) groups or children from first world countries.



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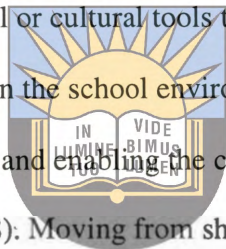
### **2.2.1 Theoretical framework underpinning child development**

#### **2.2.1.1 Vygotsky's contextual socio-cultural theory of development**

In his socio-cultural theory, Vygotsky captures the complexity of child development by focusing on the vast network of environmental systems that operate in and around the child (Vygotsky, 1978). Central to children's psychological development is acquisition of the culture to which they belong. Simply defined culture refers to a people's way of life. According to Greenfield, Maynard, and Childs (2003) culture is a dynamic system of rules, explicit and implicit, established by groups in order to ensure their survival, involving attitudes, values, beliefs, norms and behaviours shared by a them. They further state that these are harboured differently by each specific unit within the group, communicated across generations, relatively

stable but having the potential to change across time. Adekola and Sergi (2007) state that the explicit culture, is the observable reality of language, food, houses, architecture, agriculture, markets, fashions, art, and so on; whereas norms are the shared sense a group has of what is right and wrong; and the values determine the definition of good and bad and are closely related to the standards shared by a group.

Culture thus refers to all cultural products used from the simple artifacts, for example, a pen, spoon, or table, to the more complex such as language, traditions, beliefs, arts or science (Cole, 1997; Vygotsky, 1982) passed on from generation to generation through interaction (Cole & Cigagas, 2010). Acquisition of mental or cultural tools thus plays a crucial role in the development of children's minds. Within the school environment, the teacher plays a significant role of arming children with these tools and enabling the child to use these tools independently and creatively (Bodrova & Leong, 1998). Moving from shared possession of tools (interpersonal) to individual possession (intrapersonal) is associated with gaining independence and a shift in the development of the child.



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Vygotsky viewed child development as consisting of periods of stable development followed by periods of crisis at birth and at the ages of one, three, seven, 13 and 17 which signify a drive to move to a higher age level (Blunden, 2008). All higher functions of development originate first on the social level through interaction with others and are later integrated into an individual's mental structure through internalization (Vygotsky, 1962, 1978). At the beginning of each age group a unique relationship, specific to the age group, between the child and their social reality exists. This relationship is referred to by Vygotsky as the social situation of development. It represents the initial moment for all dynamic changes that occur in development during a given period (Vygotsky, 1978).

As a child develops within the social situation of development a constraint occurs which a child strives to overcome by taking a new role to change the situation leading to actualization of development. According to Vygotsky (1978) this constraint is created by the gap between the child's manifest needs and the current social means of their satisfaction. Failure by the child and society to meet the manifest needs leads to a pathological state in which a child does not develop. However, Vygotsky (1978) states that though the concept of social situation of development is viewed as universal, adults meet children's needs differently in different cultural practices; they also have different expectations of the child and will react differently to the child's needs and behaviour. This influences the uniqueness of each child's development and experiences.

As a result, his theory pinpoints an enormous influence that a child's relationship with his or her surroundings has on development. It postulates that development cannot be separated from its social and cultural context (Verenikina, 2008). It can be understood by observing the individual in a social activity (Grande et al., 2001).



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Furthermore, Vygotsky puts emphasis on the importance of social influence, especially instruction, on children's cognitive development in his concept of the zone of proximal development. It refers to the range of tasks that are too difficult for the child to master alone, but which can be learned with guidance and assistance of adults or more skilled children (Blunden, 2008). It is defined as the distance between what a student can do with and without help (Vygotsky, 1978) and is used to explain the social and participatory nature of teaching and learning (Verenikina, 2008). More significantly, the zone of proximal development captures the child's cognitive skills that are in the process of maturing and can be accomplished only with the assistance of a more skilled person (Santrock, 2011). The influence of skilled teachers and

guardians in development thus becomes essential in enhancing children's learning and development.

The zone of proximal or potential development was initially elaborated for psychological testing in schools (Vygotsky, 1962). Vygotsky (1978) stated that psychological testing should be based not only on the current level of a child's achievements but also (and mainly) on the child's potential development. According to Vygotsky (1978) the level of independent performance is a "yesterday of development" which indicates what is already developed or achieved, whereas, the level of assisted performance represents the "tomorrow of development" and indicates what the person can achieve and "can be" in the near future.

Closely linked to the zone of proximal development is the concept of scaffolding. Scaffolding means changing the level of support to fit a child's current performance (Verenikina, 2008). Scaffolding is essential in a preschool environment in enhancing a child's progressive development. Daniels (2007) states that over the course of teaching a child a new task, a skilled teacher or peer may use direct instruction and give less guidance when competence increases. The presence of knowledgeable and available teachers and parent(s) or guardian(s) becomes pivotal in ensuring that children are provided with the necessary level of support for their stimulation and development.

An important tool in scaffolding is the use of dialogue, which plays a pivotal role in the development of language. The use of dialogue not only enhances an interactive relationship with the skilled teacher or peer but is influential in developing personal social relations. Vygotsky (1962) believed that young children use language to plan, guide and monitor their behaviour. This use of language for self-regulation is called private speech, which to Vygotsky is an important tool of thought during the early childhood years (John-Steiner, 2007). Vygotsky



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(1962) further asserted that children use speech not only to communicate socially, but also to help them solve tasks.

The major theses of Vygotsky's work according to Crandell, Crandell, and Zanden (2009) are as follows:

- Development of individuals occurs during the early formative years and has a specifically historical character, content, and form; in other words, development will be different depending on when and where you grow up
- Development takes place during changes in a person's social situation or during changes in the activities the person undertakes
- Individuals observe an activity and then internalize the basic form of that activity
- Systems of signs and symbols (like language) must be available in order to internalize activities
- Individuals assimilate the values of a particular culture by interacting with other people in that culture



From this discourse, it is visible that Vygotsky (1962) viewed children as social creatures who actively develop their ways of thinking and construct their knowledge and understanding primarily through social interaction. Both the children and adults are viewed as active agents in the process of a child's development. As such, the quality of interaction between the child and the adult - which is dialogical in nature and is based on the child's interests and needs, becomes essential (Bodrova & Leong, 1998).

Understanding of child development according to Vygotsky's theory thus requires that teachers and parent(s) or guardian(s) develop good relations with the children, are actively available to offer the needed assistance for actualization of development at all levels and see

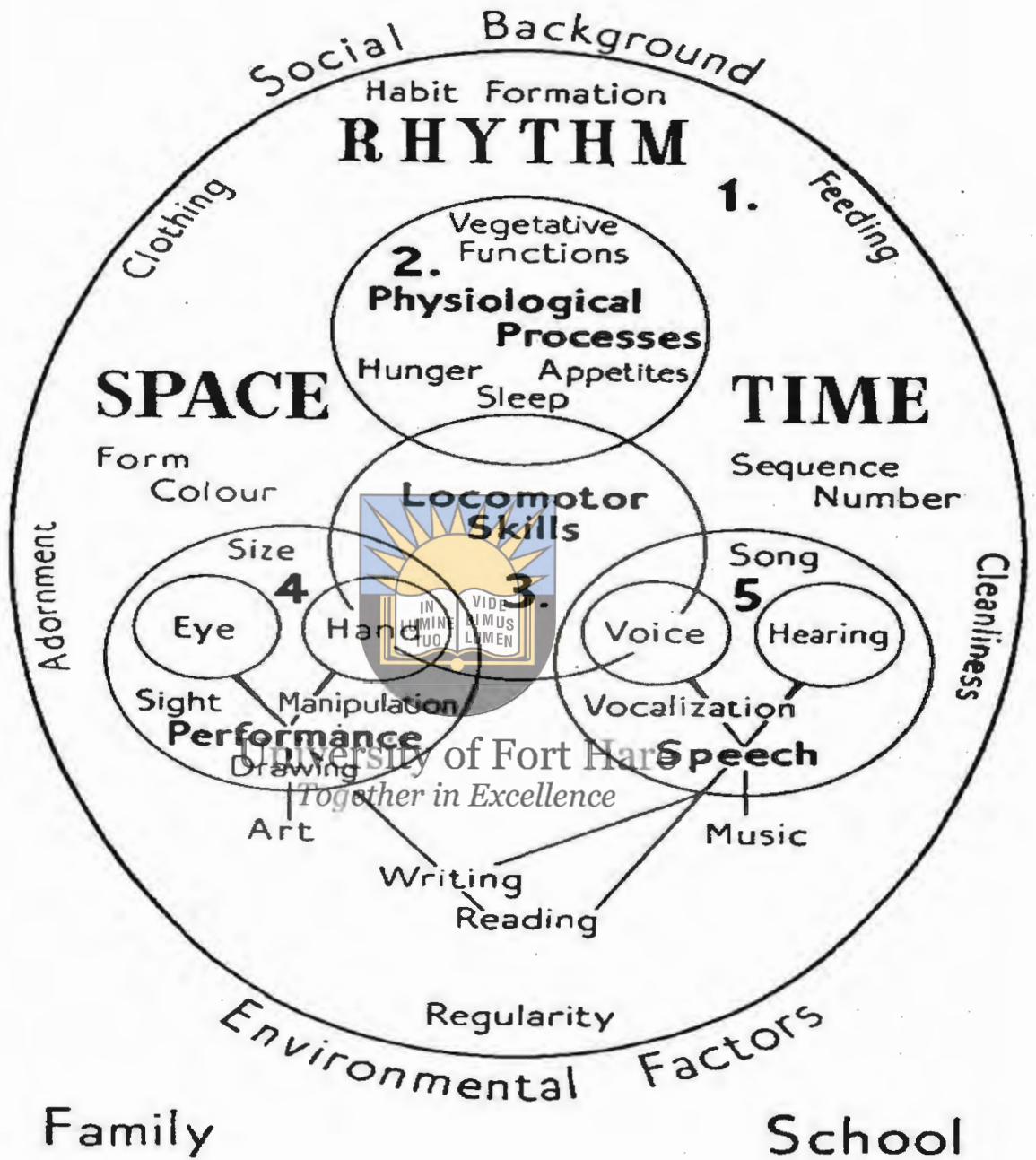
them as unique individuals in the process of social interaction. Furthermore, the family, school and social background within which a child finds themselves in becomes essential in enhancing development. This view is similar to Griffiths' theoretical view of child development.

#### 2.2.1.2 Griffiths' theoretical view of child development

Griffiths' (1954) view of child development is reflected in her philosophy based on the basic avenues of learning. She acknowledged the existence of the child within his social systems recognizing the physiological aspect of child development as well as attributing equal importance to the psychological aspects of the child (Stewart, 2005). Griffiths emphasized the need for a broad-based conception of development, and defined childhood development as "the processes and rates at which growth and maturation of a child's attributes and abilities takes place" (Luiz, Barnard, et al., 2006, p. 1). She furthermore identified six domains of development, which she stated, provided a thorough view of development by measuring separate abilities with considerable overlap between them (Stewart, 2005). Figure 1 is an illustration of Griffiths' basic avenues of learning.



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(Source: Griffiths, 1954 p. 29)

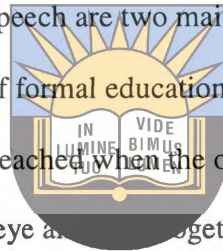
Figure 1: Griffiths' basic avenues of learning

The social factor encircles the child from the beginning, modifying and influencing his experiences. Although almost from birth, the normal baby makes vague sounds and listens

intently to sounds and to the voices of those around him, hearing and voice together result in vocalization, babble, and the development of speech (Griffiths, 1954). All this development according to Griffiths (1954) takes place in time and space.

Griffiths (1954) stated that arm and hand movements, though at first vague and poorly directed develop later into more complicated manipulative acts. For successful manipulative development, both hand and eye must co-operate. Although these are reflex movements, stimulation and support from a child's external environment is necessary to enhance development.

Furthermore, performance and speech are two main aspects of intellectual development, and together form the basis ultimately of formal education both practically and verbally. Griffiths (1954) states a more advanced stage is reached when the older child learns to read and write, for then all four main avenues of learning, eye and hand together with voice and hearing, all cooperate in the acquisition of this complex ability of understanding and reproducing written language.



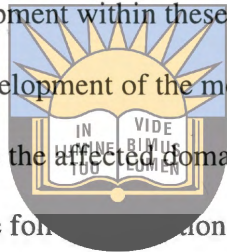
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Since learning and experience play increasingly dominant roles in development as they grow older, children can be directed into channels that will lead to good adjustment. This task is handled by the family, although the larger social group can provide a culture in which children can fulfill their potential. Guidance is thus most needed in the early stages of learning. To emphasize this need, UNICEF (n.d.) states that parents can positively influence development by providing a structured environment that is both demanding and responsive to children's individual needs. As a result, the importance of a supportive and stimulating environment cannot be overlooked in enhancing various aspects of child development. Similar to Vygotsky's (1962; 1982) socio-cultural theory, Griffith's view of child development thus emphasizes the

importance of a child's interaction with their environment. This view point is not only embedded in the understanding of the development of children but also in the development and structuring of the Griffiths developmental assessment measure.

### **2.2.2 Development according to domains**

General childhood development involves the growth and interaction of various behavioural domains that facilitate classification and understanding of a child's holistic development. It can be observed in terms of personal-social, physical, cognitive, moral, emotional, expressive language, fine motor, and gross motor development (Brookes-Gunn, 1990). Understanding children's development within these domains becomes an essential foundation for child assessment and development of the most appropriate intervention services and support for the child, and specific to the affected domains.



For the purpose of this study, the following section will briefly discuss the general domains to enable an understanding of general childhood development. Reference will be made to the ages five and six which are a critical period for cognitive, social, emotional, and self-concept development, offering new opportunities for socialization and gaining new learning experiences (Louw & Louw, 2007). Vygotsky's theoretical framework discussed above will be utilized to aid in the description of these general domains:

#### **2.2.2.1 Personal-social development**

Personal-social development is a broad category used to describe the development of the inner workings of a child (emotions, identity, self-esteem) and the outer aspects of interactions (relationships with peers, friendships, pro-social and ant-social behaviour) (Mussen, Conger, Kagan, & Huston, 1990). It also refers to adaptive self-care behaviours (Luiz, Barnard, Knoesen, & Kotras, 2004).

Relationships with parents and peers are the focus of social well-being in children (Bradshaw, Hoelscher, & Richardson, 2007). As infants, children depend on their parents and immediate family members for food, safety, and entertainment; but as they grow, social relations expand to include peers outside of the family (Cook & Cook, 2005). Social interaction enhances a child's perception of the external world, their development of interpersonal skills, extension of intelligence, and acquisition of attitudes (Hamachek, 1971).

Children at preschools (between ages 3 and 7-years) must develop an intellectual orientation marked by independent activity and ability to do things without supervision (Vygotsky, 1978). The range of skill that can be developed with adult guidance or peer collaboration exceeds what can be attained alone. At this stage, children wish to create, invent, pretend, take risks, and engage in lively activities with peers (Schröder, 2004). Positive feedback from the environment can enhance a child's self-esteem (Craig & Baucum, 2002; Vygotsky, 1978) whilst children who grow up without structured cultural and social opportunities suffer both intellectually and emotionally (Jareg & Jareg, 1994). As a result, a child's interaction with competent people, who can provide guidance and encouragement, allows children to master new challenges and enhance their overall development (Vygotsky, 1978).

Having gradually expanded their radius of activity beyond the family, they gain control over their relations with other people by the differentiation of internal and external life, manifested in an ability to act strategically (Vygotsky, 1978). Children become more purposive and persistent to excel, learn new skills and less expressive of imaginary fears and uncontrolled emotions (Sheridan, 1992; Sharman, Cross, & Vennis, 1995). Various contemporary researchers on research believe that the emotional system is essential for interpersonal and intrapersonal development (Denham, 1998) and seems to guide and organize human thought and action (Izard,



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1991). Furthermore, play becomes a predominant part of peer relations and friendships develop because of opportunity or proximity and similarity in characteristics such as age, gender, attitudes, beliefs, and play styles (Rubin, Lynch, Coplan, Rose-Krasnor, & Booth, 1994; Cook & Cook, 2005).

#### 2.2.2.2 Motor development

Developing motor skills is an essential part of normal child development with an enormous impact on social relationships, thinking, and language of infants (Thelen, 2000). Motor development refers to the control over body movements through the coordinated activity of the nerve centres, the nerves and the muscles (Hurlock, 1981). As a child grows, his or her nervous system becomes more mature and parents eagerly await attainment of important milestones such as learning how to roll over and crawl. The maturation process happens in an orderly manner, with certain skills and abilities generally occurring before other milestones are reached.

However, it is also important to note that the order at which these milestones are reached can vary. As a result, some children may learn to walk earlier than their same-age peers, while others may take a bit longer. Although attainment of these milestones varies, severe developmental delays can be an indication of poor development and disability.

There are two types of motor skills: gross (or large) motor skills which refer to the ability to use large muscle groups to engage in physical activities; and fine (or small) motor skills which refer to the ability to use small muscle groups. Children refine their motor abilities and become better at performing controlled, purposeful movements (Craig & Baucum, 2002). They develop fine motor skills through the use of hands to draw, eat, dress, play, and write and large group of muscles to sit, stand, run and walk, keeping balance and changing positions (Boyse, 2013).

Muscles in the body's core, legs and arms develop before those in the fingers and hands. As a result, children learn how to perform gross motor skills before they learn to perform fine motor skills. In contrast to the rapid growth experienced in the first half year of a child's life, the ages four to seven are marked by relatively stable growth (Hurlock, 1981). Major developments in fine motor skills are especially experienced during this period after the age of five (Bloom, 1985; Hurlock, 1981). Furthermore, by the age of five, a child's cerebellum (which controls balance amongst other abilities) and cerebrum (involved with skilled movements) are nearly fully developed (Hurlock, 1981).

Biological pathways therefore form the basis of motor development during the preschool years; however contextual limitations like over-protectiveness may stifle developmentally ready abilities (Hurlock, 1981). Barlow and Durand (2011) state that maturation is not the only contributing factor to motor development, but opportunities to practice motor skills are also important. According to Thelen (2000) this is culturally specific and can be accelerated in a variety of ways, and puts emphasis on parental practices in the attainment of motor development milestones. Furthermore, weight gains and strong bones contribute to an increase in muscle mass and movement relevant for motor development (Pawley & Bishop, 2004), which invariably links fine and gross motor development with physical development.

As Vygotsky's theory ascertains that development takes place during changes in a person's social situation or during changes in the activities the person undertakes (Crandell, et al., 2009) and Griffiths (1954) highlighted that development occurs within time and space, it is important that an age appropriate environment for growth and development be created within a child's environment to enhance their motor development.



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### 2.2.2.3 Cognitive development

Early childhood development is not only a time of tremendous physical growth, but of remarkable mental development as well. Cognitive development is a component of development related to changes in how children think, remember, and communicate (Cook & Cook, 2005). Central in Vygotsky's theoretical framework is that culture together with social interaction with adults and peers plays a fundamental role in the development of cognition (Vygotsky, 1978). In addition to emphasizing socio-cultural influences, which suggests that each culture transmits beliefs and values which influence cognitive development, Vygotsky recognized that the influence of a child's environment cannot be overlooked.



Vygotsky (1978) believed that the potential for cognitive development depends upon the zone of proximal development. This zone is the area of exploration for which the child is cognitively prepared, but requires help and social interaction to fully develop. This assertion suggests that the social environment, starting with the family, extending to the peers and finally the existing culture, is the context in which cognition develops (Vygotsky, 1978). According to Robokos (2007) cognitive stimulation involves the parental use of statements to challenge children to use representational thoughts, providing conceptual links between objects, people, emotions, locations and other topics, and asking questions or making suggestions.

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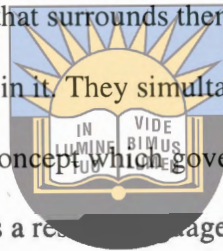
Behavioural indicators of cognitive development in the proposed study's age group include, drawing a recognizable house, person, shapes (circle, triangle and rectangle), counting, and naming at least four colors (Sheridan, 1992).

### 2.2.2.4 Language development

Cognition further develops interdependently with language acquisition (Seirfert & Hoffnung, 1991). Barlow and Durand (2011) assert that language is one of the most complex and

abstract bodies of knowledge that humans acquire, and children in all cultures come to understand and use this form of communication very early in life. Language development is characterized by intelligible and grammatically correct speech, seeking of meaning of abstract words (Sharman et al., 1995; Sheridan, 1992), using body language and gestures and understanding what others are saying (Boyse, 2013). By the age of 5-years, children know and use most of the syntactic structures of their native language, without having received formal lessons in grammar (Radford, 1997).

Vygotsky's (1978) socio-cultural theory states that children adopt the thought structures represented in the language and culture that surrounds them. As they acquire language, they also adopt the psychological tools laid down in it. They simultaneously acquire the norms and rules of their culture and develop a lasting self-concept which governs their behaviour and relations in the society (Craig & Baucum, 2002). As a result, language acquisition can be viewed as a holistic process intertwined with the child's cognitive and social development and the child's social and cultural life (Vygotsky, 1978). It assists not only with communication but also with understanding of society and furthering of social relations (Van Rooyen, 2005).

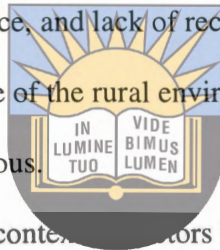


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Although the child's active participation in his or her development takes a central theme in the development of self and social cognition (National Scientific Council on the Developing Child, 2004), the influence of context cannot be overlooked. Context cannot be viewed as just another variable in understanding child development (Van Heerden, 2007). In light of this, it is important to strive to provide an appropriately supportive and stimulating environment to enhance a child's development.

## **2.3 FACTORS INFLUENCING CHILD DEVELOPMENT IN A RURAL SOUTH AFRICAN CONTEXT**

Children represent a window of hope for a better world; they are the touchstone of a healthy and sustainable society. However, not all children are born healthy; have access to good nutrition, adequate health care, and acceptable housing; are raised by parents who can comfort, nurture, and challenge them appropriately; and are born free of disabilities or other biological vulnerabilities (Shonkoff & Meisels, 2000). In some instances children fail to gain the needed stimulation due to low maternal education, reduced access to services, parenting factors, maternal depression, exposure to violence, and lack of recreational facilities (Walker et al., 2007). More devastating is the influence of the rural environment which not only lacks stimulating resources but is also hazardous.



Various contextual as well non-contextual factors influencing development of children in rural areas will be discussed more specifically below. As highlighted, child development is a complex phenomenon influenced by diverse factors in the interaction between the child and their environment; as such this discussion is not exhaustive of all interacting factors.

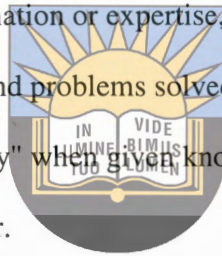
### **2.3.1 Contextual factors**

#### **2.3.1.1 Cultural factors**

Development occurs within cultural contexts that are associated with qualitatively different processes and any observed differences in developmental processes are assumed to be adaptive responses to the demands of the cultural environment (Bakermans-Kranenberg, Van IJzendoorn, & Kroonenberg, 2004). The importance of the cultural context when comparing and interpreting children's developmental thus cannot be overlooked (Von Wielligh, 2012).

Gredler (2008) and Holzman (2009) highlight that children's development of cognitive skills depends on the tools provided by society and their minds are shaped by the cultural context in which they live. Differences in cognitive development could be due to various factors which include that different cultures solve different problems differently; different cultures live through different daily experiences within their geographic location; and children in different cultures enjoy different types of education and guidelines with regards to socialization (Smit, 2008).

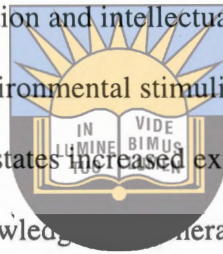
Furthermore, children in developing cultures discover knowledge differently. According to Goldstein (2005), knowledge influences change in persons' conceptual structures (knowledge structures) which contain certain information or expertise, and which determine the manner in which cognitive tasks are approached and problems solved. In many African cultures, children are not allowed to ask questions of "why" when given knowledge which is sometimes regarded as undermining the authority of an elder.



Cultural factors influencing development also include traditionally regulated customs of childcare and childrearing practices. These include informal versus formal learning (e.g., family teaching of important skills within most rural African groups versus formal in-school learning that characterizes most non-rural societies); and independence versus dependence training (e.g., independence practiced by most western parents versus the dependence or even interdependence found among the majority of African parents) (Gardiner & Kosmitzki, 2008). Also, all cultures have different inherent and inherited patterns of childrearing and differences often exist in the patterns concerning the rearing of boys and girls. According to Gardiner and Kosmitzki (2008) in every culture, parents tend to develop shared ideas about the nature of children, their developmental processes and the meaning of their behaviours. These parents' cultural belief systems exert a powerful influence on the health and development of children, influence the

styles of talking to children, methods of discipline, or seeking advice from experts, and are a key component in the development of parents themselves.

The lifestyle, belief system and way of life of people influences and is influenced by various factors which include a people's level of education, technological advancement, geographic area, past history, poverty amongst other factors. As such, although in the past a rural-urban difference in intelligence test scores has persisted with children living in rural areas having significantly lower mean IQs than those living in urban areas, it is not as pronounced as it was two or three generations ago (Von Wielligh, 2012). However, due to television, better access to schools and other sources of information and intellectual stimulation, rural children of today may be exposed to a wider range of environmental stimuli than their forebears were when they were growing up. Van Heerden (2007) states increased exposure to the wider culture has improved the vocabularies, level of knowledge and general intellectual awareness of rural children. Understanding the development of children in different political, socio-economic eras becomes important.



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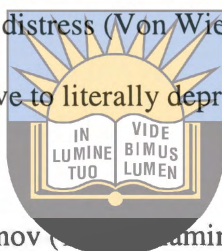
In spite of these identified changes, the lives of South African children, especially in the rural areas continue to experience various deprivations due to poverty.

### 2.3.1.2 Poverty

Almost two decades after the attainment of independence, the persistence of poverty remains one of the most important and urgent problems facing South Africa. Though not confined to race, poverty is prevalent amongst black South Africans, women and rural residents (Armstrong et al., 2010; Everatt, 2003; Ozoemena, 2010; World Bank, 2012). It extends beyond insufficient income and includes other forms of deprivation including inadequate food, poor sanitation and hygiene, access to essential services and the marginalization of the rural

population (Du Toit, 2005; Grantham-McGregor et al., 2007). It varies according to provinces in South Africa, with Limpopo and Eastern Cape being the leading poverty-stricken provinces (Statistics South Africa, 2012).

Though the manifestations of poverty may be idiosyncratic and the concept of “rural poverty” elusive, yet, its effects are palpable (Matunhu, 2008; Von Wielligh, 2012). Poverty affects children’s development at a micro, mezo, and macro levels and has dire spiral effects on individual, family, community and societal well-being and is itself affected by other factors at these levels. It is associated with human suffering, ranging from disease and lower life expectancy to stigma and psychological distress (Von Wielligh, 2012). According to Barbarin and Richter (2001), poverty does not have to literally deprive one of life to have a devastating impact on development.

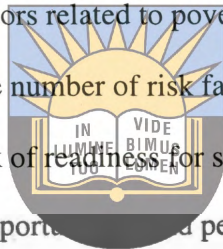


Smith, Brooks-Gunn, and Klebanov (2003) examined the effect of poverty on the cognitive ability (IQ scores) of young children ages 2 to 8 years, based on a national data set and found that family income already affected children as early as age 2. Overall, children in families with incomes under 50% of the poverty line achieved IQ scores 6 to 13 points lower than children in families with incomes 150 to 200% above the poverty line. Cook and Cook’s (2005) study confirmed similar findings of poverty being correlated to lower IQ scores as well as lower academic achievement and lower scores on a variety of cognitive measures. Furthermore, cross-sectional studies of poverty and poor development reveal that poor children were more likely to start school later than the richest children and rural children were the worst affected in most studies (Filmer & Pritchett, 1999).

Schellenberg et al., (2003) conducted a survey aimed at assessing the inequalities in the use of child health care services with respect to sex and socio-economic status in the

implementation of the Integrated Management of Childhood Illnesses strategy. Their study revealed that carers of children from wealthier families had better knowledge about danger signs, were more likely to bring their children to a health facility when ill and were more likely to have had a shorter journey to the health facility compared to poorer families. Furthermore, higher rates of pre-term birth, low birth weight, illnesses, injuries, abuse, parental neglect, poisoning or exposure to toxic substances occur among the poor (Petterson & Albers, 2001).

These findings reveal that children from poor family environments are at risk of not accessing essential services which compromise their overall development. According to Richter, Griesel, and De Wet (1998) the risk factors related to poverty frequently co-exist, and the developmental deficit increases with the number of risk factors. These risk factors contribute to a trajectory that includes poor health, lack of readiness for school, poor academic performance, inadequate preparation for economic opportunities and perpetuation of the intergenerational cycle of poverty (Engle et al., 2007).



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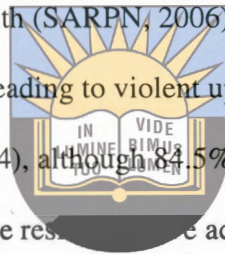
### 2.3.1.3 Housing and sanitation

As mentioned above, poverty is not measured according to income but also shortage of resources (Du Toit, 2005; Gasperini, 2003; Grantham-McGregor et al., 2007). Apart from food and clothing, housing is one of the most essential material needs of any community and sociologists agree that a person's physical environment has a great influence on themselves and their family. In spite of this importance, this basic need in Maslow's hierarchy of needs is not met in many rural South Africans lives.

In order to understand the development of poor housing and overcrowding for black South Africans, it is important to understand the impact of the discriminatory laws and policies passed in the apartheid era which severely restricted land ownership by black citizens and which

restricted black people in unsuitable lands. Low cost housing subsidy and the Reconstruction Development Programme (RDP) was established by government as a solution to the problem of housing backlogs which affect mostly black South Africans (African National Congress, 2011; O'Malley, n.d.). However, those who have acquired the low cost houses are complaining about the poor quality of these houses, whilst some remain homeless and underserved due to incomplete projects (Fokazi, 2013).

Furthermore, although access to clean water has been improving in South Africa since 2000, access continues to fall short of the World Health Organization's recommendations of number of litres per household, per month (SARPN, 2006). The shortage of clean water has been country wide problem in South Africa leading to violent uprisings in some areas (Tapela & Pointer, 2013). According to Zitha (2014), although 84.5% of South Africans have access to piped water, only 62.4% of Eastern Cape residents have access to piped water. Consequently, rural dwellers seek accommodation in underserved informal settlements, backyard shacks and in overcrowded conditions in existing formal housing.

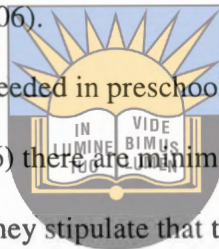


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Inadequate living standards are implicated in a host of problems faced by children, including: prematurity, exposure to environmental pollution, slowed development of language skills, and delayed acquisition of behavioural and emotion regulation (Coley, Leventhal, Lynch, & Kull, 2013). According to Harker (2006) growing up in poor housing conditions may expose children to cold, mould and damp conditions which increase risks of respiratory problems whereas children living in overcrowded houses are 10 times more likely to contract meningitis whose long term effects include deafness, blindness and behavioural problems.

Poor and small housing affects sleep, normal standards of hygiene and freedom to play and do homework. Whatever the setting, children under five require adequate unstructured play

and time outdoors for physical, cognitive and emotional development (Active Healthy Kids Canada, 2010), social as well as language development (Jareg & Jareg, 1994). According to Schaefer and Reid (2001) play and games provide an opportunity for children to learn the consequences of their behaviour. However, in spite of the benefits of play, the rural environment may not encourage recreational activities due to hazards in the environment and poor infrastructure. Furthermore, these children may also not have easy access to various recreational centres which include play parks, animal parks and museums. As such, poor infrastructure may affect children's school attendance and influence slow growth, learning ability and problems in adulthood (Biersteker, 2010; Harker, 2006).

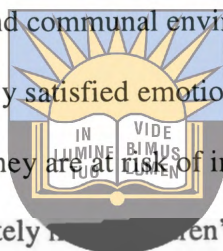


Adequate infrastructure is also needed in preschools. According to the Department of Social Development and UNICEF (2006) there are minimal standards related to infrastructure in early childhood development centres. They stipulate that the centres should be clean and safe, have at least 1.5m<sup>2</sup> of indoor space per child, have at least 1m<sup>2</sup> of outdoor space per child, be disability friendly, be weatherproof and well ventilated, have a separate area for any food preparation, and have safe and hygienic toilet facilities available to children and centre staff, amongst other requirements. Consequently, access to adequate infrastructure and secure accommodation become an integral part of government's commitment to reduce poverty, improve the quality of people's lives and address the inequality and injustice that are consequences of the apartheid system (Republic of South Africa, 2006). According to the South African Government the scale of the problem of housing needs is influenced by geographic disparities and low incomes amongst large parts of South Africa's population (Department of Human Settlement, 2010).

#### 2.3.1.4 Unemployment

In spite of the country's economic ranking as the largest in developing Africa, South Africa experiences unequal levels of development and distribution of resources (African Economic Outlook, 2012; National Planning Commission, 2011). Levels of unemployment thus remain of social, economic and political concern all over South Africa. Technological advancements have meant that the uneducated remain at risk of high rates of unemployment further solidifying poverty, especially in the rural areas characterized by few opportunities of literate and skilled labourers.

Children brought up in family and communal environments characterized by high unemployment are at risk of inadequately satisfied emotional, social, intellectual and physical needs (Biersteker & Kvalsvig, 2007). They are at risk of intentional and unintentional child neglect and abuse and failure to adequately meet children's nutritional needs. Although the South African government introduced child support grants, concerns have been raised about their adequacy and proper use by parent(s) or guardian(s) to benefit the child in light of high levels of poverty and unemployment (Guthrie, 2002).



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Poverty is also associated with poor maternal (or guardian) education, increased maternal (or guardian) stress and depression (Baker-Henningham, Powell, Walker, & Grantham-McGregor, 2003; Hamadani & Grantham-McGregor, 2004), as well as inadequate stimulation in the home (Schady & Paxson, 2005).

#### 2.3.2 Maternal and/or guardian factors

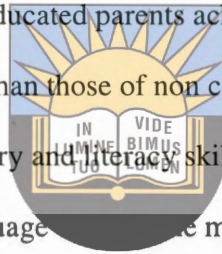
Grandparents raising grandchildren is a growing phenomenon not only in South Africa but worldwide. According to Turner (2005) grandparents may resume a parenting role for a variety of reasons, most of which revolve around problems related to the child's parents, for

example, divorce, substance abuse, child abuse or neglect, abandonment, teenage pregnancy, HIV/AIDS, unemployment, incarceration, mental health problems and death. As a result a discussion of maternal factors will include guardians who invariably include grandparent(s).

### 2.3.2.1 Maternal and/or guardian's education

Maternal or guardian's education is a very important demographic characteristic that has been linked to better cognitive and social outcomes in children during early childhood. Jackson's (2003) study on preschoolers revealed that mothers' higher educational attainment was associated with higher reading scores whilst Sharif, Ozuah, Dinkevich, and Mulvihill (2003) indicated that preschoolers of college-educated parents achieved higher scores of receptive vocabulary on a standardized measure than those of non college-educated parents. Maternal education, as well as maternal vocabulary and literacy skills, relate to child language skills, both directly and indirectly through the language of the mother (Von Wielligh, 2012). Without adequate education, mothers or guardians cannot provide the necessary stimulating environment due to lack of knowledge of their children's developmental milestones and may not assist their children with reading and writing necessary for stimulating their development.

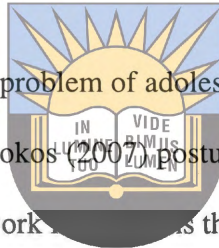
Furthermore, uneducated mothers or guardians may lack appropriate knowledge of how to stimulate children's development in various stages and ages of their growth. As Vygotsky (1978) highlighted, as a constraint occurs in the social situation of development (which is a unique relationship between the child and their social context) a child has to take a new role for actualization of development to occur. Failure by the child and the family to meet this need due to lack of knowledge, unavailability due to work may lead to stifled development.



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### 2.3.2.2 Maternal and/or guardian's employment

The largest employment sector comprises of private, community and domestic services. Much of the employment in this sector is informal and the work is mainly done by females, mostly activities that generate a low level of remuneration, and this low income may obligate females to work longer hours or to take on extra informal employment (Van Heerden, 2007). Thus, the longer hours away from their children may pose an even greater challenge for these mothers to provide adequate, stimulating interaction. However, the economic and social benefits of maternal employment may outweigh any disadvantages resulting from reduced time spent with a child (Von Wielligh, 2012).



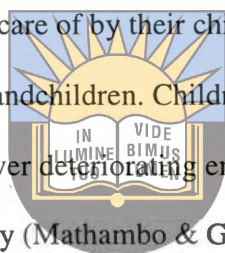
A compounding challenge is the problem of adolescent mothers who have long been identified as a high-risk population. Robokos (2007), postulates adolescent mothers are less likely, to be consistently employed, to work in jobs that offer benefits and sustaining wages, and to be economically self-sufficient. According to Horne and Kelly (2011), 3.3 million young South Africans are not in education, employment or training. This is a concern, considering Vygotsky's suggestion that children master new challenges, hence enhancing their development, through their interaction with competent people who can provide guidance and encouragement.

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Teenage pregnancies are often unplanned and may lead to economic, physical, social, and psychological distress for the mother-to-be which further impacts the development of the child. Hollander (1995) revealed that children born to teenage mothers generally have significantly lower scores on measures of cognitive development than children who were born to older mothers. Also, they are more prone to more punitive parenting styles (Von Wielligh, 2012). As such, the development of children growing up in harsh conditions is also affected by the nature of the parenting that is possible under conditions of pervasive adversity. However, the presence

of the maternal grandmother in these families has been found to offset some of the negative results associated with teen mothering. The grandmother often serves as a valuable source of information about child development. She also tends to be more responsive and less punitive with the child than the teen mother is. In these three-generation households, the child's grandmother plays a very important role as teacher and role model to her daughter – she can provide favourable, positive, social information to the teen child (Van Heerden, 2007).

Furthermore, as households start fragmenting and reforming, there is an emerging focus on the role of grandparents in the provision of care for vulnerable children. Although grandparents assume they will be taken care of by their children, the death of their children means they have to take care of their grandchildren. Children in the care of grandparents may receive inappropriate care due to caregiver deteriorating emotional and social capacities, diminished household economic capacity (Mathambo & Gibbs, 2008) and limited knowledge of further stimulation practices beyond vitamins. Furthermore, grandparents receiving pensions from the government are often the bread winners in the family. As a result, children's non-material needs may be overshadowed by the urgency to provide for their basic everyday needs (Ansell & Young, 2005) thereby limiting children's holistic stimulation and development. Grandparents may thus find the task of raising grandchildren very stressful, particularly if they are struggling with unexpected expense of raising children and lack of energy compared to when they were younger.



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### 2.3.2.3 Maternal and/or guardian depression

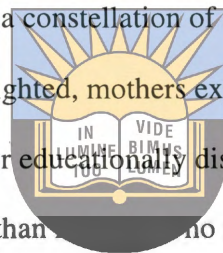
Not only are clinically depressed mothers or guardians likely to have such debilitating symptoms that they are virtually incapable of fulfilling their children's needs (Von Wielligh, 2012), but depression may affect children's biological development. Depressed women produce

higher levels of stress chemicals during pregnancy, which reduce fetal growth and are associated with an increased risk for premature labor (Diego et al., 2009), altered immune functioning in her baby after birth (Mattes et al., 2009), silencing of a gene that controls the over-production of stress chemicals (Oberlander et al., 2008) which shape the development of a child's stress biology (Ronsaville et al., 2006). Numerous recent investigations of preschool age children in high-risk samples have identified maternal depression as a significant predictor of children's social-emotional and behavioural outcomes (Burchinal, Roberts, Hopper, & Ziesel, 2000; Peterson & Albers, 2001).

Depression often coincides with a constellation of other adversities that may further undermine child development. As highlighted, mothers experiencing depression are often also young, socially isolated, economically or educationally disadvantaged, and burdened by more family conflict and stressful life events than those who are not depressed (Horowitz, Briggs-Gowan, Storfer-Isser, & Carter, 2002). Identification with external problems (e.g. poverty, lack of partner support), as well as more immediate difficulties (e.g. trauma and losses), may directly affect the parent's capacity to be responsive to their child (Von Wielligh, 2012). However, when mothers have good social supports, adequate income, and environments free of stress and conflict, they are better able to provide the developmentally appropriate interactions that their children need (Center on the Developing Child at Harvard University, 2009).

#### 2.3.2.4 Mother and/or guardian and child attachment

The quality and nature of the relationship between a child and caregiver have been proven by numerous studies over several years to have a significant effect on the individual's development throughout their development both physiologically and psychologically (Boshoff,



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2008). According to Boshoff (2008) the quality of bonding – the emotional tie that develops between the primary caregiver and the infant and that is characterized by a need to maintain both physical and psychological proximity to each other - creates a basis for the development of attachment. Levy and Orlans (2000) describe the attachment process as a mutual regulatory system, where both the parent and infant influence each other. By detecting, understanding and attending to an infant's shifts in behaviour, the mother will be able to help the infant to regulate their emotions, supporting the progress of secure attachment (Bornstein & Tamis-LeMonda, 2001; Mills-Koonce et al., 2007).

Although not much research is available regarding mother-infant attachment in South Africa (Von Wielligh, 2012) it can be argued that black mothers are able to, despite adverse living conditions, to create a sufficiently good personal environment for the healthy emotional development of their children, as securely attached children were more common in a longitudinal study by Tomlinson, Cooper, and Mvumana (2005). The more communal nature of much of African culture, combined with the survival imperatives of living in extreme poverty may well counteract some of the more negative social consequences of poverty that are often present in more developed societies (Tomlinson et al., 2005). For example, demand feeding, close sleeping arrangements, and close proximity may contribute to high levels of physical maternal availability, making maternal rejection of infant attachment bids during distress less likely. Also, the common African practice of infants being strapped to their mothers' backs may contribute to the low level of avoidant attachment.

Although a secure attachment in infancy does not guarantee continued good parenting, it does launch the parent-child relationship. Thompson (2006) states that a positive parent-child tie, sustained over time, promotes a more confident and complex self-concept, more advanced



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emotional understanding, more favourable and supportive relationships with teachers and peers, more effective social skills, a stronger sense of moral responsibility, and a higher motivation to achieve in school. Securely attached children are known to be more enthusiastic, persistent in finding solutions, exhibit more positive affect and are more effective in facing environmental challenges on their own than their insecure counterparts (Sroufe, 1979). Establishing a secure attachment relationship thus influences how children evaluate themselves, is linked to concurrent and later social functioning and improves development of different skills (Von Wielligh, 2012).

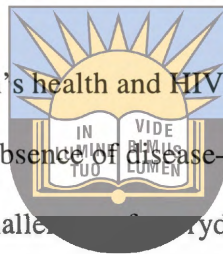
In spite of the benefits of secure attachment, mothers or caregivers' health may hamper secure attachment during infancy.

#### 2.3.2.5 Maternal and/or guardian's health and HIV/AIDS

Health is more than merely the absence of disease—it is an evolving human resource that helps children and adults adapt to the challenges of everyday life, resist infections, cope with adversity, feel a sense of personal well-being, and interact with their surroundings in ways that promote successful development (Center on the Developing Child at Harvard University, 2010).

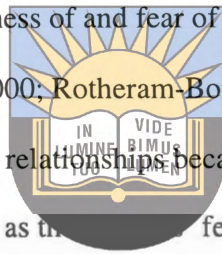
Health in the earliest years - beginning with the future mother's health before she becomes pregnant - lays the groundwork for a lifetime of well-being (Center on the Developing Child at Harvard University, 2010).

HIV/AIDS is one of the global problems making orphans of a whole generation of children, jeopardizing their health, their rights, their well-being and sometimes their very survival, not to mention the overall development prospects of their countries (UNICEF, 2003). According to UNICEF (2006), HIV/AIDS reverses progress made in the reduction of poverty and increasing the life expectancy of the people in Sub-Saharan Africa. Consequently, mounting an adequate response to HIV/AIDS, especially in countries with high prevalence, becomes



pivotal in reaching the Millennium Development Goals which are directly relevant to children and their future (UNICEF, 2006).

HIV exposed children are born into a family where the virus may have already had a severe impact on health, income, productivity and the ability to care for one another. Some studies have revealed that children of parents with HIV have more attention, cognitive and social competence problems (Esposito et al., 1999) whilst some research has not shown an association between parental HIV/AIDS and problems in child functioning (Lester, Stein, & Bursch, 2003). However, various authors agree that children of mothers with HIV/AIDS may be at high risk for psychological disturbance due to the illness of and fear of losing their parent (Bauman, Silver, Draimin, & Hudis, 2007; Klein et al., 2000; Rotheram-Borus, Stein, & Lin, 2001). They may also face less than optimal mother-child relationships because of the mothers' diminished physical and mental well-being, as well as the fears that children may know, discover, or reveal their HIV status (Nelson, 2000). In addition, Orphan and vulnerable children may put pressure on older relatives who become their primary carers; they may have to relocate from their familiar neighbourhood; and siblings may be split apart, all of which can harm their development and put their lives at risk of neglect and abuse.



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A concern in developing countries is the fear that the high number of women with HIV may transmit the virus to their offspring (Oladokun, Brown, & Osinusi, 2010). As part of the government's comprehensive approach to deal with HIV and AIDS, the South African Prevention of Mother-To-Child Transmission (PMTCT) programme was conceptualized in 2000 with the aim of decreasing the number of HIV infected babies born to HIV positive mothers (Department of Health, 2008). According to the Department of Health (2010) this strategy has

the potential to be the engine for strengthening delivery of comprehensive and integrated health care; and can enhance early childhood development.

Until August 2012 the government through the program had advocated for formula feeding of infants to prevent transmission of the virus (Department of Health, 2012). Also to become more modern, mothers are stopping breastfeeding much earlier, replacing it with formula feeding. According to the South African Demographic Health Service out of all 3-month-old babies in South Africa, only 10% were exclusively breast-fed and 48.3% were bottle-fed (de Lange, 2010). Early weaning of infants from breast milk to inadequate sources of nutrients, such as unsuitable and (sometimes) unsanitary cow's milk formula can cause protein deficiency and malnutrition in infancy (Lartey, 2008). Recent developments have revealed more benefits for breastfeeding infants with proper infant prophylaxis and mothers' adherence to Highly Active Antiretroviral Therapy (HAART) than previously perceived risks. However, severely undernourished mothers may fail to provide sufficient nutrients through breastfeeding, whilst not all bottle feeding mothers have access to formula milk and clean water. As a result, many infants are not provided with the necessary nutrients they need to thrive which can lead to severe cases of malnutrition and future development.



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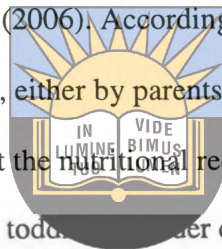
### 2.3.3 Nutritional factors

Good nutrition and good health are very closely linked throughout the lifespan, but the connection is even more striking during childhood. According to the World Bank (2011) the effect of under nutrition on young children (ages 0-8) can be devastating and enduring. In South Africa, malnutrition has developed to a large extent as a result of the widespread poverty and inequality. According to the 2012 Global Hunger Index South Africa is ranked at an estimated 9<sup>th</sup> in the world for highest hunger levels (Von Grebmer et al., 2012). Malnutrition remains a

prevalent problem, varying across different geographical areas and socio-economic groups (UNICEF, 2009) and notably in the regions of Eastern Cape and the Limpopo provinces which are especially poor and rural as compared to the rest of South Africa (Bradshaw, Bourne, & Nannan, 2003). The fact that 25% of preschool children and 20% of primary school children in South Africa suffered from malnutrition in the year 2000 means that the future population of South Africa is being endangered by the problems of malnutrition (Zitha, 2014).

In 2006 the Department of Social Development (DoSD) and UNICEF set out the minimum standards for items relating to Health, Safety, and Nutrition in their Guidelines for Early Childhood Development Services (2006). According to these guidelines food must be provided for children at least once a day, either by parents or by the early childhood development centre, all meals and snacks should meet the nutritional requirements of the children, and planning of a menu, whether for babies, toddlers or older children, must be done in consultation with an expert (e.g. clinic sister, dietitian) (Department of Social Development & UNICEF, 2006) amongst other requirements. However, financial constraints, at schools and at homes as well as lack of qualified personnel mean these requirements are not adequately met or monitored.

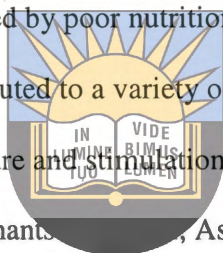
Whether or not children are well-nourished during their first years of life can have a profound effect on their health status, as well as their ability to learn, communicate, think analytically, socialize effectively and adapt to new environments and people (World Bank, 2011). According to Sagan and Druyan (1994) in the area of cognitive development, when there is not enough food, survival comes first, growth comes second and the body seems obliged to rank learning last as if saying "better to be stupid and alive than smart and dead". Furthermore, children who are sick or malnourished cannot engage fully in play activities which impacts relations with those outside of the family as well as their physical development (Grantham-



McGregor, Fernald, & Sethuraman, 1999). As a result, under nutrition can impede behavioral and cognitive development, educability, and reproductive health, thereby undermining future work productivity (World Bank, 2011).

#### 2.3.4 Stunting and under-weight

Although the growth potential in preschool children is similar across countries (Bhandari, Bahl, Taneja, de Onis, & Bhan, 2002; WHO Multicentre Growth Reference Study Group, 2006), a third of children younger than five years in developing countries have linear growth retardation or low-height-for weight commonly known as stunting (Victora et al., 2003). Stunting is a measure of chronic under nutrition caused by poor nutrition and often compounded by infectious diseases (Walker et al., 2007). It is attributed to a variety of factors which include low birth-weight (Espo et al., 2002), inadequate care and stimulation (Begin, Frongillo Jr, & Delisle, 1999), and other environmental determinants (Astrøm, Peterson, Tumwine, & Tylleskär, 2007).



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Under-weight and stunting are associated with apathy, less positive affect, lower levels of play and more insecure attachment (Gardner, Grantham-McGregor, Himes, & Chang, 1999) than in non-growth affected children. Furthermore, longitudinal studies show more problems with conduct, poorer attention, and poorer social relations at school-age (Chang, Walker, Grantham-McGregor, & Powell, 2002). Grantham-McGregor et al., (2007) identified the prevalence of early childhood stunting and the number of people living in absolute poverty as an indicator closely associated with poor cognitive and educational performance in children.

The vulnerability of children to poor health in South Africa is due to not only HIV/AIDS and childhood illnesses, but also due to numerous other contributing elements such as poor sanitation, malnutrition and poverty, as well as the family's health status (Van Heerden, 2007). It

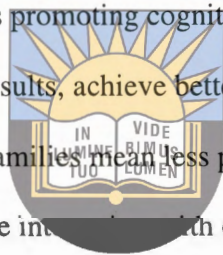
is therefore quite likely that childhood illness will have a profound effect on normal rates of growth and maturation. Furthermore, family characteristics have an influence on development.

### 2.3.5 Family characteristics

The family represents the young child's entire social and interactive world, but in turn, the family is subject to the wider and ever-changing influences of neighbourhood, community and society (Jack, 2000). Various family characteristics influencing child development include:

#### 2.3.5.1 Family size

Smaller families tend to promote a higher degree of individual attention; there is a larger extent of parent or child interaction, thus promoting cognitive development. Children are usually healthier, show better intelligence test results, achieve better scholastic results and attain a higher level of education (Berk, 2009). Large families mean less parent or child interaction, especially with later children in larger families. The interaction with one or more siblings in large families may however, be advantageous for the development of social skills (Berk, 2009).



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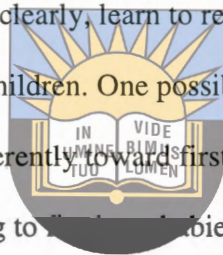
Many African cultures view extended-family childrearing as an integral and important part of their cultures, which can provide a buffer to stresses of everyday living. Even though mothers are seen as the primary caregivers, children experience frequent interaction with fathers, grandparents, siblings and cousins (Von Wielligh, 2012). Extended families thus are an important means of transmitting cultural heritage from generation to generation. In the South African context it is perhaps more significant, in view of the prevalent socio-economic conditions (mothers working elsewhere, children staying with grandmother or family, AIDS orphans being "adopted" by family, fathers of unmarried mothers mostly uninvolved with their children) (Van Heerden, 2007). Although they differ in their composition from one culture to

another, they have in common a sharing of resources, emotional support and care giving (Van Heerden, 2007).

#### 2.3.5.2 Order of birth

Findings from many studies suggest that first-borns are viewed as intelligent, obedient, secure, and responsible; middle children are viewed as ambitious, caring, friendly, and thoughtful; lastborns are believed to be the most creative, emotional, friendly, disobedient, and talkative, while least responsible; and only children are viewed as independent and self-centered (Herrera, Zajonc, Wieczorkowska, & Cichomski, 2003).

First-borns talk earlier and more clearly, learn to read earlier, are better at problem solving and perceptual tasks than later children. One possible explanation for these differences is that parents and others tend to react differently toward first-born and later children. Both parents tend to be more attentive and stimulating to their babies, spending more time with them and providing greater encouragement and assistance with long talking, reading at the appropriate age and other developmental tasks (Von Wielligh, 2012). These differences in parental treatment are thought to be responsible for first-borns being more serious, responsible, studious and competitive, while later children are more outgoing, relaxed, imaginative and athletic (Berk, 2009). Other explanations for differences between first-born and later children suggest the oldest sibling experiences a richer intellectual environment than younger siblings do, and family resources such as parental time and encouragement, economic and material goods, and various cultural and social opportunities are finite (Von Wielligh, 2012). Furthermore, closer relationships with parents may exert more pressure for mastery and accomplishment and receive a greater amount of attention.



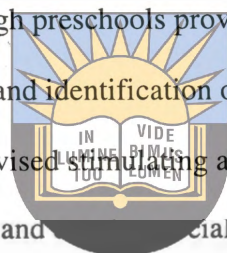
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Only children have the benefits and advantages of first-born children. Although they do not have siblings, they have just as many close, high-quality friendships as children with siblings. However, they tend to be less well-accepted in the peer group, perhaps because they have not had opportunities to learn effective conflict-resolution strategies through sibling interactions (Kitzmann, Cohen, & Lockwood, 2002). However, it is noteworthy that the influence of the order of birth will itself be influenced by the various factors mentioned above as well as access to early childhood education and stimulation.

#### **2.4 The importance of early childhood education and stimulation**

Early childhood education through preschools provides a pivotal opportunity for enhancing the development of children and identification of possible developmental delays. Well structured preschools can provide supervised stimulating activities which include exposure to learning to read, write, memorize, sing, and social relations with peers and teachers, amongst others.



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Children who develop warm, positive relationships with their kindergarten teachers are more excited about learning, more positive about coming to school, more self-confident, and achieve more in the classroom (National Scientific Council on the Developing Child, 2004). To become self-regulated, self-motivated learners children have to develop an interest and intrinsic motivation to learn, which according to Hedegaard (2002, p. 67) “emanates from the social part of a child’s life. The intentional interaction with adults and their friends can thus be used as a spontaneous factor for creating motivation”. As Vygotsky (1962) postulated that children are social creatures who actively develop their ways of thinking and construct their knowledge and understanding primarily through social interaction, a healthy relationship of the child and the teachers and peers at school becomes essential in enhancing learning and subsequently

development. Teachers' practice of and skill in scaffolding and providing instruction in the classroom (Vygotsky, 1962; 1978) can further serve as essential elements in enhancing children's development. Consequently, an environment that does not prioritize learning can have a negative impact on the cognitive and overall development of a child.

Furthermore, play is an important physical activity which a child does most of his waking hours (Gallahue & Ozmun, 2006) which stimulates not only physical development, but also the development of different senses as well as social, language and cognitive development (Jareg & Jareg, 1994). Well structured and supervised play that stimulates holistic development is thus more possible in preschools than at homes where parent(s), guardian(s), and older siblings are unintentionally unavailable to play with children due to other responsibilities.

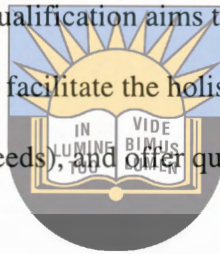


Striving to reach the United Nation's Millennium Development Goals of eradicating poverty and hunger and ensuring all children's schooling thus becomes an important step in enhancing the development of children from disadvantaged developing countries (Grantham-McGregor et al., 2007). Providing appropriate, quality education, cognitive stimulation, nutrition, care and health services to children thus becomes essential in ensuring that the benefits of structured, quality early childhood development services and programmes to preschool children are achieved. Development thus becomes itself the aim of education (Kotze, 2002) and basic education a fundamental human right in itself and essential for reducing poverty and improving the living conditions of rural populations (Gasperini, 2003).

Early interventions can thus help prevent the loss of potential in affected children and improvements can happen rapidly. However, Luiz, Foxcroft, et al., (2004) state that in some cases, the child is already so limited by his earlier experiences that he is unable to respond to, or benefit from, the enriching environment provided within the school setting and thus learning

does not take place. According to Gratham-McGregor et al., (2007) in view of the high cost of poor development, both economically and in regard to equity and individual well-being, the availability of effective interventions, inactivity can no-longer be justified as children's ability on school entry is an important component in determining their school progress.

An emphasis on quality education also points to the need for quality teacher training. The National Qualifications Framework (NQF) Further Education and Training Certificate: Early Childhood Development (Level 4) qualification has become the entry-level qualification for early childhood development practitioners. It serves as the equivalent of a Grade 12, and a Grade 9 certificate is required for entry. This qualification aims to provide early childhood development practitioners with the necessary skills to facilitate the holistic development of young children (including those children with special needs), and offer quality early childhood development services in a variety of settings.



The NQF National Diploma or Higher Certificate: Early Childhood Development (Level 5) qualification is intended to provide higher education to experienced early childhood development practitioners who already have a Further Education and Training Certificate or at least a Grade 12 certificate. It aims to provide them with the necessary skills to use their experience and knowledge in early childhood development to further their professional practice, and specialise in a particular area, for example, Grade R, management, etc. (Department of Social Development & UNICEF, 2006).

In South Africa, this is a challenge as preschool educators are employed by School Governing Bodies (SGBs) and not by provincial Education Departments (Atmore, van Niekerk & Ashley-Cooper, 2012). This means that preschool educators have different quality management processes, different levels of accountability, different conditions of service and

benefits, and different quality of training compared to educators employed by government (Atmore et al., 2012). This comprises on the quality of skills and levels of remuneration and motivation held by teachers which impacts the quality of education, stimulation, developmental assessment and intervention offered to children.

## 2.5 The importance of early developmental assessment

Developmental assessment is a process designed to deepen understanding of a child's competencies and resources, and of the care giving and learning environments most likely to help a child make fullest use of his or her developmental potential (Shonkoff & Meisels, 2000). The role of developmental assessment is not only to enrich development but to strengthen early childhood development programmes in order to deal with various factors affecting the development of South African children, especially from a rural setting. Early accessing of developmental assessment by disadvantaged population groups to ameliorate these negative effects becomes a necessity. In South Africa's diverse background, there are many children who do not have access to adequate resources and learning opportunities and thus can be regarded as "children at risk" (Foxcroft & Roodt, 2006). These children are at risk of developmental delays which may be undetectable until the children fail to reach their developmental milestones. Schröder (2004) highlights that if developmental problems are not detected early in childhood, the future development of the child can be significantly stunted thus resulting in a lifetime of lowered, untapped potential. Knoesen (2003) further asserts that the early identification of the child's areas of developmental weaknesses will enable the practitioner to provide remedial intervention to maximally develop those areas of developmental delay.

Van Rooyen (2005) further highlighted the need for early adequate developmental assessment within the South African context, by stating that due to the substantial number of at



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risk children in South Africa, there is a great need for intervention programmes that focus on the improvement of the development of vulnerable children. This is due to the realization that, the earlier developmental problems are identified and the earlier the intervention can be implemented, the greater the child's chances are in overcoming their developmental difficulties (Biersteker, 2010; Luiz & Jansen, 2001) and becoming an active participant in society. Early intervention thus has benefits not only on children's holistic development but on the state as it lessens the problems of at risk children, ensuring that these grow-up to realize and fulfill their potential (Rossi & Stuart, 2007).

## 2.6 Chapter Summary

This chapter focused on child development raising awareness on the factors influencing child development. The section highlighted Griffiths (1954) view of a broad conception of development depicted in the Griffiths Mental Development Scales to be discussed extensively in the subsequent chapter. Emphasis was placed on the impact that development can have on a child's subsequent development and that the earlier developmental problems are identified and intervention implemented, the greater the child's chances of overcoming developmental difficulties.



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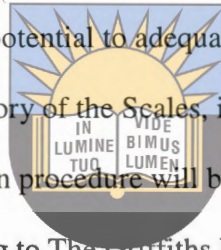
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## CHAPTER THREE

### THE GRIFFITHS MENTAL DEVELOPMENT SCALES - EXTENDED REVISED (GMDS-ER) IN THE CONTEXT OF DEVELOPMENTAL ASSESSMENT IN SOUTH AFRICA

#### 3.1 Chapter Preview

This chapter provides an overview of developmental assessment within a multi-cultural South African context. A brief history of psychological assessment in South Africa will be given and a discussion of multi-cultural needs and shortcomings of existing assessment measures will be done. An extensive focus will be given to the Griffiths Mental Development Scales - Extended Revised (GMDS-ER) and its potential to adequately satisfy and answer South Africa's developmental assessment needs. A history of the Scales, including a description of the Subscales, the scoring and administration procedure will be done. The chapter will also focus on the revision process of the Scales leading to The Griffiths Mental Development Scales – Extended Revised (GMDS-ER) as well as on clinical and technical research studies conducted on the GMDS-ER to date.



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The extensive overview of the GMDS-ER is not only due to the fact that the GMDS-ER forms the subject matter of the study, but also because Van Ede (1996) suggests that an appropriate measure should be selected for cross-cultural adaptation. The early revision process for the GMDS-ER took place in South Africa where the revised items were piloted, and this means that the revised items are in a sense already adapted for the South African context (Van Rooyen, 2005). However, Van Rooyen (2005) states that an understanding of the performance of children from various backgrounds is essential to ensure that the clinical utility of the GMDS-ER as a diagnostic or programmatic intervention tool does not remain limited. An investigation of

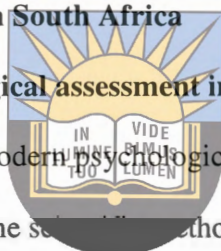
how South African children from a rural context perform on the GMDS-ER essentially forms part of an adaptation process, although theoretically, it is at a later stage of the process.

As such the information presented in this section will clarify whether the GMDS-ER is an appropriate measure with the potential to meet the demands of the South African developmental assessment context. An exploration of the development of the original Griffiths Scales informs this process as the constructs and central characteristics of the GMDS-ER are based on the original Griffiths Scales.

### 3.2 Child developmental assessment in South Africa

#### 3.2.1 Brief history of psychological assessment in South Africa

The historical development of modern psychological measures in South Africa was influenced by the global emergence of the standard method and largely followed international trends. As was the case internationally, psychological measures were developed in response to a societal need. It is in this regard that Claassen (1997) suggests that any account of the history of psychological assessment in South Africa cannot be divorced from the country's political, economic, and social history which played an undeniable role in the assessment landscape of South Africa. Psychological assessment developed in a South African environment characterized by the unequal distribution of resources based on racial categories of black, coloured, Indian, and white (Foxcroft & Roodt, 2001). The white minority (about 15% of the population) implemented a system of statutory separation and discrimination which determined that the African majority (about 75%) as well as the 'coloured' (mixed race) and Indian/ Asian minorities (about 8% and 2% of the population, respectively) had to live, and be schooled, separately from whites (Foxcroft & Roodt, 2001). Consequently, assessment measures were initially initiated with white



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takers in mind (Huysamen, 2002), developed separately for Afrikaans and English-speaking groups (Claassen, 1997), and excluded the speakers of African languages, who comprised the largest population group.

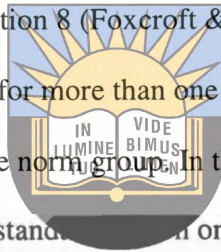
These psychological measures, standardized only for whites, were either adaptations of overseas measures or were developed specifically for use in South Africa. They were used in the Education Department to place white pupils in special education (Foxcroft & Roodt, 2001) and to identify the occupational suitability of semi-literate blacks in industry (especially for work on the mines) and whites in superior categories of work to blacks (Claassen, 1997). As such, the development and use of these assessment measures was driven by political ideologies to draw distinctions between racial groups in an attempt to show the superiority of one group over another, without considering the impact of *inter alia* cultural, socio-economic, environmental, and educational factors on test performance (Foxcroft & Roodt, 2001). Furthermore, the apartheid system enforced discrimination and deprivation of resources and development; as such a large number of the minority groups tended to be unfamiliar with the material used in psychological tests and were not adequately represented in the standardization samples used to derive norm tables (Foxcroft & Roodt, 2001). The African, 'coloured' and Indian/Asian racial groups were thus discriminated against, and were denied equal opportunities. The widespread misuse of potentially and culturally biased measures, coupled with a growing perception that measures were a means by which the apartheid government could exclude black Africans from occupational and educational opportunities, led to negative perception regarding the usefulness of psychological measures. Large sections of the South African population began to reject the use of psychological measures altogether (Claassen, 1997; Foxcroft, 1997). However, it is important to note that within the multicultural setting of South Africa the demographics are



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slowly changing and cultural groups are becoming increasingly westernized and open to psychological assessment, wherein lies the challenges for contemporary developmental assessment.

Since the first democratic elections in 1994 the country has been regulated by a new constitution in which basic human rights and equality of individuals are guaranteed (Van der Vijver, & Rothman, 2004). This has resulted in the application, control, and development of assessment measures being a contested terrain. The cultural appropriateness of psychological tests and their usage were further placed in the spotlight with the introduction of the new Employment Equity Act 55 of 1998, section 8 (Foxcroft & Roodt, 2001) which led to the development of measures and/or norms for more than one racial group in order to interpret test performance in relation to an appropriate norm group. In the absence of appropriate norms, psychological measures developed and standardized only for white South Africans, as well as imported from overseas were used to assess other groups although test results were interpreted 'with caution' (Foxcroft & Roodt, 2001).



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### **3.2.2 Multi-cultural assessment needs and shortcomings of existing measures**

Despite a concerted effort by researchers to address the need for more reliable and valid assessment measures of preschool South African children, existing measures are not comprehensive with most focusing on specific aspects of development and not on the overall or general development of children (Allan, 1992; Luiz, 1994b). Most tests commonly used to assess the development of children do not usually include the domains of personal-social development and gross motor movement. Such tests may require a battery of tests to be conducted in order to adequately and holistically assess the development of the child. Examples of such tests include the Junior South African Individual Scales (JSAIS) developed in 1979. Although Van Rooyen

(2005) described the JSAIS, as a comprehensive measure that provides a profile of abilities, excluding gross motor and personal-social development, the assessment measure has been criticized for its limited focus on the different domains of development as envisaged by Griffiths' learning avenues.

Furthermore, the discriminations experienced by members of historically disadvantaged groups regarding psychological assessment still seem to be a dominant pattern today (Biersteker, 2010). To date assessment measures in South Africa continue to be mainly designed for, or applicable to, English and Afrikaans speaking children (Foxcroft & Roodt, 2001). This can be partially attributed to English being recognized as a 'universal language', and Afrikaans being the main language of the dominant group in the apartheid era. Moreover, with South Africa having 11 official languages it is difficult to develop psychological tests in all South Africa's official languages.



Consequently, available measures do not stand alone for specific ethnic groups to the exclusion of others, making generalization of findings difficult. For example, the Test of Ability to Explain for Zulu-speaking Children (TATE-ZC). The TATE-ZC is a test of verbal problem solving, which have been developed and standardized specifically for rural African children (Solarsh & Alant, 2006). However, this measure does not have a holistic focus and fails to cater for non-Zulu children in various rural areas of South Africa.

Another example is the Herbst assessment measure constructed in 1994 by Herbst and designed to specifically suit the developmental assessment of Black children in South Africa (Schröder, 2004). The test measures cognitive, fine motor development and gross motor development in 3 to 6-year old Black children (Schröder, 2004). Although useful in its own right, and providing a quantitative depiction of the child's ability as well as possible neurological

indicators (Van Rooyen, 2005), it gives limited information regarding procedures and psychometric properties (Jakins, 2009), no additional studies are available on it and it also has not found its way into mainstream testing (Schröder, 2004). The Herbst assessment measure thus does not meet the general developmental assessment needs of the South African context. As such, despite attempts made like the TATE-ZC and Herbst to address the needs of previously disadvantaged groups, the majority of standardized psychological assessment in South Africa is still normed on mainstream, white, middle-class populations or developed using Western approaches to assessment (Padilla, 2001).

Much research has been produced demonstrating inferior performance of black South African children on various psychological tests designed for children from western cultures (Murphy, 2002) and has emphasized the need for measures that are able to cater for the multicultural setting of South Africa. As a result, assessment measures cannot be used diagnostically with Black, Coloured and Indian children (Muller, 1999). The ability to provide culturally competent assessment for multicultural populations can determine the quantity as well as the quality of interventions and services utilized by the ethnic minorities (Foxcroft, Paterson, le Roux, & Herbst, 2004). As a result, developmental assessment practitioners need to select methods of assessment that are normed and appropriate for the ethnic groups they assess.

#### 3.2.2.1 The influence of language and culture

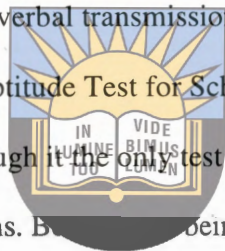
South Africa is a multicultural society with great diversity in geography, language and culture (Skuy, Shuttle, Fridjhon, & O'Carrol, 2001). It is then, in this diversity, that further challenges for multicultural assessment of children in South Africa exist. Cross-cultural and multilingual assessment in Black African populations is one of the daily challenges faced by professionals throughout South Africa (Luiz, Foxcroft, et al., 2006). This circumstance means

that assessment developers and practitioners are faced with a mammoth task of being cognizant of the culturally diverse South African environment.

The issue of language received much attention in psychological assessment, as it is an overriding consideration that linguistic barriers may inhibit the test performance of minority groups (Gregory, 2010). Solarsh and Alant (2006) state that when assessing areas such as language, cognition and problem solving the challenge is to ensure that the true ability of the individual, irrespective of culture or language, is reliably measured.

Additionally, paper-and pencil assessment may not be appropriate for use with some ethnic groups that traditionally rely on verbal transmission of information instead (Fouad & Arredondo, 2007). An example is the Aptitude Test for School Beginners (ASB) published in 1974. According to Knoesen (2003) though it the only test that has been standardized for black school beginners, it has several criticisms. Being comprehensive – it excludes gross motor and personal-social development and by administration the test is cumbersome and time consuming. Fouad and Arredondo further highlight that over-reliance on paper-and-pencil assessment is also problematic. The ASB's paper-and-pencil requirement when many children have limited experience with such mediums at school-entry level and children battle to understand and follow the instructions independently is thus criticized (Knoesen, 2003). Not only does it exclude the children who are illiterate, it also negatively biases the assessment results for children who have limited reading ability or have limited proficiency due to the use of a second language.

Furthermore, it has to be noted that testing is, in itself, a particularly western middle class phenomenon, as the manner, content and criteria for evaluation are firmly embedded within



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western middle class culture and standards (Foxcroft & Roodt, 2006) and thus assessment in itself creates influencing factors for ethnic groups not familiar with testing.

Language is closely linked to the culture in which a test is developed, as language is almost always used to express the cultural concepts and constructs that need to be measured (Lidz & Gleitman, 2004). To compensate for the problems associated with the link between culture and language, some test developers sought to resolve such problems by developing measures in different languages (Gregory, 2010). However, this endeavour has been stifled by the fact that South Africa has 11 official languages. Not only are there inter-cultural differences in language usage, but language itself also evolves and changes over time, even within cultural groupings (Lidz & Gleitman, 2004). Translation thus raises concerns with regard to cost, the lack of available translators with both language and specialist psychological or human resource expertise and to a lack of equivalent specialist terminology in all the languages.

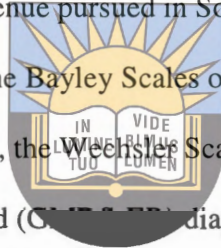


#### 3.2.2.2 The use of measures in South Africa and comparability fit with the GMDS-ER *Together in Excellence*

Developing tests standardized for all cultural groups in South Africa, is a long and expensive process. Moreover, with the lack of research emphasis on the need for more applicable tests to our multicultural context, resources are often limited. Yet, often as a result of the lack of suitable alternatives, foreign norms for tests continue to be used when assessing the individual South African child. To further substantiate the effects of these shortcomings, Van Rooyen (2005) states that tests not standardized for specific ethnic or cultural groups may lead to a misdiagnosis if used on these groups. When forced to utilize these measures in practice due to a lack of available and appropriate measures, unethical and inaccurate evaluation, treatment or even discrimination may result against the ethnic minorities (Padilla, 2001). This may further hinder the adoption and implementation of

appropriate interventions to deal with the correct and genuine developmental needs of these children.

Van der Merwe (2002) emphasizes that psychologists must consider the cultural and linguistic characteristics of their clients/participants when selecting assessment instruments in order to ensure an accurate, credible, beneficial, and ethical assessment. South African researchers identified the need to adapt, refine and norm appropriate tests that have been extensively used, constructed and proven valid and reliable in other countries for use in the South Africa context (Foxcroft & Roodt, 2001, 2006). This form of test development seems to be the most prevalent and realistic avenue pursued in South Africa at present. Through adapting assessment measures such as the Bayley Scales of Infant Development II, the McCarthy Scales of Children's Abilities, the Wechsler Scales and the Griffiths Mental Development Scales – Extended Revised (GMDE-R) diagnostic developmental measures have become more accessible to the South African context. Although there is support for the adaptation of existing tests and the development of culturally appropriate tests and norms, it must be recognized that there are difficulties in developing and norming tests in a culturally and linguistically diverse society (Foxcroft et al., 2004). As such Jansen (1991) postulates that there is no such thing as a 'culture-free' test as psychological tests are samples of behaviour, which are affected by the cultural milieu in which the individual is reared. A more realistic approach to developing a culture-free test is to develop a test with content that is based on experiences which are common across cultures and thus proves to be 'culture-fair' (Baker, 2005). It is evident that that the South African setting needs assessments that are up to date with the changing societal context and that are applicable to a multitude of cultures. Considering the above multi-cultural assessment needs in South Africa and the



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glaring shortcomings of available measures the Griffiths Mental Development Scales – Extended Revised moves strongly to the foreground.

Table 1 from Van Rooyen (2005) provides a brief summary of the general shortcomings of existing developmental measures in contrast to the potential of the GMDS-ER. A black cell indicates that the specific criterion has been met and if a particular criterion is partially met, the relevant cell is greyed out (Van Rooyen, 2005).



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Table 1: Comparison of developmental measures on certain key criteria

Tests	South African Measurement Needs							
	Comprehension	Functional assessment rather than abstract concepts	Standardized for all South African groups	Culture-fair potential	Covers age range – birth to 7 years	Sufficient knowledge base within South African context	Easy administration in field conditions	Yields results that are comparable over time
SSAIS-R								
JSAIS								
SETT								
LAP-P/B								
SGSM								
Herbst								
SB5								
WISC-IV								
WPP SI-III								
Gesell								
McCarthy								
BSID-II								
KABC-II								
Cattell								
GMDS-ER								

Considering all that has been said about the developmental assessment needs in the South African context, it becomes clear that none of the above tests have all the required criteria.

However, in spite of the identified shortcomings of existing assessment measures as illustrated by the table above, the Griffiths Mental Development Scales - Extended Revised (GMDS-ER) has been identified as the assessment measure with the potential to meet South Africa's multi-cultural developmental assessment needs (Van Heerden, 2007; Van Rooyen, 2005). The standardization criterion is greyed out because relevant research has been done on the original Extended Griffiths Scales in this area. However, it has proven to be effective in holistically assessing a child's abilities across several developmental domains to be discussed later in the treatise, and serves as a valuable tool in identifying developmental lags.

Furthermore, a very important aspect of the GMDS-ER is the fact that this developmental measure was based on observations of children engaging in natural activities such as play. According to Hewes (2006) the developmental progression that we observe in different types of play mirrors development in other areas, for example language and symbolic play emerge in young children at approximately the same time in cultures around the world. Children begin to create and play active games with predetermined rules and with invented rules when they develop sufficient physical strength and coordination and the capacity for concrete operational thought (Bergen, 1998). Since play is a common experience across cultures, this enhances the cultural fairness of the GMDS-ER. Furthermore, Griffiths' (1954) emphasis on a child's environment and culture in developmental assessment prioritizes the influence of both the environment and culture on the development of children. This is similar to Vygotsky's view on child development which also puts emphasis on a child's environment and culture on development thereby giving a theoretical fit of the GMDS-ER and the Vygotsky theory used in the study.

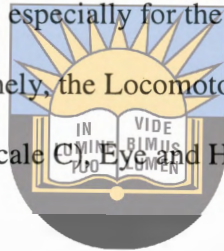


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### 3.3 Development of the Original Griffiths Scales

The Griffiths Scales were originally developed by Ruth Griffiths in the United Kingdom in 1954 to assess the development of children from birth to 2-years of age (Griffiths, 1954, 1970, 1986). The main purpose for the development of the Scales emanated from the need for the early detection of developmental delays in children (Griffiths, 1954).

The Griffiths Infant Scales were initially developed by substantially drawing on existing measures, such as the Stanford Binet Intelligence Test, the Wechsler Intelligence Scale for children, and in particular the Gesell Developmental Schedules. Griffiths included more speech items as well as items of a social nature, especially for the first year of development. The Scales initially consisted of five subscales, namely, the Locomotor (subscale A), Personal-Social (subscale B), Hearing and Speech (subscale C), Eye and Hand Coordination (subscale D), and Performance Scales (subscale E).

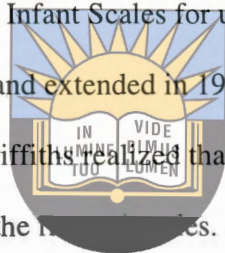


Griffiths (1970; 1984) adhered to the following criteria in developing the Griffiths Scales:

- The development of the Scales was based on the detailed and systematic observation of children in the United Kingdom. Children were observed in their natural settings - at home, at play, in the streets, on trains and buses, and in school playgrounds - and their behaviour was recorded. From these formal and incidental observations, material for test items emerged.
- Previous and existing test methods and tests such as the Gesell Developmental Schedules were taken into account, and items from relevant tests were included in the Griffiths Scales.

- The Scales had to fulfill stringent statistical requirements in terms of their reliability and validity.
- The Scales took the specific needs of both normal and disabled children into account.
- The Scales were based on a study of: (i) trends that appeared significant for mental growth, and (ii) the origins and interrelations among the “basic avenues of learning”, namely, physiological or locomotor, eye and hand coordination, voice and hearing, which development takes place with rhythm, in time and space, and is influenced by environmental and social factors (Griffiths, 1984, p. 5).

Requests for the extension of the Infant Scales for use in clinical practice with older children led to the Scales being revised and extended in 1970 to cover the ages from birth to 8-years and 4 months (Griffiths, 1970). Griffiths realized that certain skills and items of learning could not logically be fitted into any of the subscales. A sixth subscale, the practical reasoning subscale (subscale F) was subsequently included in the test for children aged 2-years and older. This subscale provided a more comprehensive coverage of young children’s emerging problem-solving and logical reasoning skills (Griffiths, 1970). This development of the practical reasoning subscale resulted in the development of the Griffiths Extended Scales.



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Brief descriptions of the subscales of the GMSE-ER including their test items are presented below.

**3.3.1 Locomotor Subscale (A)**

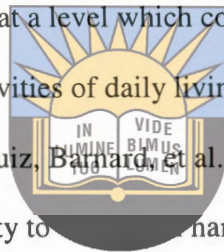
This subscale allows the examiner to assess a child's gross motor skills including his or her ability to balance and coordinate and control movements. It provides an opportunity to observe certain physical weaknesses, disabilities, and inadequacies of movement (Foxcroft & Roodt, 2006). The items include age- appropriate activities such as walking up and down stairs,

hopping, jumping a rope and throwing and kicking a ball (Luiz, Barnard, et al., 2006). These items are universally appropriate in the South African multi-cultural context. They challenge the child's regular physical strength, skill in speed and movement, rhythm and composure to a degree which corresponds to their age (Kotras, 2001). The child's ability to focus and concentrate on the task at hand and the emotional determination to succeed has an influence on their performance in this subscale (Sweeney, 1994).

### 3.3.2 Personal-Social Subscale (B)

The personal-social subscale provides an opportunity to assess personal and social development (Foxcroft & Roodt, 2006) at a level which corresponds with the child's age. It assesses a child's proficiency in the activities of daily living, their level of independence and ability to interact with other children (Luiz, Barnard, et al., 2006). Activities include personal cleanliness, efficiency at the table, ability to wash hands and face, to dress and undress, fasten buttons amongst others (Luiz, Barnard, et al., 2006). A child's degree of social interaction and co-operation in play with other children is key and observed in assessment. General personal information such as the child's name, home address, and family name are acquired through casual conversations with the child and scored according to objective rules. More required and relevant information is acquired through the biological questionnaire completed by the parent(s) or guardian(s). The questionnaire focuses on the personal and social tasks that the child can do at home.

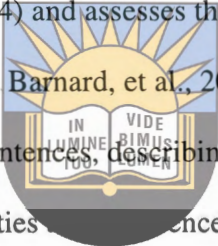
Furthermore, this scale is important in identifying any emotional or social problems a child may be experiencing. Emotional factors have a more explicit influence on performance in this scale than others (Kotras, 2001). As a result, an understanding of a child's emotional well-being should be taken into consideration in assessment. According to Griffiths (1984), neglected



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children and overly protected children usually do badly on this scale, as overly protected children are usually slower in learning self-help and personal care because they get little practice coping with such activities whilst a neglected child does not get sufficient attention or care from significant others.

### 3.3.3 Language Subscale (C)

Subscale C is known as the hearing and language subscale in the Griffiths Scales whilst in the GMDS-ER it is simply known as the language subscale, as no hearing items are included (Luiz, Barnard, et al., 2004). This subscale has been considered to be the most intellectual of all the subscales (Luiz, 1999; Schröder, 2004) and assesses the growth and development of both receptive and expressive language (Luiz, Barnard, et al., 2006). Age appropriate items such as naming objects and colours, repeating sentences, describing a picture and answering a series of questions about comprehension, similarities and differences comprise the items administered in this subscale (Luiz, Barnard, et al., 2006).  This scale requires the comprehension of language and also specific verbal expressive skills in terms of vocabulary, the use of different parts of speech and the use of sentences and paragraphs. Children who perform poorly on this subscale, relative to their own performance on the other subscales, may have speech and/or language deficits or may possibly be suffering from a hearing loss (Schröder, 2004).

### 3.3.4 Eye and Hand Coordination Subscale (D)

This subscale consists of items relating to handwork and visual ability (Foxcroft & Roodt, 2006). It assesses the child's fine motor skills, manual dexterity, coordination between the eyes and hands, careful work and persistence in a task are required from the child (Kotras, 1998; Luiz, Barnard, et al., 2006). Items of this scale include threading beads, cutting with

scissors, writing letters, numbers, and formal and informal drawing, amongst others. The child's drawings make it possible to obtain information on his/her personality, as well as his/her conception of special relationships. However, the test does not provide a structured method for interpreting the emotional significance of drawings, and accuracy depends on whether the clinician has been trained in interpreting the projections of children from their drawings (Van Rooyen, 2005).

### **3.3.5 Performance Subscale (E)**

The performance subscale enables observation of a child's visuospatial skill in manipulation, speed and precision of work (Kotras, 2001; Luiz, Barnard, et al., 2006). It includes age appropriate items such as building bridges and stairs, completion of form boards and pattern making amongst others. The child is required to handle the material and perform the practical tasks on the scale. The items of this subscale are shared with those in the eye and hand coordination subscale in that manual dexterity and eye-hand coordination are assumed, and the child is required to apply these skills in novel situations (Luiz, Barnard, et al., 2006). Coordination between the eyes and hands, persistence in a task, conception of space and form relations, and information on the child's personality can also be obtained from this scale (Luiz, 1994a).

### **3.3.6 Practical Reasoning Subscale (F)**

This subscale was developed to meet the need of assessing older children. It concentrates mainly on recording the earliest indications of arithmetical comprehension and the realization of the simplest practical problems (Luiz, 1999) and assesses a child's understanding of questions about moral and sequential issues (Luiz, Barnard, et al., 2006). The scale has value in demonstrating a child's ability to benefit from formal schooling (Luiz, 1994b). Items

administered in this scale begin at the third year of life and include the repetition of digits (which gives an indication of short-term sequential auditory memory) as well as the differentiation of objects in terms of weight, height, length and size (Kotras, 2001). The scale also assesses a child's ability to count; their knowledge of the days of the week, their visual sequential skills and understanding of right and wrong (Luiz, Barnard, et al., 2006). Attention and concentration span influence performance on all subscales, but more so in this subscale.

Developmental quotients for every subscale were developed by Griffiths (1984). Table 2 shows an illustration of these quotients.

Table 2

An illustration of the developmental quotients of the Griffiths Scales.



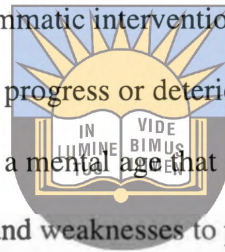
- QA = Locomotor Quotient
- QB = Personal-Social Quotient
- QC = Verbal Quotient (Hearing and Verbal Ability)
- QD = Hand and Eye (Co-ordination) Quotient
- QE = Performance Quotient
- QF = Practical Quotient for Scale F, known as Practical Reasoning

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Each one of the six subscales has an age equivalent and by combining the subscales, a comprehensive score called the General Quotient (GQ) is obtained. The GQ represents General Intelligence as the child's general level of development and is derived by taking the average of the quotients of the six sub-scales of the child's total performance (Sweeney, 1994). The scales do not only assess the general or overall development of the child but also specific areas of development integrated by the basic avenues of learning (Kotras, 2001). These are known as developmental quotients. Furthermore, each of the six subscales was devised to be a separate and

complete subscale in itself and to measure only one avenue of learning or process of development as completely as possible (Griffiths, 1970). This allows any area of development to be measured independently and as completely as possible. The six subscales are equally difficult at each age level and contribute equally to the General Quotient (GQ).

A child's performance on the different subscales is plotted on a histogram, allowing their performance to be compared to the norm of each developmental area. The developmental profile therefore demonstrates the individual child's range of abilities and relative strengths and weaknesses. The developmental profile allows for the planning of interventions based on strengths in clinical practice and programmatic intervention. Furthermore, subsequent assessment profiles can be used to track progress or deterioration in a child's development. Each subscale as well as the total scale yields a mental age that can be compared against the child's chronological age to express strengths and weaknesses to professionals and laymen in a meaningful way.



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Foxcroft and Roodt (2001, 2006) further highlight that if histograms are used based on the developmental score or quotient of each scale, a child's performance on the different scales can therefore be compared. By obtaining a developmental score for each Subscale the Scales can be compared. These different scores obtained on the scales are the child's developmental profile and this developmental profile demonstrates the child's abilities and relative disabilities and allows for a comparison of these at different times (Foxcroft & Roodt, 2001, 2006).

A cursory comparison of the Griffiths Subscales with the most important domains of child development reveals that the Griffiths Scales do indeed provide a comprehensive assessment of child development. It has been argued previously in this treatise that this

comprehensiveness is an important consideration in the South African context, and therefore the Griffiths seems to be an appropriate test to investigate for use in South Africa.

### 3.4 Standardization of the Extended Revised Griffiths Scales

The standardization of the Extended Revised Griffiths Scales was conducted in the UK on a stratified random sample of 1100 children between the ages of 2 and 8-years old and from various socio-economic groups from England, Wales, Scotland, Northern Ireland, and Southern Ireland. With all necessary ethical procedures in recruiting the children being adhered to (Luiz, Barnard, et al., 2004; Van Rooyen, 2005) the final standardization sample consisted of 1026 children between the ages of 2 and 8-years, representing children from Wales (n = 107), Scotland (n = 61), Northern Ireland (n = 120), Southern Ireland (n = 103) and England (n = 653). According to Van Rooyen (2005) quota-sampling technique was utilized to select even proportions of children in terms of age, gender, cultural, and SES. This standardization process was done by a multi-faceted team of international researchers and included an international director of research, assisted by two researchers in South Africa, regional coordinators, and examiners (Schröder, 2004).



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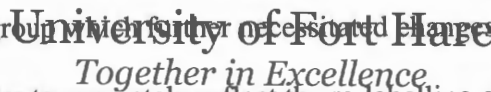
### 3.5 Main Features of the Re-Analyzed GMDS-ER

Following the 2004 statistical analysis, there were concerns about the reliability of the scoring results in clinical practice. For this reason, a complete re-analysis was undertaken from the raw clinical data in the hope that greater accuracy in describing the developmental progression of the children being tested using the GMDS-ER would be provided (Schröder, 2004). In May 2006, the re-analyzed, extended, revised version of the Griffiths 2 to 8-year olds scales - the GMDS-ER, was launched. In terms of the practical use of the test, only the scoring (and interpretation) of the test results was updated and some adjustment made. Although minor

improvements were made to the administration manual, the test remained the same. Furthermore, both the number and difficulty order of the items in the 2004 presentation were found to be correct and also remained the same.

A new analysis manual was produced replacing the 2004 technical manual. The new manual contains the previous description of the clinical fieldwork but with a totally new statistical analysis and scoring tables. By incorporating the most advanced statistical practices, a presentation that demonstrates a child's profile of achievements from the six different subscales directly, as percentiles and z-scores (standard scores) was created (Schröder, 2004).

These amendments to the technical manual in turn necessitated changes being made to the GMDS-ER record book. The *Years 3 to 8* in the original Griffiths Scales record book were changed to Section III for *Years 3 to 5* and to Section IV for *Years 6 to 8* in the GMDS-ER record booklet. As such, the numbering of the test items in Sections III and IV are now continuous per section and not per year group. Further necessary changes being made to the 2006 administration manual, in order to accurately reflect the re-labelling of *Years 3 to 8* in Sections III and IV as well as the renumbering of the respective test items (Luiz, Faragher, et al., 2006).



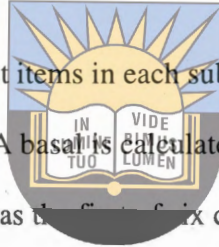
### **3.6 Administration and Scoring of the GMDS-ER**

The GMDS-ER consists of a total of 228 items. Table 3 provides a breakdown of the number of test items per subscale and section.

Table 3

Breakdown of the number of test items per subscale and section

SECTION	SUBSCALES					
	A Locomotor	B Personal- Social	C Language	D Eye and Hand Coordination	E Performance	F Practical Reasoning
I	35	35	35	35	35	0
II	19	23	21	19	19	0
III	18	18	18	18	18	18
IV	20	20	20	20	20	20



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The examiner administers the test items in each subscale until the child obtains a basal and a ceiling score within the subscale. A basal is calculated as the first of the six consecutive passed items, and a ceiling is calculated as the first of six consecutive failed items. The child incurs no penalty for items failed below the basal, and obtains no credit for items passed beyond the ceiling.

For the ages 0 to 24 months, there are two items per month in each of the five relevant subscales, and each item completed correctly is credited with half a month (Luiz, Faragher, et al., 2006). The subscale items are graded in order of difficulty per age group (Stewart, 2005; Luiz, Faragher, et al., 2006). The examiner administers the test items, starting approximately four months below the child’s chronological age (Bhamjee, 1991).

For each subscale separately, the items passed, up to the ceiling, are added and multiplied by two. The figures in each column are then summed to produce the total raw score for each subscale. As there is no Practical Reasoning Subscale in the first and second years, the examiner calculates the average mental age across the other five subscales for each of the two years.

Children who did not need to be administered items from the birth to 2-years scales due to their basal being higher are credited with a score of 12 months for the first and second years respectively (Luiz, Faragher, et al., 2006). The total raw score represents the sum of the scores in all the sections under that subscale and reflects the child's mental age (MA) for that subscale. This study will report on each of the subscale total scores and on the General Quotient (GQ). A general intelligence quotient and sub-quotients for each of the six subscales can still be calculated and used in describing a child's performance on the GMDS-ER (Luiz, Barnard, et al., 2006). Furthermore, a general development score can also be obtained by taking the average of the raw scores for the six subscales; also, by using the appropriate table in Appendix B in the Analysis Manual, a percentile, z-score and age equivalent can be established for this score (Luiz, Faragher, et al., 2006).



In some scales' test items, demonstration of the examiner is compulsory (for example, subscales A, B, D, and E; whilst in some subscales the items demonstration can be done if needed (for example, in subscales A, E, and F) (Luiz, Barnard, et al., 2006). Practicing a test item with a child is required in administration of some items in subscale F, whilst practice is a compulsory in subscales C, E, and F (Luiz, Barnard, et al., 2006). Furthermore, two trials are given to a child in some test items in all subscales except for items in subscale C, whilst giving of two trials is compulsory in some items in subscales A and E (Luiz, Barnard, et al., 2006). Administration of test items is thus interactive in nature between the examiner and the child being tested based on their needs and abilities.

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As Vygotsky put emphasis on the importance of social influence, especially instruction, on children's cognitive and language development in his concept of the zone of proximal development and scaffolding (Verenikina, 2008; Vygotsky, 1962; 1978) demonstrating test

items, providing practice opportunities and use of two trials during testing ensures that a child clearly understands the requirements of a test item and also familiarizes the child with the test item. This not only enhances a child's performance on a test item and subscale but it ensures that a true ability of the child, irrespective of culture and language, is reliably measured (Solarsh & Alant, 2006) and an accurate assessment of a child's developmental performance and diagnosis of any possible developmental delays is done satisfactorily.

Furthermore, some items in the personal-social subscale are not administered by the examiner but are scored based on the responses of the parent(s) or guardian(s) of the testers (Luiz, Barnard, et al., 2006). This saves time on administering some test items, for example, assessing whether a child is able to fetch an item from a shop when requested. Also, although there are questions on the reliability of self-reported responses, the parent(s) and guardian(s) have more opportunities to observe a child's mental abilities over time compared to an examiner. This underscores the assertion that developmental delays occur within a social and cultural context (Verenikina, 2008) and can be understood by observing the child in a social activity (Crandell et al., 2011).




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### **3.7 Interpretation of performance**

Although diagnostic interpretations are possible when utilizing the Griffiths Scales, recent studies have shown that low scores on the Griffiths can indicate subtle deficits and provide clinical impressions that need to be investigated further (Schröder, 2004; Van Rooyen, 2005). According to Schröder (2004) the resulting developmental profile of the child on the Griffiths Scales provides useful information that can be used for the identification of abilities and difficulties; decisions for further investigations such as occupational therapy or specialized education; the construction of treatment programmes to address skills deficits; evaluating the

effect of treatment; and decisions about placement that will allow the child to develop to his or her potential.

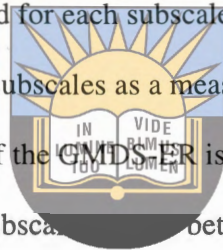
As already noted, South Africa is a nation characterized by immense diversity in terms of the cultures, languages, and socio-economic status of our people. Poverty and poor living conditions have a major impact on the health status of children in South Africa and result in the classification of 'children at risk' (Foxcroft & Roodt, 2006 p.25). The Griffiths Scales have been widely used in the South African context, as it is applicable to the wider population and has also undoubtedly demonstrated its invaluable role in the assessment of South African children of all ethnic and socio-economic groups. The goal is to construct a developmental profile for all South African children. In accordance with the abovementioned goal, more and more studies have been undertaken on the GMDS-ER in the South African context to ensure its applicability with different cultural groups as well as contributing to the growing knowledge base of child development in South Africa.  University of Fort Hare  
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Further on-going work for the GMDS-ER to be 'tried and tested' within the South African society has led to the establishment of an on-going research project involving the testing of clinical as well as normal samples on the GMDS-ER. This South African endeavour is linked to on-going and extensive research on the GMDS-ER in the United Kingdom (Davidson, 2008). Professor L. Stroud stated that findings from these studies will contribute towards the standardization and norming of the GMDS-ER for South African children in particular (L. Stroud, personal communication, May 25, 2007).

### **3.8 Reliability and Validity**

Any psychological measure must fulfill two standard requirements, namely reliability and validity (Foxcroft & Roodt, 2001, 2006). Therefore, the GMDS-ER will be examined with regards to its reliability and validity in the following two sections.

### 3.8.1 Reliability

Reliability can be defined as the accuracy, consistency and stability of test scores across situations (Cozby, 2001). It refers to the consistency of test scores over time, or the extent to which one is confident that a measure will produce the same result if measured again (Foxcroft & Roodt, 2001, 2006; Smit, 1996). There are two kinds of reliability, namely internal and external. Internal reliability measures whether the test is consistent within itself, and it is generally agreed by test constructors that internal consistency should be high for a test to be of any practical use (Coolican, 2004). External reliability refers to the stability of a measure across time. Cronbach's Alphas were calculated for each subscale independently as well as for the GQ as an indication of the reliability of the subscales as a measure of mental development (Van Rooyen, 2005). The overall reliability of the GMDS-ER is 0.993 which is highly satisfactory whilst the reliability of the individual subscales is between 0.90 and 0.99 which is indicative of a high level of internal consistency (Foxcroft et al., 2001). In 1984, Griffiths used the test-retest method in determining the reliability of the Griffiths Scales and found a test-retest reliability of 0.77 (Baker, 2005; Stewart, 2005). Honzik, McFarlane, and Allan (1966) found reliability coefficients between 0.71 and 0.76 for test-retest periods of 6 to 12 months for a sample of 3 to 5-year old children. According to Barnard (2000), these studies indicated that the Griffiths Scales are a stable measure of development.



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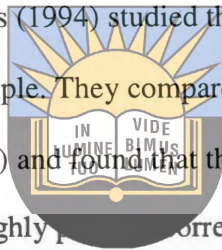
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### 3.8.2 Validity

Validity refers to what the test measures and how well it does so (Foxcroft & Roodt, 2001, 2006). There are three types of validity or validation procedures, namely content-description, criterion-prediction and construct-identification procedures (Foxcroft & Roodt, 2001, 2006). Construct validity refers to the extent to which it measures the theoretical construct

or trait it is supposed to measure (Aiken, 1997; Foxcroft & Roodt, 2001, 2006). Part of construct validity is concurrent validity, which is defined by Coolican (2004) as the validation of a new test by comparing it with a currently existing measure of the construct.

To establish the concurrent validity of the Extended Griffiths Scales, they were compared to the Terman-Merrill Scale, which is a version of the Stanford-Binet. The GQ on the Griffiths Scales ranged from 99.45 to 101.92 for the different age groups, while the Terman-Merrill Intelligence Quotient (IQ) ranged from 102.77 to 106.87. The correlations between the GQ and IQ obtained were satisfactory as they varied from  $r = 0.79$  to  $r = 0.81$  for the different year groups (Stewart, 2005). Luiz and Heimes (1994) studied the construct validity of the Griffiths Extended Scales on a South African sample. They compared the Griffiths Scales with the Junior South African Intelligence Scale (JSAIS) and found that the GQ and General Intelligence Quotient (GIQ) of the JSAIS showed highly positive correlations, suggesting that the Griffiths Scales and the JSAIS measure a similar construct.



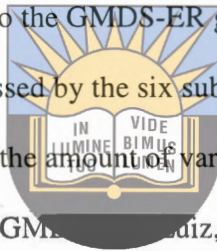
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Furthermore, Tukulu (1996) completed a correlational study using the Denver II Scales and the Griffiths Scales with Xhosa-speaking preschool children. Tukulu found that the Griffiths Scales is a “relevant diagnostic measure for use with South African Xhosa-speaking children” (Baker, 2005, p. 90). Luiz, Foxcroft, and Stewart (2001) investigated the construct validity of the Griffiths Scales, in which a common factor analysis was used to examine the underlying dimensions of the Scales. The sample of  $N = 430$  South African children ranged between the ages of 54 and 83 months. The results of the study revealed that the Griffiths Scales tend to measure one factor, and that the factor appears to be similar in the different race/cultural groups. The pattern of correlation for South African and British subjects was also found to be similar,

indicating that the Scales are measuring a construct that is consistent across cultures and through time (Stewart, 2005).

As the Griffiths Scales are a diagnostic measure, content-based evidence indicated that the items in each of the six subscales are representative of their respective content domains and that each item has a satisfactory degree of relevance to the construct being measured (Luiz, Barnard, et al., 2004). Furthermore, the six subscales of the Griffiths were developed to be used independently; therefore construct-related evidence which measures the theoretical construct it is supposed to measure (Foxcroft & Roodt, 2006) was explored. Luiz, Barnard, et al., (2004), found that applying factor analytic techniques to the GMDS-ER generated important information regarding the underlying constructs assessed by the six subscales. Factor loadings of the items on the particular construct(s), together with the amount of variance and its Cronbach's Alpha, are provided in the technical manuals of the GMDS-ER (Luiz, Barnard, et al., 2004; Luiz, Barnard, et al., 2006). Variance is found to range between 1.5% and 99.4% is explained by different factors (Van Rooyen, 2005).



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### **3.9 Research studies conducted on the Griffiths Scales**

The Griffiths Scales have taken prominence in child development due to its applicability to various population groups (Schröder, 2004) as such research on the Griffiths Scales have been conducted internationally and locally. Initially, research studies consisted of case studies (Luiz, 1988a, 1988b, 1988c) and correlational studies (Heimes, 1983; Lombard, 1989; Mothuloe, 1990; Worsfold, 1993) which examined the relationship between the Griffiths Scales and other measures. Thereafter normative studies using larger samples of Black, White, Asian and Coloured children (Allan, 1988, 1992; Bhamjee, 1991; Mothuloe, 1990; Tukulu, 1996) were done followed by validity studies (Luiz et al., 2001; Povey, 2008; Stewart, 1997).

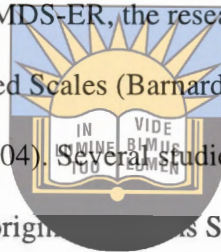
Research on the original Scales also focused on the need for South African norms and more specifically looking at whether British norms were appropriate for South African children. Allan (1988) studied the extent to which the subject variables of gender, language and socio-economic status influenced performance on the Scales with English and Afrikaans-speaking children aged 5-years. Her findings revealed that South African 5-year-olds and their 5-year-old British counterparts differed significantly on the General Quotient and in their performance on four of the six subscales; the influence of the subject variables of gender and language group on test performance was minimal; and children in the different socio-economic groups differed significantly on the General Quotient and in their performance on four of the six subscales (Allan, 1988).



Allan's (1992) doctoral thesis focused on the performance of South African normal preschool children on the original Griffiths Scales. This study specifically explored the claims of culture bias within the measure. The research aimed to compare the performance of South African black, coloured and white children on the Scales, establish the applicability of British norms for a South African sample of children from different backgrounds, and establish the extent to which variables such as gender, language and socio-economic status influence test performance. The research showed that overall there were performance differences within and between the ethnic groups but with no consistent patterns were noted. The Coloured and Black group scores differed significantly from the White and Indian groups on all subscales except for the personal-social and practical reasoning subscales; whilst Indian children performed significantly lower than all others on the locomotor subscale and significantly higher than Black children on the eye and hand coordination subscale. White children performed significantly higher than Black or Coloured children on the language subscale whilst Indian and White children performed

significantly higher than Black children on the performance subscale. Results of the second aim reported that, compared to the British sample, all South African 5-year olds performed significantly better on the locomotor subscale. Allan (1992) concluded that item bias may hinder a national multi-cultural standardization of the GMDS for South African children, British norms cannot be applied to White or Indian South African children but appeared to be more applicable to Black and Coloured South African children, and gender was found to have minimal influence on the performance of 5-year old South African children, whereas language and socioeconomic status do.

With the establishment of the GMDS-ER, the research focus shifted to the overall revision process of the Griffiths Extended Scales (Barnard, 2000; Kotras, 2003) and on clinical populations (Kotras, 2001; Schröder, 2004). Several studies have focused on the performance of clinical and normal populations on the original Griffiths Scales and on the GMDS-ER whereas technical studies have been conducted on the subscale of the GMDS-ER, its psychometric properties and its validity and reliability as a developmental assessment.

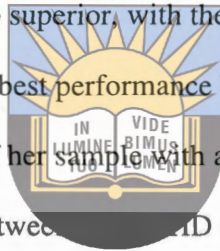


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### **3.9.1 Clinical studies**

Research relating to the clinical utility of the Scales has provided evidence that the Scales are useful in the clinical assessment and diagnosis of children from normal as well as diverse population groups. The original Scales have been administered to a wide range of children, including a hearing-impaired child (Luiz, 1988a), a battered child (Luiz, 1988b), borderline mentally handicapped preschoolers (Houston-McMillan, 1988), and a physically disabled child (Krieger, 1988). These studies have given evidence to the usefulness of the Griffiths Scales in the assessment of children from diverse cultural and social contexts.

Since the introduction of the GMDS-ER, clinical studies utilizing the GMDS-ER have focused on autistic children (Gowar, 2003), hearing impaired children (Schröder, 2004), HIV positive or AIDS infants (Sandison, 2005), children diagnosed with Attention Deficit Hyperactivity Disorder (ADHD) (Baker, 2005), children with cochlear implants (Makowem, 2005) and the performance of twins on the GMDS-ER (Davidson, 2008). Baker (2005) investigated the performance of children with Attention Deficit Hyperactivity Disorder on the GMDS-ER using a sample of  $N = 38$  children. Baker (2005) found that the general performance of the ADHD sample on the GMDS-ER was above average, and that their performance across the six Subscales ranged from average to superior, with the poorest performance being on the eye and hand coordination subscale, and the best performance being on the performance subscale. Baker also compared the performance of her sample with a normal South African sample. Significant differences were obtained between the ADHD and normal sample on the General Quotient (GQ) as well as on three of the six subscales, namely hearing and speech, eye and hand coordination and performance subscales.



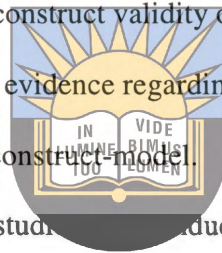
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### 3.9.2 Technical studies

Research relating to technical studies refers to studies on the reliability and validity of the Scales, in which research is generated to show that the GMDS-ER is a reliable and valid assessment measure (Griffiths, 1984; Luiz, 1988c; Mothuloe, 1990; Stewart, 1997; Worsfold, 1993). Luiz, Foxcroft, and Povey (2006) conducted a study to explore the psychometric properties of the Griffiths Scales, in particular its construct validity. The aim of this study was to examine the underlying dimensions tapped by subscales A, B, C, D, E, and F for the years 5, 6 and 7. The sample consistent of 180 children with the variables of gender, cultural group and central nervous system development controlled. The findings of their study suggested that each

subscale taps more than one construct and that constructs differ for the different age groups. This implied that in the revision process subscales for each of the years need to be investigated further with regard to their construct validity.

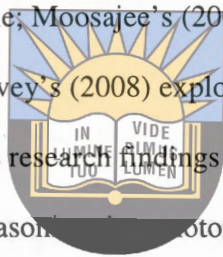
Kotras (1998) investigated the Language Subscale, with a revision of the 20 small pictures and the large picture, with the goal of making them more culturally relevant in a contemporary South African context. The results of Kotras's (1998) study recommended that the order of the 20 small pictures should be revised so that separate norms for South African children could be constructed. Kotras (2003) extended her research within the Language subscale to her doctoral thesis in which she explored its construct validity on the Revised Extended Griffiths Scales. The results of this study provided evidence regarding the construct validity of the Language Subscale as well as a verified construct model.



One of the more recent technical studies conducted by Stewart (2005) on the Extended Griffiths Scales, which aimed to propose new items and adapt existing items for subscales A, B, C, D, and E as part of a larger project which aimed to revise and re-standardize the Extended Griffiths Scales. The research was guided by seven aims and divided into seven steps, which consisted of reviewing the existing items, adapting problematic items, and writing and testing out new items. Stewart's (2005) findings included the consolidation of the theoretical tenets on which the Griffiths Scales are based, and a content analysis of the original items. The findings further influenced the creation of the pool of new and adapted items, as well as the final item recommendations. Item changes were recommended for the Experimental version of the Extended Griffiths Scales, as well as the adjustment of 31 cut-off time limits (Stewart, 2005).

The recent revision and re-standardization of the GMDS-ER has necessitated investigations into its psychometric properties. This need for technical studies has resulted in

numerous research findings based on studies conducted on the Subscales of the GMDS-ER. Barnard (2000) revised the practical reasoning subscale, and Knoesen (2003) completed a predictive validity study involving the assessment of urban preschool children to determine whether the GMDS-ER could be used to predict the scholastic performance of grade one learners. Furthermore, doctoral theses have also been conducted on the subscales of the GMDS-ER, such as Kotras's (2003) exploration of the construct validity of the Revised Extended Griffiths language subscale; Barnard's (2004) exploration of the validity of the Revised Griffiths practical reasoning subscales; Knoesen's (2005) exploration of the reliability and construct-validity of the revised locomotor subscale; Moosajee's (2007) exploration of the validity of the revised personal-social subscale, and Povey's (2008) exploration of the validity of the revised eye and hand coordination subscale. The research findings of these studies found that these five subscales, namely language, practical reasoning, locomotor, personal-social and eye and hand coordination, yielded more than one consistency.

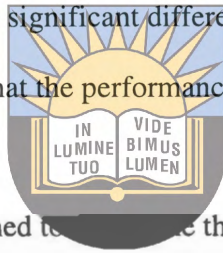


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Furthermore, technical research has also provided information on the normal performance of South African children of different ages and population groups on the GMDS and GMDS-ER (Baker, 2005). Van Rooyen (2005) conducted comparative research on normal South African ( $N = 129$ ) and British ( $N = 161$ ) children on the GMDS-ER. The research findings revealed that South African and British children's overall performances on the GMDS-ER GQ are similar; a great deal of variability exists between the GMDS-ER profiles of normal South African and British children (when individual subscales and year groups are considered); and South African children performed better on the locomotor and personal-social subscales, while British children performed better on the language and practical reasoning subscales. Performance on the eye and hand coordination subscale was similar for the two samples, while the findings

obtained on the performance subscale indicated that the performance was too variable to come to any general conclusions.

A replication of Van Rooyen's (2005) study aimed at generating information on the applicability of the British norms for the contemporary South African population was done by Van Heerden (2007). Van Heerden (2007) found that in contrast to Van Rooyen's (2005) results, a significant difference does in fact exist between the South African and British children's overall developmental profiles as measured on the GMDS-ER. In addition, British children performed significantly better on the language, eye and hand coordination and practical reasoning subscales whilst there were no significant differences between the two samples on the performance subscale, which indicates that the performance on this particular scale are similar (Van Heerden, 2007).



Von Wielligh's (2012) study aimed to determine the applicability of the Griffiths Development Scales – Extended Revised (GMDS-ER) in Contemporary South Africa. The study explored the performance of South African babies aged 9 months as it relates to that of British babies (from the standardization sample). One hundred and twenty babies from Potchefstroom and Klerksdorp were selected on the basis of availability. The research revealed that the South African sample performed slightly better (although not statistically significant) than the British normative sample on all the subscales. With regard to gender differences, the girls fared significantly better than the boys on the locomotor, personal-social, hearing and language subscales. Furthermore, comparisons between different ethnic groups on the GMDS-ER showed significant differences, the White and Indian groups performed better throughout on all five subscales than the Coloured and Black groups with the group of Black infants performing poorest throughout all five subscales compared to the other ethnic groups.

Recommendations from these studies suggested that further investigations into the applicability of the GMDS-ER for the diverse South African context are needed and that the establishment of South African norms for the clinical utilization of the GMDS-ER is essential. Van Rooyen (2005), Van Heerden (2007) and Von Wielligh (2012) recommended that caution should be exercised with regard to the utilization of the British-based norms in the South African context. Davidson (2008) highlighted the value of technical studies and stated, “without technical studies continuously enhancing the measure’s psychometric properties, the clinical studies performed using the same measure would be invalid and unreliable” (p. 63).

### 3.10 Applicability of the GMDS-ER in the South African context

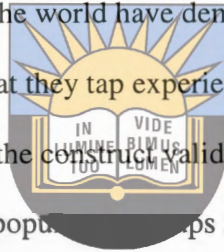
A holistic view of child development is emphasized in Chapter 2 and similarly a holistic perspective to the developmental assessment of South African children is vital in view of the poor social conditions the majority of children in South Africa have experienced (Foxcroft & Roodt, 2006). If one accepts a holistic definition of child well-being as the goal we wish South African children to attain, by implication a comprehensive measure of development is required (Foxcroft & Roodt, 2006). When compared with other developmental measures on certain key criteria, which include - being comprehensive, culture fair potential, functional assessment rather than abstract concepts, covering children from birth to 7-years, sufficient knowledge base within the South African context, easy administration in field conditions and yielding results that are comparable over time - the GMDS-ER has the potential to fulfill the greatest number of needs of the South African developmental assessment landscape (Van Rooyen, 2005). As such, the need for a measuring instrument that meets all the important aspects of child development in a contemporary South Africa could be satisfied by the Griffiths Mental Development Scales – Extended Revised (GMDS-ER) should the norms of the standardization sample be comparable



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with those of a South African population. Thus the GMDS-ER plays a key role of providing a comprehensive understanding of a child's developmental abilities and assesses the most important domains of child development.

Furthermore, the Griffiths Scales are criterion-referenced in nature, thus the child is compared to an established criterion and not to another child. This is important for cross-cultural assessment, as it assesses the degree of mastery of the individual, thus describing rather than comparing performance. It is child friendly in nature and is based on play activity which is not only universally relevant but culturally suited to be used in South Africa's diverse population group. Also, studies in various parts of the world have demonstrated that the Griffiths Scales are applicable to diverse populations and that they tap experiences that are common to different cultures (Luiz et al., 2001). As a result, the construct validity and reliability of the GMDS-ER including its subscales across different population groups has been ascertained.



The reality that the GMDS-ER is a culturally appropriate measure (Griffiths, 1970; Victora, Victora, & Baros, 1990) seems to present ample reason to pursue further research in their adoption and standardization with various population groups in South Africa (Von Wielligh, 2012). However, caution should be taken with regard to the use of British-based norms in the South African context as a normal South African profile may differ extensively from that of a normal British profile (Van Rooyen, 2005). Also, South African children are culturally diverse; varying in cultural heritage, degree of acculturation, language, rural or urban location, socioeconomic background, parents' educational level, health, preparation for schooling and many other influences that shape human development. As such, it is important for research to ensure that developmental assessment is up to date in the current South African political and societal ethos, but also to ensure a comparative fit to a current standardization sample (Von

Wielligh, 2012) which will strengthen the use of the GMDS-ER in the assessment of South African children (Van Heerden, 2007). Furthermore, when resources are limited, the GMDS provides a method of brief assessment of a child's abilities and needs, which can be communicated easily to other workers. This is of great importance in the South African context, where resources are limited and the need for early identification is high (Amod, Cockcroft, & Soellaart, 2007).

### 3.11 Chapter Summary

With the need for early childhood assessment, arises the need for relevant developmental assessment in South Africa's multi-cultural context if children from diverse cultural and geographic backgrounds are to be served. The Griffiths Mental Development Scales – Extended Revised (GMDS-ER) was presented in this chapter as the assessment measure with the potential to meet South Africa's multi-cultural developmental assessment needs. The chapter provided a brief outline of the history of the Griffiths Scales leading to the development and revision of the GMDS-ER. A description of the Subscales of the GMDS-ER was provided, followed by an overview of research studies that have been conducted on the Scales to date to further accentuate the applicability of the GMDS-ER in the South African context. Various developmental assessment measures developed and/or adapted for use within South Africa's multi-cultural context were also briefly discussed which progressed to the conclusion that the GMDS-ER is the most applicable existing test for the South African developmental assessment context. The following chapter will present the problem statement and research methodology that guided the completion of this study.



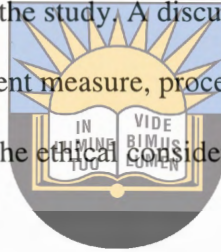
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## CHAPTER FOUR

### PROBLEM STATEMENT AND METHODOLOGY

#### 4.1 Chapter Preview

The purpose of research is to review or synthesize existing knowledge, investigate existing situations or problems, provide solutions to problems, explore and analyze more general issues, construct or create new procedures or systems, explain new phenomenon, generate new knowledge, and or a combination of any of the above (Collins & Hussey, 2003) through the use of appropriate scientific research methods (Kumar, 2005). As such, this chapter presents the problem statement and specific aims of the study. A discussion of the research design, the participants, sampling method, assessment measure, procedure, and data analysis follows. The chapter concludes with a discussion of the ethical considerations adhered to in the study.



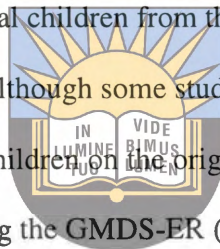
#### 4.2 Problem Statement

The developmental assessment needs of South African context and the potential for the GMDS-ER to meet these needs has been explored in the preceding chapters. Before information obtained from the GMDS-ER can be used accountably, knowledge needs to be accumulated on the performance of normal South African children on the Revised Scales as the GMDS-ER was standardized on a British norm group (Van Heerden, 2007; Van Rooyen, 2005; Von Wielligh, 2012). Until sufficient knowledge has been accumulated on the performance of normal South African children, (including those from a rural setting) the clinical utility of the GMDS-ER as a diagnostic or programmatic intervention tool is limited (Van Rooyen, 2005).

Emphasis has been put on the standardization of the GMDS-ER and the establishment of South African norms (Jakins, 2009; Van Heerden, 2007; Van Rooyen, 2005; Von Wielligh, 2012) to enhance the appropriateness, applicability and accuracy of this developmental measure

within the diverse South African context. The standardization of measures for groups they are being used for is essential for the interpretation of the results in a culturally fair manner (Foxcroft & Roodt, 2009). This process of standardization and development of South African norms can be further enhanced by an understanding of the performance of normal African children from a rural setting.

In view of the consideration that a majority of South African children can be classified as children “being at risk” (Foxcroft & Roodt, 2006) and the importance of a developmental assessment measure in South Africa which adequately meets their developmental needs, understanding the development of normal children from the disadvantaged South African rural setting becomes an important pursuit. Although some studies have been done previously on the performance of normal South African children on the original Griffiths Scales (Allan, 1992; Bhamjee, 1991) and recently a few using the GMDS-ER (Gowar, 2003; Kheswa, 2009; Schröder, 2004; Smit, 2008; Van Heerden, 2007; Van Rooyen, 2005; Von Wielligh, 2012) limited research has been done focusing on African children from a rural setting. Furthermore, most studies have involved clinical populations (Van Rooyen, 2005). The current study thus becomes of relevance to provide an understanding of the development of normal African children from a rural setting and contributes to the broader study of enhancing the GMDS-ER’s potential to satisfy the assessment needs in the South African multi-cultural context, standardization of the GMDS-ER for use in the South African context with children from various backgrounds, and development of the GMDS-ER’s South African norms (Van Heerden, 2007; Van Rooyen, 2005; Von Wielligh, 2012).



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### 4.3 The Research Question

The present study forms part of a larger study concerned with the standardization of the GMDS-ER and sought to explore and describe the general development of African rural children across the six subscales of the GMDS-ER and was not concerned with comparing variables or constructs. For the purpose of this study, African referred to black children and included children from countries to the north of South Africa.

The research question of the study was:

- How does a sample of rural African children perform developmentally as measured by the GMDS-ER?

### 4.4 Primary Aim of the Study

The primary aim of the study was to explore and describe the developmental performance of African children between the ages of 5 and 7 years from rural communities in the Amathole region, using the Griffiths Mental Development Scales - Extended Revised. The specific aims derived from the primary aim were the following:



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- a) To explore and describe the developmental profiles of African children from a rural setting by utilizing the general developmental quotient of the GMDS-ER.
- b) To explore and describe the developmental profiles of African children from a rural setting across the six developmental areas as represented by the subscales of the GMDS-ER.
- c) To make qualitative links between the developmental profiles of African children from a rural setting (as based on the GMDS-ER) and the qualitative information gained from clinical interviews and observations.

The first two aims of the study focused on gathering quantitative data whereas the last aim focused on the qualitative aspect of the study. As a result, the study was of relevance to provide exploratory information on the developmental patterns of African children between the age of five and six from a rural setting as well as providing an initial step towards understanding the influence of a rural setting on their general development.

In identifying their developmental profile, areas of strengths as well as areas of weaknesses requiring assistance were identified. This study will therefore assist both parents and professionals in acquiring the necessary developmental knowledge and skills to promote their children's well-being. This information can further be utilized in the development of therapeutic and academic programmes which will allow for the appropriate intervention and stimulation in the developmental areas of concern.



#### 4.5 Research Design

In order to achieve the aim of the study, a descriptive-exploratory design was employed in an attempt to describe and explore the general development of a sample of African children from a rural setting. According to Terre Blanche, Durrheim, and Painter (2008) a research design is a strategic framework for action that serves as a bridge between the research question and the execution or implementation of research. It seeks to plan and structure a given research project in such a way that the eventual validity of the research findings is maximized (Mouton & Marais, 1996). A descriptive-exploratory design aims at providing an accurate and detailed description of a given phenomenon or construct (Christensen, 1997), and involves the systematic examination and organization of carefully observed information about a specific phenomenon or construct (Cozby, 1993).

Exploratory studies employ an open, flexible and inductive approach to research, as they attempt to look for new insights into phenomena. Collins and Hussey (2003) state that an exploratory study seeks to identify patterns and ideas, rather than testing or confirming a hypothesis. However, even though exploratory research might not yield definite answers, it is considered to be an essential step in research, since it creates a foundation for further research inquiry (Gravetter & Forzano, 2012; Rosnow & Rosenthal, 1993). As such, an exploratory approach was adopted as it allowed the researcher to investigate an area about which little is known (Kumar, 2005), as was the case in this present study. Also, it helped acquire insight into the development and performance of African children using the GMDS-ER.

Descriptive research on the other hand according to Leary (1991) can be defined as the description of the thoughts, feelings or behaviours of a particular group of participants. Its descriptive procedures often seek to understand naturally occurring behaviours (Elmes, Kantowitz, & Roediger III, 1991), and may have methodological and ecological base (Timberlake & Silva, 1994). As a result, a descriptive procedure was of significance in this study which had a specific geographic focus of children from a rural South African setting and which sought to provide an in-depth outline of the behavioural indicators of their development. However, a disadvantage with descriptive research as outlined by De Vos, Strydom, Fouche, and Delpont (2000) is that it does not enable the identification of the cause of a phenomenon.

In order to achieve the aims of the study a multiple case study method, incorporating both qualitative and quantitative data was utilized. Quantitative approaches generally answer what, and how questions, whereas qualitative approaches explore why issues (Terre Blanche et al., 2008). The advantages of making use of the case study design include the following:



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- Adopting a multiple case study approach allows the researcher to base the study on an in-depth investigation of an individual or group, in order to explore and identify underlying principles (Yin, 2009).
- Due to the fact that case study research investigates a phenomenon within its real-life context and relies on multiple sources of evidence (Yin, 1994), it can provide a much richer and more vivid picture of the phenomena under study (Marshall & Rossman, 1999).

Consequently, adopting a multiple case study for this study enabled an in-depth identification and exploration of the underlying principles and developmental patterns in the general development of a sample of African children from a rural setting.



However, in spite of the above mentioned benefits, there are disadvantages associated with using this form of research. These include the following:

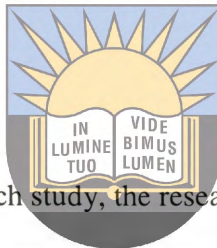
- Case studies have been criticized for making it impossible to generalize findings to a wider population of people (Barnes, Christensen, & Hansen, 1994) as they often do not prioritize sample representativeness.
- Where participant observation is used, there is potential for researcher bias, both in data collection and analysis (Elmes et al., 1999).
- In a study that relies on observed behaviour, as was the case in the proposed study, behaviour may be altered if an individual knows they are being tested (De Vos, Strydom, Fouche, & Delport, 2002).

To deal with these identified disadvantages, generalization of findings was not prioritized and use of adequately trained personnel in the study was prioritized. In spite of the identified disadvantages a multiple case study remained a method of choice. Its appropriateness was based

on the fact that it allowed the study to explore and describe the different areas of development of children from rural areas without any intervention on the part of the researcher. Children were observed in a natural activity – play.

Furthermore, quantitative and qualitative data formed the basis of this study by combining quantitative scores from the GMDS-ER with qualitative interpretations retrieved from the clinical observations and biographical questionnaire. The standardized developmental test provided a measurement of each participant's general developmental profile as well as performance on the six subscales of the GMDS-ER while the qualitative data provided further insight into the participant's worlds.

#### 4.6 Sampling and Participants



In defining the object of a research study, the researcher is specifying who or what they want to draw conclusions about (Terre Blanche et al., 2008). This is an essential step for delineating the target cohort and subjecting it to further research. Children between 5 and 6-years from towns in the Amathole district were the unit of analysis. These children were acquired from two preschools in Alice town and were mainly from Alice, Hogsback, and Middledrift communities in the Amathole district.

##### 4.6.1 Sampling methods

A non-probability purposive sampling method was used to collect the sample for the study. This type of sampling allowed the researcher to purposefully select the sample group on the basis of certain characteristics (Tonkiss, 2004) and is useful when describing a phenomenon about which little is known (Kumar, 2005) as was the case in the present study. The main characteristics in this study were that a possible participant should be enrolled at a pre-school, reside in the Amathole district, be within the age range of 5 and 6-years and should provide

written consent and a completed biographical questionnaire from the parent(s) or guardian(s) in order to participate. The biographical questionnaire was further used to screen possible participants for eligibility.

The advantage of non-probability sampling is that it is far less complicated, more economical, and can be conducted so as to take advantage of available subjects without the statistical complexity of a probability sample. The researcher's skill and knowledge in selecting subjects is employed as another advantage of the sampling method. However, the disadvantage of such sampling on the other hand, is that in non-probability sampling, the probability of a person being chosen as a research participant is unknown since the researcher does not know the size or the members of the population (Gravetter & Forzano, 2012). As such, external validity is not obtained as the sample may not be representative of the population and the results may therefore be biased (Graziano & Raulin, 2008). This study sought to explore and describe the general development trends of five rural towns in the Amathole region, the focus was not to generalize findings and external validity was not of key importance and therefore a purposive sampling approach was appropriate to use for this study (Elmes et al., 1999).



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#### **4.6.2 Description of the sample**

In a case study research there are no hard-and-fast rules about how many cases are required to satisfy this strategy, according to Yin (1994), six to ten cases may be sufficient. As a result, a sample of 12 South African children between the age of five and six living in the rural areas of the Amathole region was utilized. This sample size accommodated for any withdrawal of possible participants due to various factors such as not fitting the selection criterion. Since multiple case studies do not support generalization of findings, sample representativeness was

not prioritized in the study. Instead, the number of cases required to reach saturation was of focus.

The participants primarily consisted of Xhosa-speaking and English-speaking children. Special care was taken to ensure that the results for Xhosa speaking children were not skewed due to, amongst other elements, the language barrier (Foxcroft et al., 2004; Luiz, Barnard, et al., 2006).

Numerous studies have confirmed that gender differences in children do exist (Gallahue & Ozmun, 2006) although contradictory results have been reported (Van Heerden, 2007). As a purposive sampling procedure was employed in the present study, it was difficult to include equal numbers of participants across the two genders or age cohorts. Although this configuration, especially the former, was not significantly related to the objectives of the current study, it would have further shed light on the performance of the sample across genders.

Another challenge in multi-racial assessment is the differences in performance due to the influence of the ethnic group. However, previous studies (for example, Allan, 1992; Barnard, 2000) have found that ethnic group is not a predictor of performance on the original Griffiths, and thus its influence on the overall outcome should be negligible (Van Rooyen, 2005). Furthermore, since various factors influence the development of children, controlling them in the study was not possible or done and will be acknowledged in the limitations of the study.

#### **4.6.3 Inclusion criteria**

In purposive sampling, participants are “selected on the basis of having a significant relation to the research topic” (Tonkiss, 2004, p. 199). As a result, the inclusion criterion for the sample was according to age, location, and normalcy:

#### 4.6.3.1 Age

Only children between the ages of 5-years 0 months and 6-years 11 months were included in the sample. Children within this age group were chosen as they are at a critical age of transition into formal schooling and late childhood. In South Africa children are by law compelled to begin their first grade in the year in which they turn seven and younger children may be enrolled with the necessary evidence (for example, a psychological report or assessment) of developmental readiness in all areas of development (Department of Education, 2002). As such, this age range is of particular importance for parents who are faced with a question of whether or not their child is developmentally ready to cope with the demands of formal schooling (Knoesen, 2003).



Furthermore, Bhamjee (1991) states that there is a possibility that age can exert an influence on the performance. As such, children of the ages of 5-years were not included in the study as they may influence a negatively skewed and poor overall developmental performance, whilst those above 6-years may have a higher level of maturity or mental development compared to the study's age group.

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#### 4.6.3.2 Location

Differences have been found to exist between children from rural and urban areas in test performance (Allan, 1992; Jansen, 1991). This variable was controlled for by building it into the design and selecting only subjects who resided in the locations in the rural communities in the Amathole district. Participants were chosen from two playschools from Alice town in the Amathole region. These playschools were chosen because they cater for children from surrounding rural communities in Alice, Hogsback, and Middledrift where there is prevalence of

various forms of deprivation and poverty - factors which have an influence on the development of these children.

#### 4.6.3.3 Normalcy

To ensure a relevant sample configuration, all the children were screened for normalcy by means of a biographical questionnaire before being included in the sample. The biographical questionnaire was incorporated to act as a screening measure to identify factors in a potential participant's developmental history which may negatively influence their performance on the GMDS-ER. Potential participants who had been identified with either a mental or physical disorder did not form part of the research sample as their research results could have been skewed.



### 4.7 Data Collection Methods

As highlighted above, multiple case studies incorporate a variety of types of data to adequately inform a phenomenon (University of Fort Hare, 1994). Not all kinds of information can be adequately recorded using quantitative data. In many cases, language provides a far more sensitive and meaningful way of recording human experiences. The study thus incorporated both quantitative and qualitative data collection methods to acquire widespread data on the development of the sample of African children from a rural setting. This was achieved by combining quantitative scores of the Griffiths Mental Development Scales – Extended Revised (GMDS-ER) with qualitative interpretation of information gained from the biographical questionnaire as well as clinical interviews and observations during testing.

#### 4.7.1 The Griffiths Mental Development Scales – Extended Revised

The potential of the GMDS-ER to adequately meet the important aspects of child development in a contemporary South Africa has been highlighted in the previous chapter. The

GMDS-ER involves a comprehensive assessment of the mental development of young children. This involves a comprehensive investigation of a child's abilities, including motor, social, and cognitive abilities by direct observation, testing and reports from caregivers (Bondurant-Utz & Luciano, 1994; Meisels, 1996). It is in this regard that the GMDS-ER was chosen to provide comprehensive information on the overall developmental level of the children in this study instead of using a battery of tests. Participants were assessed on the Griffiths Scales at their preschools in Alice town with the test duration varying from one and a half hours to over two hours for each child. However, since some of the children got tired in the middle of the test session, with some being tested in the afternoon due to the allocated playschool time, their assessment was spanned over two sessions.



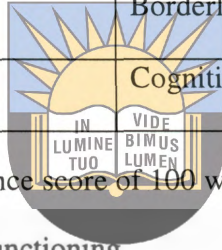
The mental age, general quotient and sub-quotients on each of the six subscales was obtained for each child. Based on the general and sub-quotient scores, the performance of the child was interpreted according to the grading system depicted in Table 4.

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Table 4

*Descriptive categories of sample's scores: Intellectual or mental range of functioning*

Intellectual or Mental Range of Functioning	Description
146 and higher	Very superior
130 – 145	Superior
116 -129	High average
85 – 115	Average
70 – 84	Low average
55 – 69	Borderline case
54 and below	Cognitively handicapped



Any participant with a performance score of 100 would thus fall within the category that suggests an average level of ability or functioning.

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**4.7.2 The biographical questionnaire**  
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Foxcroft and Roodt (2001) ascertain that assessment practitioners need to have a thorough knowledge of the individuals being assessed prior to assessing them. This is because test performance can be influenced by various factors which include the personal circumstances and emotional or physical well-being of the test taker (Foxcroft & Roodt, 2001). As such, a biographical questionnaire, a measuring instrument that is currently being utilized in all GMDS-ER studies, was used to collect relevant biographical and developmental data of participants.

The biographical questionnaire enabled the researcher to gather information on the child's age, gender, race, and geographic area amongst other requirements from the parent(s) and guardians of potential participants. It also provided information such as the participants' birth history, attainment of developmental milestones and their development in various personal-social

areas. This information provided qualitative data to understand the history of the participants and was used to help determine whether a participant is eligible for inclusion in the study to assure a normal sample. All the participants chosen in the sample had no physical or mental disabilities, and therefore were normal children.

The biographical questionnaire was designed with the respondent's level of education in mind, that is to say, it was easy to read and understand and was also translated into Xhosa to accommodate the Xhosa-speaking respondents. Furthermore, information on the parents' education, occupation and living conditions was acquired through the questionnaire providing needed information to further understand the world of the participants, their nature of stimulation and consequently their overall development. The biographical questionnaire thus also acted as a screening measure and to identify factors in a participant's developmental history which may influence their performance on the GMDS-B.



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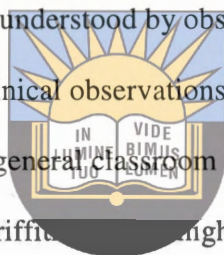
The biographical information questionnaire was completed by the parents and guardians of the participants with assistance from the playschool teachers who further highlighted the importance of participation to the potential participants' parent(s) and guardian(s) and distributed and collected the questionnaires once completed. This ensured that all the relevant information was accurately and sufficiently provided before final submission to the researcher. Furthermore, clarity on the questionnaire was given to the parent(s) and guardian(s) and requested by the researcher. This was done to further cater for the differing literacy levels of parent(s) and guardian(s) and ensure that the most accurate data was collected and used in the data analysis and results of the study. (*See Appendix A for the Biographical Questionnaire*).

### 4.7.3 Clinical interviews and observations

Clinical interviews and observations were also used to further aid the above two data gathering methods. According to Vonk, Tripodi, and Epstein (2007) clinical interviews and observations are flexible and relatively inexpensive data collection methods which provide clinicians with simultaneous samples of clients' verbal and nonverbal behavior. The clinical interview was a vital part of assessment as it provided deep insights into children's thinking (Ginsburg, 1997) and a context in which to understand test results. Unstructured clinical interviews were done with the participants, teachers and parent(s) or guardian(s) of the participating children. Interviews were done with the participants within the interactive testing environment between the examiner and the child being tested. In some instances the examiner asked the child if they had a particular test item at home or asked general questions to introduce a new test item. From these conversations, valuable information was acquired of the participants' familiarity with test items as well as the context of the environment they come from. The authenticity of such information was later verified with the parent(s) or guardian(s) and teachers of the participant were relevant. The clinical interviews with the parents or guardians were based on the identified needed information from the biographical questionnaire's responses to acquire more clarity on certain aspects of participants' development history, developmental milestones and behaviour patterns. According to Ginsburg (1997) in employing the clinical interview, the examiner – practitioner or researcher – literally treats each child differently. As such, this method enabled understanding of each participant as a unique individual in this study.

Furthermore, clinical interviews enabled observation and evaluation of general appearance and behavior, mood and affect, perception, comprehension, orientation, memory, thought process, and/or communication (Groth-Marnat, 2009) of the interviewees. Heppner,

Kilvighan, and Wampod (2008) state that self-reports may be biased, or purposely distorted, hence observational data can provide more objective and verifying information and may supplement other data as part of a multiple-assessment approach (De Vos et al., 2002). Clinical observations of participants consisted of observations made by a skilled assessor – the researcher - in the natural school environment during testing, play and natural interactions with peers, preschool teachers and parents or guardians. Observing participants in this natural setting provided a background that is realistic and relevant for understanding the participants' unaltered behaviour without much interference from the researcher. This was relevant as highlighted by Vygotsky that development can be best understood by observing the individual in social activity (Crandell, et al., 2011). Furthermore, clinical observations of the teachers' interactions with the children during classes, play activities, general classroom setup and preschool environment was done. As Vygotsky (1962; 1978) and Griffiths highlighted in their child development views, children are a by-product of their interactions with their environment, culture and significant others whom they are in social contact with.



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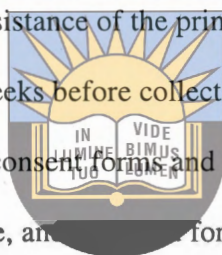
Documentation of data from the clinical interviews and observations was done immediately after the interview or assessment of a participant to ensure that important data was not forgotten or inaccurately recorded. As a result, the expertise of the trained and knowledgeable test administrator was of significance to enhance a more accurate and reliable data collection process.

#### **4.8 Procedure**

The following procedure was followed in order to achieve the aims of the study within the acceptable ethical requirements:

#### 4.8.1 Informed consent

To ensure compliance with ethical guidelines, the researcher initially sought approval for the project from the Faculty Research and Higher Degrees Committee. Once the proposal had been accepted and the necessary alternations made, permission to conduct the study was sought from possible identified playschool(s) in the Amathole district. The playschool principals were informed of the purpose and procedure of the study (*see Appendix B*) and potential participants were identified. With the assistance of the playschools, request letters, consent forms (*see Appendix C and D respectively*) as well as the biographical questionnaires were distributed to the parent(s) and guardian(s) through the assistance of the principals and discussed with the respective parents and guardians four weeks before collecting the data. This period was chosen to give sufficient time for the informed consent forms and biographical questionnaires to be completed, returned, corrected if need be, and approved for eligibility. The researcher also provided an opportunity for discussions with the parent(s) and teachers in order to allow for clarification of any questions that they and the researcher may have.



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#### 4.8.2 Administration procedure

The use of the Griffiths Scales of Mental Development, including the GMDS-ER, is restricted to professionals who have satisfactorily completed a training course accredited by the Association for Research in Infant and Child Development (ARICD) in the administration of the Scales (Luiz, Barnard, et al., 2006). According to Luiz, Barnard, et al., (2006) it is essential that the administration of the Scales follows the instructions on the Administration Manual if the results of the assessment are to be reliable and comparable with the standardization norms. As such, the researcher, who is also a trained GMDS-ER user, conducted the assessments. This enabled the researcher to spend individual time with the participants and provided clinical

interviews and observations that aided the understanding of the participant's developmental performance. This further assisted in providing a holistic discussion of their development.

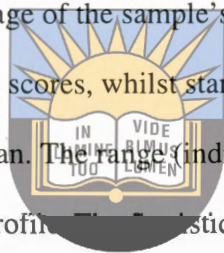
Standardized equipment has been used in the development of the GMDS-ER and thus only standardized equipment provided by the ARICD approved supplier (Luiz, Barnard, et al., 2006). The Administration Manual, Record Book and Record Form developed for use with the GMDS-ER (1996 revision) for testing babies and children from birth to 8-years were used. The Record Book and Administration Manual identify which items in the subscales should be demonstrated, can be given two trials, must be administered after a practice item, and/or can be scored on the basis of a parent or carer's report (Luiz, Barnard, et al., 2006). A good understanding of the subscales items and their instructions was thus important to ensure that administration was naturally free-flowing and sequential, hence the use of a trained GMDS-ER administrator.



The assessment of participants was conducted with the playschools and also conducted at the playschools. Irrespective of the location, Luiz, Barnard, et al., (2006) state that care should be taken that the testing area is free of distractions to ensure that the child focuses on the tasks presented during assessment. As assessment was done in playschools, care was taken to ensure that no other toys were visible to the participants. Individual reports of research participants were compiled and feedback was given to the parents or legal guardians and playschool principals regarding the performance of the participants. The need for further assessment by appropriate professionals for children identified with possible developmental problems was discussed with the parent(s) or guardian(s) of the respective participants. After compilation and completion of the research treatise a copy of the final report was provided to the participating playschool(s).

## 4.9 Data Analysis

The capturing and analysis of data followed data collection. Irvine and Gaffikin (2006) define data analysis as the organization, selection, interpretation and presentation of data to build a theoretical version of reality. The data was analyzed according to the specific aims of the study. In order to meet the first two aims of the study and due to the descriptive-exploratory nature of the study, the researcher used descriptive statistics and frequency tables to describe and analyze the data collected. Descriptive statistics were employed to describe the African sample's performances on General Quotient (GQ) as well as each of the six subscales of the GMDS-ER. The mean was used to describe the average of the sample's performance on the assessment measure and to indicate the centre of the scores, whilst standard deviations were used to describe the dispersion of the scores from the mean. The range (indicating the highest and lowest scores) served to enrich the description of the profile. The Statistical Package for the Social Sciences (SPSS) was used for statistical analysis. A profile depicting the children's general performance and on each of the subscales was constructed using general quotient and sub-quotients.



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As the GMDS-ER has not been standardized for use in South Africa, criterion-based referencing was the method of choice in analysis of the sample's performance on the GMDS-ER. Criterion-based referencing was utilized by converting quotients based on the child's chronological age and means that each child's performance was compared to him or herself instead of using norms developed in the United Kingdom. Interpreting test scores in this manner is at present the most appropriate system to use for South African samples (Foxcroft, 2004) as GMDS-ER South African norms have not yet been developed (Van Heerden, 2007; Van Rooyen, 2005; Von Wielligh, 2012).

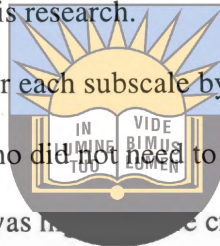
To further ascertain the importance of development of South African norms in using the GMDS-ER, a comparison of the sample's performance using both criterion-based and norm-based referencing was done. A One Way Anova post hoc analysis was done to make inferences on the sample's means between the two analysis methods.

#### 4.9.1 Scoring of participants' performance

Scoring was done on the Record Book following the guidelines on the Administration Manual of the GMDS-ER. The GMDS-ER can either be scored manually or by using a computerized scoring program developed for use with the Griffiths Scales (Luiz, Barnard, et al., 2006). Manual scoring was utilized in this research.

Raw quotients were calculated for each subscale by adding the scores of each participant from section I to section IV. Children who did not need to be administered items from the birth and 2-years scales (because their basal was higher) were credited with a score of 12 months for each of sections I and II which represent the first and second years (Luiz, Barnard, et al., 2006). Notably, all the children in the sample were credited for the first two sections on all six subscales. The general quotient for each participant was calculated by taking the average of the raw scores (sub-quotients) for the six subscales. The general and sub-quotients were graphically represented and used to compute the developmental profiles of the children. In this way, exploration and description of the development of the participants was enhanced and the performance of the participants across the six developmental domains analyzed and discussed.

Performance on the Griffiths Scales was further analyzed by contrasting the mental age with the chronological age on each case study. According to Luiz, Faragher, et al., (2006) a lower mental age compared to the chronological age may be an indication of a possible developmental delay or difficulty. Luiz, Faragher, et al., (2006) further states that when



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analyzing the results of the GMDS-ER the examiner should look not only at items scored as passes, but include items advanced for the child's age in order to determine patterns of strengths using the construct model for each subscale. Similarly, items scored as fails can be used to determine patterns of weakness using the same model. These items were taken into consideration in discussion of the sample's performances.

A statistical summary was utilized to aid in the process of scoring and interpreting the quantitative data obtained from the GMDS-ER and to make the interpretation of the data easier. This allowed the recorded data to be organized and interpreted (Graziano & Raulin, 2000) in a satisfactory manner.

#### **4.9.2 Thematic analysis**



Following this analysis, the researcher considered the data obtained across the case studies. Thematic analysis was used to meet the third aim of the study and identify shared themes related to describing the development of the sample. Thematic analysis is an approach to data analysis that involves the creation and application of codes to data (Dey, 1993; Miles & Huberman, 1994). A theme captures something important about the data in relation to the research question, and represents some level of patterned response or meaning within the data set (Braun & Clarke, 2006). Thematic analysis thus involved obtaining an overview of the material and identifying patterns and major ideas emerging from the data. According to Dey (1993) a decision of what counts as a category can be made from theory, literature, research experience, and data collected. As such in this study, themes were developed from the clinical interviews and observations and data gathered from the biographical questionnaires which were linked to the developmental profiles and performances on the GMDS-ER of the participants making up the case study.

### 4.9.3 Data quality

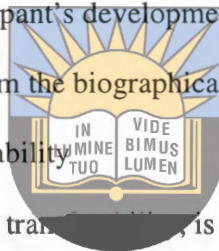
Guba (1981) proposed "trustworthiness" as a surrogate measure for validity and reliability in qualitative analysis. By structuring the study to address Guba's (1981) four aspects of trustworthiness- that is, truth value, applicability or transferrability, consistency, and neutrality - the researcher hoped to achieve the following outcomes:

#### 4.9.3.1 Truth value

Truth value is concerned with the truth of the findings based on the research design, informants and context (Lincoln & Guba, 1985). The researcher aimed to provide an accurate exploration and description of the participant's development based on their performance on the GMDS-ER and reported experiences from the biographical questionnaires.

#### 4.9.3.2 Applicability or transferrability

Applicability, which is similar to transferability, is defined as the degree to which the findings can be applied to other contexts or groups (Kane, 1991) or can be generalized or transferred to other contexts or settings (Silverman, 2011). Applicability or transferability can be enhanced by the researcher doing a thorough description of the research context and the assumptions that were central to the research so as to enable the person who wishes to transfer the results to a different context to make judgment of how sensible the transfer is (Silverman, 2011). Although the completed study did not seek to achieve generalization of findings and thus applicability or transferability was less relevant, considerable effort was done to ensure that a satisfactory description of the research context was done and the assumptions underlying the research were made clear.



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#### 4.9.3.3 Consistency

Consistency is concerned with whether the findings can be replicated with the same respondents or in a similar context (Lincoln & Guba, 1985). Adequate descriptions of the data gathering methods, analysis and interpretation are provided to enhance replication and attainment of consistency (Krefting, 1991).

#### 4.9.3.4 Neutrality

Neutrality refers to the degree to which research findings are true and not influenced by other parties, motivations or perceptions (Guba, 1981). A review of the process of research, findings, interpretations and recommendations was done by the research supervisors to ensure that research findings are accurate and that comparable conclusions within the same context can be arrived at by another researcher (Krefting, 1991).



### 4.10 Ethical Considerations

Ethical guidelines formed an integral part of the proposed study to ensure the protection of the welfare and rights of the participants and to reflect the basic ethical values of respect for individuals (Ethics in Health Research in South Africa, 2000). As highlighted above, approval to conduct the research was acquired from the Faculty Research and Higher Degrees Committee. Upon their approval the following ethical considerations were enforced in the study:

#### 4.10.1 Informed consent

Permission was sought from the principals of the identified play school(s) as well as from the parents or guardians of potential participants. Foxcroft and Roodt (2006) state that children deserve and should be informed well in advance when and where the assessment measure is to be administered, the nature of material it contains, and what will be assessed. As such, written informed consent from the parents or guardians was acquired through a consent form

accompanied by a cover letter outlining the purpose, procedures and all possible risks and benefits of the study. These documents were translated to Xhosa to accommodate the Xhosa-speaking respondents. The participants' and parents or guardians' freedom to withdraw from the course of the study was emphasized to encourage free participation.

As administration of the GMDS-ER is based on a universally child friendly and relevant activity namely play, test administration was viewed more as a play session and a familiar part of participants' daily activities. Verbal consent for participation was acquired from the possible participants by highlighting that the examiner would like to spend time with them and play with some toys as directed and shown by the examiner. The children were fascinated by the test items and were thus eager to be part of the developmental test. Furthermore, the participating child was informed of their freedom to stop being involved in the play if they no longer wanted to play or were tired.



The administration of the GMDS-ER to all participants had informed consent had been obtained by the researcher from the parent(s) or guardian(s) and the concerned child (See *Appendices D & E for the parent or guardian request letter and the consent form respectively*).

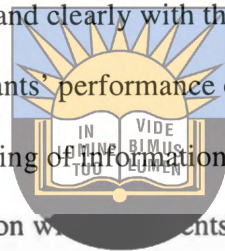
#### **4.10.2 Risk of harm**

Cook and Cook (2005) emphasize that the least stressful research procedures must be followed at all times. Many of the GMDS-ER test items are based on natural play activities such as running, talking, drawing, playing with dolls amongst other activities (Luiz, Barnard, et al., 2006). This enabled the process of data collection to be natural and enjoyable to the participants. As such, no harmful or stressful procedures that could affect the participants physically or psychologically were used. However, although the Griffiths Scales were constructed according to such a "universal activity" (Kagan, 1981) caution was taken in administration of the items,

especially the locomotor items. Furthermore, although there was a possibility that participants may become attached to certain test items and thus may want to hold on to them and not freely proceed to other test items, the few participants who showed such attachment were informed that there were more items to explore and though reluctantly, were able to proceed with the test without crying or being emotionally affected.

#### **4.10.3 Confidentiality and privacy**

According to Craig (1996), it is regarded as beneficial treatment for a child and parents or guardians to receive feedback on the results of the test. Consequently, participants' performance on the GMDS-ER was shared carefully and clearly with the parents and guardians. To ensure confidentiality and privacy, the participants' performance on the Griffiths Scales will only be used for the purposes of this study. Sharing of information with other professionals will be for referral purposes and done in consultation with the parents and guardians of a participant who was identified to be experiencing developmental delays or difficulties.



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Furthermore, the participants, parents or guardians and playschools were not identifiable in the final report of the treatise.

#### **4.10.4 Inclusion/Exclusion criteria**

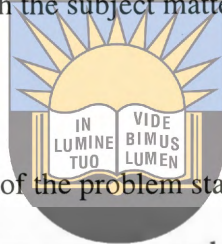
According to the Ethics in Health Research in South Africa (2000), individuals should not be unjustly or inappropriately excluded based on their age, gender, race, religious beliefs, or disability. In this study, the inclusion and exclusion of the research participants was based on the participants having a significant relation to the research topic (De Vos et al., 2002; Tonkiss, 2004), and was done fairly and justly based on the ethical principles. African children between the age of five and six from a rural setting of Amathole district without any identified or reported possible neurological problems were eligible as participants.

#### 4.10.5 Investigator competence

Only trained personnel are allowed to use the GMDS-ER (Luiz, Barnard, et al., 2006), as such the administration of the GMDS-ER was conducted by a suitably trained administrator of the GMDS-ER. Trained GMDS-ER administrators are equipped to conduct the assessment, scoring of the assessments as well as the interpretation thereof. The use of trained administrators is an important factor in enhancing the reliability and relevance of the test as well as test results (Foxcroft et al., 2004). Investigator competence was further ensured through a process of guidance and supervision by a supervisor and technical support from personnel who have extensive knowledge and experience with the subject matter under investigation.

#### 4.11 Chapter Summary

This chapter provided an outline of the problem statement, specific aims of the study as well as the research design and assessment measures used. This was followed by the procedure, data analysis and ethical considerations addressed to in the study. The following chapter presents a discussion and interpretation of the results of the gathered data.



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## CHAPTER FIVE RESULTS AND DISCUSSION

### 5.1 Chapter Preview

This chapter presents the findings of the research study according to its specific aims. The primary aim of the study was to explore and describe the developmental performance of African children between the ages of 5 and 6-years from Alice, Hogsback, and Middledrift communities in the Amathole region, using the Griffiths Mental Development Scales – Extended Revised (GMDS-ER). The empirical findings of the study are presented in terms of:

- a) Descriptions of the performance of the African preschool children utilizing their general developmental quotient.
- b) Descriptions of their performance across the six subscales utilizing their developmental sub-quotients.
- c) Qualitative links between the developmental profiles and qualitative information gained from clinical interviews.



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A description of the characteristics of the sample precedes the discussion of the research findings.

### 5.2 Sample characteristics

The sample size in this study was 12 participants. Two year groups of 5-year old and 6-year old children made up the sample. When converting the chronological age in years into months the following month-equivalents were obtained for 5-year old children: 60 - 71.9 months, and 72 -83.9 months for 6-year old children. Table 5 shows a breakdown of the resulting sample's characteristics according to gender, converted monthly-equivalents, location, home language, and caregivers.

Table 5

*Breakdown of resulting sample characteristics*

Participant	Gender	Age - monthly equivalent	Home language	Caregiver
A	F	64.8	Xhosa	Grandmother
B	F	68.2	Xhosa	Both parents
C	M	66.2	Xhosa	Both parents
D	M	61.7	English	Both parents
E	F	78.1	Xhosa	Grandparents
F	F	70	Xhosa	Both parents
G	F	64.7	Xhosa and Venda	Grandparents
H	F	69.7	Xhosa	Mother
I	F	64.3	Xhosa	Grandmother
J	F	74.5	Xhosa	Mother
K	M	64.3	Xhosa	Grandmother
L	M	63.1	Xhosa	Both parents

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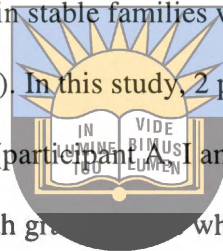
The gender and age distribution of the sample was not reasonably proportionate with 4 males and 8 females, and 10 participants in the 60 - 71.9 months and 2 in the 72 - 83.9 months based on the availability of the potential participants. This gender and age distribution did not enable the researcher to make an effective statistical comparison of the genders' and age groups' performance on the GMDSR-ER to add to the explorative-descriptive nature of the study and was thus restrictive. It is important to note, however, that representativeness of the sample was not emphasized as the research findings will not be generalized to the wider population of 5 to 6-year old African children.

The majority of the participants (10) were Xhosa speaking. One participant (participant D) was English speaking whilst participant G spoke Xhosa and Venda. Bilingual and English

speaking African children are common in South Africa's multi-cultural context. All the children in the sample received instructions in English and Xhosa at the playschools. Although the influence of language on children's performance cannot be overlooked, research reveals that the Griffiths Scales have been successfully used to assess children of various language groups, including English, Afrikaans, and Xhosa (Allan, 1992).

An increase in orphans, child-headed households, divorce and single parenting are some of the challenges facing South African children in light of the plague of HIV/AIDS (UNICEF, 2007; Preller, 2012; Meintjes & Hall, 2013). However, statistics also show that a significant percentage of African children are born in stable families where they are well taken care of (Meintjes, Hall, Marera, & Boule, 2010). In this study, 2 participants (participants H and J) were raised by single mothers, 3 participants (participant A, I and K) by single grandmothers, 2 participants (participant E and G) by both grandparents whilst 5 participants (participant B, C, D, F, and L) were raised by both parents. The single mothers reported that they were working and had attained higher education and advanced level qualifications, respectively. All single grandmothers and the grandparents of participant E were not working whilst those of participant G were self-employed. Both parents of participants B, C and L were working whilst only the fathers of participants D and F were working. Research has shown that working African mothers do not often have sufficient time to spend with their children after long working hours (Von Wielligh, 2012). However, the benefits of working often outweigh those of being unemployed.

The following sections will provide descriptive profiles of the overall performance of the sample using general quotients and sub-quotients across the six developmental areas measured by the GMDS-ER. Descriptive categories outlined in Chapter 4 were used to distinctively discuss the sample's performance (see Table 4). Criterion-based referencing was utilized in this study as



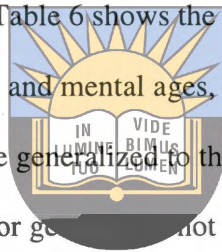
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norms for the South African population have not been developed. However, a comparison of the sample's performance using norm-based referencing was done to highlight the differences in performance within these forms of data analysis.

### **5.3 Aim 1: Developmental profiles utilizing the general developmental quotient of the GMDS-ER**

#### **5.3.1 Description of sample's general development profiles using criterion-based referencing**

The first aim of the study focused on the general development of the sample, which refers to the overall development of the child. Table 6 shows the breakdown of the overall sample's and two age groups' mean chronological and mental ages, general quotients and ranges. As already mentioned, the results will not be generalized to the wider African population as such representativeness of the sample by age or gender was not prioritized.

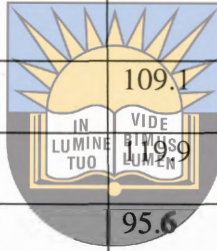


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Table 6

Participants' mean chronological and mental ages, general quotients and ranges

	MONTH-EQUIVALENTS		
	60 - 83.9 months	60 – 71.9 months	72 – 83.9 months
	n = 12	n = 10	n = 2
Mean CA	67.5 months	65.7 months	76.3 months
Mean MA	72.7 months	71.7 months	77.8 months
General developmental functioning	5.2 months above CA	6 months above CA	1.5 months above CA
Mean GQ	107.9	109.1	102
Highest GQ	119.9	109.9	102.4
Lowest GQ	95.6	95.6	104.5
Range	24.3	14.3	0.9



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The mean general quotient (GQ) obtained by the African sample on the GMSD-ER using criterion-based referencing was average ( $X$  GQ = 107.9; SD = 7). The children in the 60-71.9 month-equivalents had a mean general quotient score of 109.1 whilst those of the children in the 72-83.9 month-equivalents had a mean score of 102. Both age groups' scores fell in the average descriptive category (see Table 4 in Chapter 4). Table 7 shows a category breakdown of the sample's general development performance.

Table 7

*Sample's general development performance*

Category description	Category range	Number of participants	Participants
High average	116 – 129	2	G and L
Average	85 – 115	10	A, B, C, D, E, F, H, J, and K

The results show that 10 of the participants' performance on GMDS-ER was average, whilst 2 participants (participants G and L) obtained high average scores. None of the participants had very high or very low levels of ability. According to the results none of the children in the sample experienced any developmental delays according to their general quotient profiles and none had exceptionally high levels of development.



**5.4 Aim 2: Developmental profiles using the sub-quotients of the GMDS-ER**

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**5.4.1 Sample's performance on the six subscales of the GMDS-ER using criterion-based referencing**

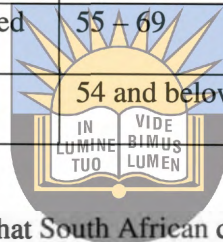
To further understand the development and performance of the African sample on the GMDS-ER, discussions of the sample's performance on the six subscales are done. Table 8 outlines the participant's developmental sub-quotients on the GMDS-ER.

Table 8

The developmental sub-quotients of the participants

Participant	Gender	CA	GQ (C)	Subscale A	Subscale B	Subscale C	Subscale D	Subscale E	Subscale F
A	2	64.8	108.6	120	117	90	123	105	96
B	2	68.2	109.1	120	106	94	120	106	109
C	1	66.2	95.6	112	112	82	82	85	103
D	1	61.7	107.5	110	107	104	120	78	126
E	2	78.1	101.5	115	108	92	102	105	87
F	2	70	105.1	117	117	69	126	97	106
G	2	64.7	119.9	127	117	99	124	136	117
H	2	69.7	113.8	126	123	106	129	95	103
I	2	64.3	114.2	124	112	93	131	118	106
J	2	74.5	102.4	99	115	81	115	97	107
K	1	64.3	99.5	112	118	75	103	81	109
L	1	63.1	117.3	133	114	105	127	111	114
MEAN		67.5	107.9	117.9	113.8	90.8	116.2	101.2	106.9
SD			7	9	5	12	14	16	10
RANGES			24.3	28	17	31	49	40	39

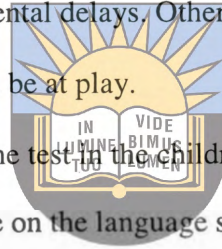
Color	Descriptions - Intellectual or mental range of function	
Dark Purple	Very superior	146 +
Blue	Superior	130 – 145
Light Blue	High average	116 – 129
Green	Average	85 – 115
Red	Low average	70 – 84
Yellow	Borderline developmentally delayed	55 + 69
Light Red	Developmentally delayed	54 and below



It has been highlighted in research that South African children generally obtain their highest scores on the locomotor subscale of the GMDS-ER (Wills, 2012) which was also true for the children in this study. From the table it can be seen that 7 participants in the sample had high average (participants A, B, F, G, H, and I) and superior (participant L) performances on the locomotor subscale. Participants C, D, E, J, and K had average performance scores. Participants E, G and L had their highest scores (average, high average and superior respectively) on this subscale whilst participants A, H and I had second highest scores (high average) following the eye and hand coordination subscale. Participant K had an average locomotor score performance, second highest after the personal-social subscale. Participant F had second highest scores (high average) in the locomotor and personal-social subscales.

The sample performed poorly on the language subscale ( $X_{AC} = 90.8$ ;  $SD = 12$ ), followed by the practical reasoning subscale ( $X_{AF} = 106.9$ ;  $SD = 10$ ) and thirdly, the performance subscale ( $X_{AE} = 101.2$ ;  $SD = 16$ ). According to Luiz, Barnard, et al., (2004)

experienced examiners may recognize that certain developmental profiles tend to be suggestive of specific developmental delays. For example, children with speech and language delay or hearing impairments typically perform poorly on the language, practical reasoning and personal-social subscales which are language dependent. Furthermore, children with a delay in fine motor skills tend to perform poorly on the eye and hand coordination and performance subscales. Although the sample's performance on the personal-social, language, practical reasoning and performance subscales were average they had a high average performance on eye and hand coordination subscale. As such, on observation the sample's performance on the six subscales does not point to any specific developmental delays. Other factors, which include inadequate stimulation at home and at school, could be at play.



Furthermore, the instruction of the test in the children's second language may be a factor influencing children's poor performance on the language subscale. Caution was however taken to minimize this factor by having a certified user of isiXhosa administering the GMDS-ER. However, it is noteworthy that the poor performance of the sample on the language subscale was not consistent with previous research on the GMDS-ER in which the performance on the language subscale by heterogeneous population groups was not the lowest of the six GMDS-ER subscales (Jakins, 2009; Van Heerden, 2007; Van Rooyen, 2005).

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An extensive discussion of the sample's performance on each of the six subscales follows underneath.

#### 5.4.1.1 Locomotor development

Descriptive data indicated that the mean performance for the sample on the locomotor subscale was 117.9 (SD = 9) showing a high average level of ability. The minimum score attained was 99 whilst the maximum score was 127, giving a range of 28. Table 9 shows a

summary of the sample's performance on the locomotor subscale in terms of the level of ability category breakdown.

*Table 9*

*Category breakdown of the performance of the sample on the locomotor subscale*

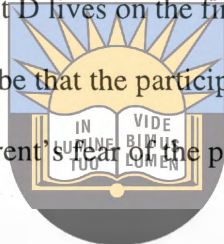
Category description	Category range	Number of participants	Participants
Superior	130 – 139	1	L
High average	116 – 129	6	A, B, F, G, H, and I
Average	85 – 115	5	C, D, E, J, and K



The results indicated that the children in the sample are well developed in terms of locomotor activities. None of the children seem to have significant limitations or difficulties in fine and gross motor skills. Several participants obtained scores in the superior and high average levels of ability, 5 in the average level of ability. Although relatively different studies in methodology and scope has been done on the original Griffiths Scales (Allan, 1998; 1992; Bhamjee, 1991; Mothuloe, 1990) and GMDS-ER (Jakins, 2009; Knoesen, 2003; Van Heerden, 2007) testing children from different population and age cohorts than the present study, it is still useful to review their findings as a benchmark against which to measure and compare this sample's performance. The review of the performance of the sample on the locomotor subscale has been consistent with other studies on the GMDS-ER in which the South African sample performed better on this subscale than the other subscales (Jakins, 2009; Knoesen, 2003; Smit, 2008; Van Heerden, 2007).

Although by the age of five, a child's cerebellum (which controls balance amongst other abilities) and cerebrum (involved with skilled movements) are nearly fully developed (Hurlock, 1981), participants A, B, C, D, K, and L could not static balance for 20 seconds; whilst all the participants could not skip a rope and only participant E was reported to be able to ride a bicycle with skill. Financial constraints were identified to be the main hindrance to most of the participants' acquisition of items such as bicycles. Participant A's grandmother stated that the participant was in the process of learning from someone who had a bicycle.

Furthermore, participant D was the only participant who failed to hopscotch at least 1 brick and jog at a steady pace. Participant D lives on the first floor in one of the few privately owned flats in the area, as such, it could be that the participant did not have sufficient time to play outside when at home due to the parent's fear of the participant falling or getting hurt playing up and down the stairs.



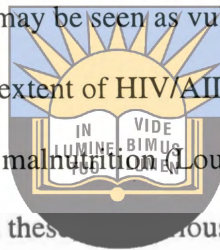
Participant J on the other hand had the lowest score in the sample. The participant was observed to be less involved in physical active play with other children. The participant's mother is single and working, as such, house mates sometimes assist with keeping an eye on the children when at work, with greater responsibility on the participant. The mother, however, reported that the participant plays with other children when at home and is involved in netball at school. Evidently, throwing, bouncing and catching a tennis ball were some of the items passed by the participant. However, the participant could not hopskip recognizably, hopscotch at least two bricks, jump a 25cm hurdle, and march in time to a tambourine. This was below the participant's developmental age being one of the two participants over 5-years old.

Also, the participant looks after a younger sibling; attends the same school as the sibling and is together with the sibling during break time. This may influence the participant's lack of

opportunity to freely explore and engage in age appropriate activities at school and at home. As a result, lack of social influence, specifically instruction, guidance and assistance from adults or more skilled children could be one of the factors inhibiting the participant's mastery of the skills of hopscotching, jumping, and/or marching in time to a tambourine (Vygotsky, 1978). As Barlow and Durand (2011) highlighted, maturation is not the only contributing factor to motor development, but opportunities to practice motor skills are also important. Invariably, the presence and assistance of a more skilled person is important to enhance maturation (Santrock, 2011).

The South African environment may be seen as vulnerable with the path from infancy to adulthood being a fragile one due to the extent of HIV/AIDS (UNICEF, 2007), lack of preschool education (Knoesen, 2003), poverty and malnutrition (Louw & Louw, 2007), and the high frequency of crime. It would appear that these various other influencing factors mentioned in Chapter 2 did not have a significant inhibitory effect on the development of the locomotor skills of the sample in this study. However, since these factors were not controlled for in the study, this assumption cannot be over emphasized or generalized to African children in rural areas. The presence of older siblings, extended family members and close community ties that characterize African communities serves an important role of providing the social support and orientation for play activities. The social background within which children grow in the African culture is thus essential in enabling children to escape the effects of some of the negative environmental factors that seek to affect their development by modifying and influencing their experiences (Griffiths, 1954).

Acquiring relevant locomotor abilities enables children's exploration of their world with their peers. As reported on the biographical questionnaires, none of the children were reported to



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have problems mixing and playing well with other children essential for social interactions and engagement in play.

#### 5.4.1.2 Personal-social development

The sample's overall performance on this subscale was third highest, according to the mean, amongst the six subscales of the GMDS-ER. The descriptive data showed that the sample had a mean score performance of 113.8 (SD = 5), which was an average level of performance.

Table 10 provides a category breakdown of the performance of the sample in this subscale.

Table 10

Category breakdown of the performance of the sample on the personal-social subscale

Category description	Category range	Number of participants	Percentage of participants
High average	116 – 129	5	A, F, G, H, and K
Average	85 – 115	7	B, C, D, E, I, J and L

These results show that all of the participants had scores in the average and high average range, although none attained superior scores. The lowest score on this subscale was 106 (participant B) whilst the highest was 123 (participant H) giving the lowest range of 17. According to Sattler (2002) assessment measures of personal-social skills appear to focus on two major functions, which include the degree of independent functioning, usually related to the child's ability to take care of himself, and the degree to which the child meets the culturally imposed demands of personal and social responsibility. As such, the low range and standard deviation shows that there were no major fluctuations in the performance of the sample in this

subscale and may reflect the influence of homogeneous child rearing practices of the African culture on the sample's development.

Van Rooyen (2005) further suggested that the economic situation in South Africa may encourage earlier independence as a result of the cost and availability of day care facilities, which may imply that many South African children have to, at an early age, take responsibility for personal hygiene, eating and dressing. On the other hand, Von Wielligh (2012) highlights that it is also a fact that, due to economic hardship in South Africa, the mother may have to start working early in the child's life, necessitating early independence due to the lesser amount of attention or supervision received. However, in the African society characterized by extended families, it may be that African children perform well on this subscale because they imitate, acquire and master relevant self-help skills earlier due to the presence of family members and siblings who stimulate their development in tasks such as, home conditions play an important role in the personal and social development of children (Davidson, 2008). As Vygotsky viewed children as social creatures who learn through social interaction (Vygotsky, 1962), the dialogical nature of the relationship between the child and the adult (Bodrova & Leong, 1998) who is an active agent in the child's development becomes important for the child to learn and adjust to the new societal roles and responsibilities (Vygotsky, 1962) if development is to continue.



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Based on the Griffiths Scales' construct model, all the participants performed well in items focusing on personal skills – eating and drinking; social and interpersonal skills; and social skills – domestic skills. Although the sample performed well on this subscale and on the social skills – domestic skills construct, only participants K and J were reported to be able to lay a table without help. This could be attributed to the fact that the practice of laying a table in the African

context is not clearly pronounced as in the western culture. In the African context, setting a table would involve laying the plates on the table for someone to serve food. Some families do not sit around a table when eating; whilst some children sit on the floor when eating and may use spoons or their hands when eating instead of a fork and/or a knife.

A slightly below performance was identified for the sample on items measuring personal skills – self care, self concept and dressing. All the children were reported to be able to wash and dry their face but needed checking. Most of the children could not wash, dry hands and bath, dress and undress with no help. These areas, according to Vygotsky's (1978), represent the tasks that children need assistance with to learn and master and what he refers to as the "tomorrow of development" which indicates what the children can achieve and 'can be' in the near future. A social and participatory environment of teaching and learning which involves scaffolding (changing the level of support to fit a child's performance) (Verenikina, 2008) is important in ensuring that this need for stimulation (through guidance and assistance) is met leading to continued development of the children (Vygotsky, 1978).



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It was also noteworthy that on items measuring the social skills self concept construct, none of the participants gave their birthday in full or at least four aspects of their residential address. The influence of some houses not having proper numbering due to the rural areas' poor infrastructure cannot be overlooked in the latter. Participants A, B, C, K, and L only had names of their suburbs without house numbers on the biographical questionnaires whilst participants F and I had postal addresses and suburb names given as residential addresses by the guardians. Invariably, these participants only knew their suburb names. Understandably, participants F and I did not know their postal addresses which are used for postal and not residential purposes. Participants G and H gave their house number and suburb name as per their biographical

questionnaire whilst participant E did not give the street name included in the questionnaire. The small and clustered spacing that characterizes South Africa's rural and informal settlements may be one of the reasons for non-use and/or non-availability of street names.

Participant J on the other hand knew her suburb but did not know the house number though being one of the two eldest participants. Similarly, participant D did not know his home address and suburb although it was given on the biographical questionnaire. Migration and relocation could be one of the influencing factors as both participants relocated to Alice with their parent(s) due to work. As a result, the participants may not know their new addresses yet. Living in rented accommodation and constant relocating may not only affect children's development of their self-concept but bonding with people outside of the family (Harker, 2006). In spite of this probability, these participants attained an average level of personal-social functioning.



#### 5.4.1.3 Language subscale

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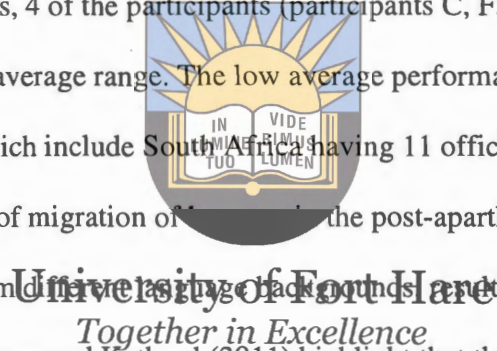
The sample's mean performance on this subscale was the lowest of the six subscales. The language subscale had a mean sub-quotient score of 90.8 (SD = 12) which fell in the low average level of ability in the category description table (see Table 4). The highest score obtained by the sample was 106, whilst the lowest was 75 giving a range of 31. Table 11 provides an outline of the sample's performance in this subscale using the level of ability category breakdown table.

Table 11

Category breakdown of the performance of the sample on the language subscale

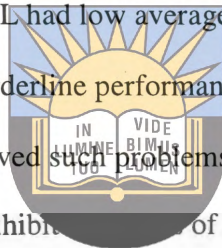
Category description	Category range	Number of participants	Participants
Average	85 – 115	8	A, B, D, E, G, H, I, and L
Low average	70 – 84	3	C, J, and K
Borderline	55 – 69	1	F

From the above results, 4 of the participants (participants C, F, J, and K) had scores falling in and below the low average range. The low average performance of the sample could be attributed to many factors which include South Africa having 11 official languages. According to Alexander (2009) as a result of migration of people to the post-apartheid era, learners and teachers frequently come from diverse language backgrounds and speaking in diverse languages in the classroom. Navsaria, Pascoe, and Kathard (2011) highlight that the language of teaching thus remains English resulting in many learners learning in a foreign language, that is, a language not their home language and which is often unknown to them as they have little exposure to English outside of school. It is thus common for children to be exposed to more than one language (Von Wielligh, 2012) as was identified in the present study. This means that children who are forced to acquire more than one language have to fragment the resources available to them in the process of first language acquisition (Louw, Van Ede, & Louw, 1998). This creates numerous teaching and learning challenges contributing to low achievement (Navsaria et al., 2011). However, no significant differences were found in the performance of bilingual, English speaking and Xhosa speaking children. The researcher thus concurs with Van Rooyen (2005) and Von Wielligh (2012) that further exploration in this regard is required in order to generate plausible causal



inferences and further enhance understanding of the language development of South African children.

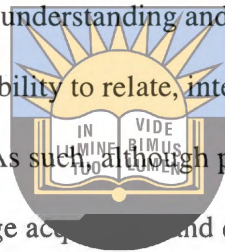
Griffiths (1984) highlighted that the language subscale is the most intellectual of all the scales and gives an opportunity for study of the growth and development of language by clinicians. Children who perform poorly on this scale, relative to their own performance on the other scales, may have a speech impediment or may possibly be deaf or suffering from a hearing loss (Luiz, 1994a). Participants F and K were reported by their guardians to appear not to hear when spoken to, whilst together with participants E, J and L these participants were reported to be upset by noises. Participants J, K and L had low average performance scores whilst participants E and F had average and borderline performance scores, respectively. However, the teachers reported that they had not observed such problems from the participants. Furthermore, participant C who was not reported to exhibit any form of difficulty in hearing had a low average performance, pointing to a possible presence of factors influencing the language development of the children in the sample.



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A recognized trend in the study was that children performed better on items related to naming objects, capital letters and colors and defining objects by use. This style of learning is most common at preschool level. However, only participants A, E and K were able to name at least 18 objects in a box, whilst participant K was the only participant not able to name at least 20 capital letters and participants B, D, E, H, and L were the only participants able to name all 26 capital letters. Participants A, E, F, G, H, and J confused a horse for a donkey which is a more common phenomenon than a horse; whilst participant I named most of objects incorrectly. For example, the participant reported a doll for a girl, a pencil for a pen, a button for a pin, a knife for a pair of scissors, a train for a car, a wheelbarrow for a tricycle and an owl for a bird.

Also, the participants elicited fewer descriptive words, descriptive sentences and pronouns, similar to the findings of the research done by Allan (1992) and Kotras (1998). The poor performance of the participants in the language subscale could be further attributed to the African culture that does not actively involve reading of story books to children or allow children to question adults. As Vygotsky (1962, 1978) postulated that learning occurs within a social context through interaction, a child's interaction with competent people, who can provide guidance and encouragement, becomes pivotal in enabling children to master new challenges and enhance their overall development. Competency is not limited to the significant other's level of education but includes their knowledge, understanding and implementation of activities and conversations that will elicit children's ability to relate, interpret, understand, question, and provide solutions in different contexts. As such, although parents' level of education influences their level of involvement in the language acquisition and development of their child (Jackson, 2003; Sharif et al., 2003; Von Wang et al., 2002), the results showed a categorical difference in the performance of children from parents or guardians based on level of qualification or employment status. Participant C stayed with both parents who are working although their level of qualification was not specified. Participant J's mother is a single working mother with an advanced level of qualification, whilst participant K's guardian is a single grandmother who is unemployed and has a secondary level qualification. Participant D's parents have a higher education qualification and only the father is working. The parents or guardians' level of involvement and availability during the day or after work as well as the cultural factors mentioned above could be factors influencing the participant's language acquisition.



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Davidson (2008) further states that a child's home environment has an influence on his or her development. In the study, six participants (participants A, C, D, E, F, and K) did not know

what a table is made off and participant G did not have a table at home. Participants B, D, F, H, K, and L named a shop in the picture cards item a “house”, whilst participants C and J named the picture a cupboard and participants A and E named the picture a window and town, respectively. Participant G was the only participant to pass this item which could have been influenced by the family owning a shop. Informal infrastructures that characterize shops in the rural areas may be one of the factors influencing poor performance on this item. However, there is a possibility that the drawing of the item could have been confusing to the participants as all of the participants have been to a shop before, evidenced by them reported to be able to make purchases with or without help. This finding was similar to Allan (1992) and Kotras’s (1998) studies, in which one of the most incorrectly named pictures in the picture cards was picture 18, ‘a shop’.

#### 5.4.1.4 Eye and hand coordination subscale

Descriptive data on the eye and hand coordination indicated a mean performance of 116.8 (SD = 14), which reflects an above average level of performance (see Table 4). Table 12 shows a frequency table of the category breakdown of the sample’s performance on this subscale.

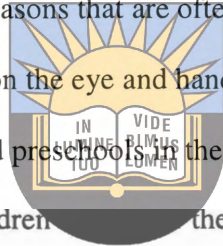
*Table 12*

*Category breakdown of the performance of the sample on the eye and hand coordination subscale*

Category description	Category range	Number of participants	Participants
Superior	130 – 145	1	I
High average	116 – 129	7	A, B, D,F, G, H, and L
Average	85 – 115	3	E, J and K
Low average	70 – 84	1	C

The results show a wide distribution difference in the sample's performance with participant I having a score falling in the superior level of ability and participant C performing in the low average level. The majority of the participants (7) had a high average performance, with 3 participants' scores falling in the average range.

Contrary to Knoesen (2003), Van Heerden (2007) and Von Wielligh's (2012) heterogeneous South African samples which performed poorly on the eye-and- hand coordination subscale, the African sample's performance in this study on the eye and hand coordination subscale was second highest of the six GMDS-ER subscales according to mean scores. According to Davidson (2008) reasons that are often provided to explain the poorer performance of South African children on the eye and hand coordination subscale revolve around inadequate day care facilities and preschools in the disadvantaged areas, which entails having a weak foundation when the children enter their formal schooling stage. However the results in this study give food for thought as to the possibility of changing South African demographics, improvements in quality of South Africa's early childhood care and education and stimulation received by the sample in the current study. An important example is the fact that all the participants were identified from two playschools in the Amathole region. However, since a non-probability sample was employed, the results cannot be generalized to the wider African population of 5 to 6-year old preschool children. Furthermore, differences in performance which were identified for participants who had been in the preschool for 2 or 3-years however these findings cannot be generalized. Participants I who had a superior score and D, F and L who had high average scores had been at the playschool for 3 years. Participant C with 2-years school experience similar to participants A, B and K had a low average score on this



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subscale in contrast to the high average scores attained by participants A and B and average scores attained by participant K.

The influence of acquired knowledge is further emphasized on the eye and hand coordination subscale. The performance of the sample on this subscale shows that the children in the sample have had stimulation and knowledge which influenced their performance on bilateral coordination and form perception construct models. A majority of the participants showed that they were able to draw and copy given shapes, numbers and letters and write full names. Participants A, B, D, E, F, G, H, I, J, and L were able to copy the 24 letters of the alphabet, participants A, B, F, H, I, J, K, and L were able to copy 9 numbers, and participants A, B, D, E, F, G, H, J and L were able to write their full names. Participants C and K were the only participants not able to copy at least 24 letters of the alphabet and failed to write their first and full names. Participant K although seemingly knowing how to write their first name, gave up prematurely on that attempt.



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However, 10 of the participants (excluding participants F and I) were not able to draw creatively and include at least 6 features in their drawing of a person which shows that this stage was above their level of intellectual or mental development. It is also noteworthy to mention that in South Africa's rural areas characterized by poor housing infrastructure and informal settlements, there are diverse shapes and features of houses. Participants B, G and J were the only participants able to draw a stage 2 house characterized by a good basic square or rectangular shape, at least six other features, for example, a window, door, chimney, roof, steps or stairs, doorknob, curtains amongst other items. The other participants (except participants C and K) were able to draw a stage 1 house which is a rough square and at least two other features. Only participants A, B, F, and H had objects in their drawings (for example, a lamp, bed, chairs)

whilst participants F and G's drawings had steps and participant D was the only participant to draw a hut shaped drawing.

Although participants C and K were able to copy a square stage 1 (recognizable square with four sides) they failed to draw a stage 1 house. Participant C drew a rectangle divided into 3 parts with no other features, whilst participant C's drawing was a poor triangle with no features of a house. None of the participants' drawings had a fence, vegetation or house number outside, and most of the participants' house drawings (except for participants G and L) were not large structures. This scenario is characteristic of most households in the rural areas which are not extended and do not have vegetation, walls or fencing due to limited housing space.

#### 5.4.1.5 Performance subscale

The sample showed an average level of ability with a mean sub-quotient score of 101.2 (SD = 16) in the performance subscale. Table 13 is the category breakdown of the sample's performance.



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*Table 13*

*Category breakdown of the performance of the sample on the performance subscale*

Category description	Category range	Number of participants	Participants
Superior	130 – 145	1	G
High average	116 – 129	1	I
Average	85 – 115	8	A, B, C, E, F, H, J, and L
Low average	70 – 84	2	D and K

The results show that the sample's performance varied from a superior level to a low average level of ability with the majority of the participants (8 participants) having scores falling in the average level of ability. Also, the performance subscale had the highest standard deviation and second highest range. The minimum score attained by the sample was 78 whilst the highest was 118, giving a range of 40 which shows that this subscale had the greatest variations in performance and development. According to Berk (2009) fine motor skills such as manipulation of objects, and executing a task with precision, depends on environmental influences such as practice, learning and education. The disparity of the sample's performance scores may be an indication of the possible differing socio-economic status of the sample and the inequality of stimulation received. Participant K had a low average score and was reported to be having only one toy whilst participant C had a punch bag, car, gun and ball. It was however reported that he prefers to play outside and not use the toys which presumably be attributed to the restrictions on playing outside with the toys due to noisy leakage. Both participants C and K had the lowest scores in the low average and average range. Participant G on the other hand was reported to have teddy bears, cosmetic set of toys and played games on a sibling's computer. Exposure to computerized games could explain the superior score attained by the participant on the performance subscale, the highest as an individual and for the sample. As Maslow (1943) mentioned in his hierarchy of needs, acquiring play materials may be secondary in poor families and as a result, the performance of the sample may be due to lack of needed exposure to puzzles and games due to economic constraints.



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Participant D was the only participant who failed in all items related to construction with memory, whilst participants C and F could not build a superior model bridge and participants A, F, G, H, J, K, and L could not construct the memory stairs. Participants F and G were the only

participants to complete the 4 square item within 7 seconds, whilst participants A, B, E, F, and I were the only participants to complete the 11 hole form boards within 30 seconds. None of the participants (except participant G on patterns 2 and 4) were able to return the 9 bricks and put the lid on in 15 seconds or to copy all 4 patterns below the cut off time of 20 seconds. Inability to achieve the cut off time in these timed items meant that the participants failed follow-on items hence their average (participant C, F, H, and J) to low average (participant D, K) scores on the performance subscale.

#### 5.4.1.6 Practical reasoning subscale

The practical reasoning subscale had a mean score of 106.9 (SD = 10) which showed an average level of ability by the sample. Table 14 shows a breakdown of the performance of the sample in this subscale.

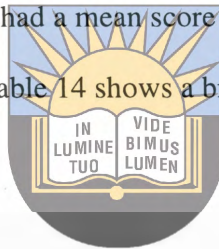


Table 14

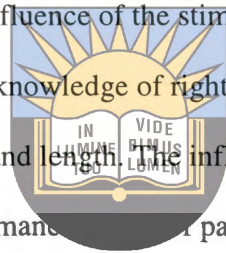
Category breakdown of the performance of the sample on the practical reasoning subscale

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Category description	Category range	Number of participants	Participants
High average	116 – 129	2	D and G
Average	85 – 115	10	A, B, C, E, F, H, I, J, K, and L

The practical reasoning subscale is one of the more intellectual subscales of the Griffiths Scales (Luiz, Barnard, et al., 2004). The results show that a majority of the sample (10) had scores in the average category and only 2 participants had scores in the high average range. Although the categorization of this sample was similar to that of the personal-social subscale, its range of 39 (minimum score of 87 and highest score of 126) and standard deviation of 10 shows that the performance of the children was not similar across the subscale.

Vygotsky (1962) outlined that children use speech not only to communicate socially, but also to help them solve tasks. It can thus be assumed that the poor performance of some of the children in the sample could be influenced by their language development as well as the manifestation of the subjects' developmental processes within the socio-cultural setting of its manifestation (Muthivi, 2009). This analogy was true of the performances of participants A (AC = 90; AF = 96) and E (AC = 92; AF = 87) who were not receiving any assistance from their guardians in their studies. However, participants B, F, G, I, J, and K had improved average scores on the practical reasoning subscale compared to their language subscale performance. This could have been attributed to the influence of the stimulation received at the playschools related to counting, repeating numbers, knowledge of right and wrong, morning and afternoon and comparison of height, size, weight and length. The influence of stimulation is further made more explicit in the high average performance of participants D and G who have access to computerized games at their homes.



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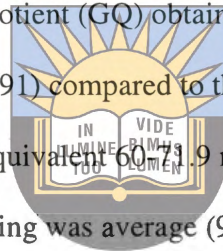
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A noteworthy trend was the poor performance of the sample on the items related to concept formation. The participants did not know long and short, high and low and heavy and light. Only participants B, D, J, and L knew the concept of long and short. The participants' concept formation was limited to 'small' which they reiterated in the other concepts. Furthermore, none of the children passed the picture arrangement items. The sample's poorer performance on these practical reasoning tasks could be due to cultural and educational transmission factors such as limited story reading which plays a role in the development and attainment of formal-operational thinking (including abstract reasoning) (Piaget, 1972).

## 5.5 Description of sample's performance using norm-based referencing

### 5.5.1 Sample's overall performance on the GMDS-ER: norm-based referencing

An analysis of the sample's performance using norm-based referencing revealed differences in the sample's performance compared to the criterion-based referencing analysis. In contrast to criterion-based referencing, the sample's performance on norm-based referencing was below its chronological age of development. The sample achieved a mean mental age (MA) of 61.4 months indicative that the sample's mean general developmental functioning, as measured on the Griffiths Mental Development Scales – Extended Revised was 6.1 months below its chronological age. The mean general quotient (GQ) obtained by the African sample using norm-based referencing was average (XGQ = 91) compared to the average (XGQ = 107.9) on criterion referencing. Both age groups' (month equivalent 60-71.9 months and 72-83.9 months) mean performance using norm-based referencing was average (90.2 and 95.1), respectively. Figure 2 shows a comparison of the sample's performance on criterion-based and norm-based referencing.



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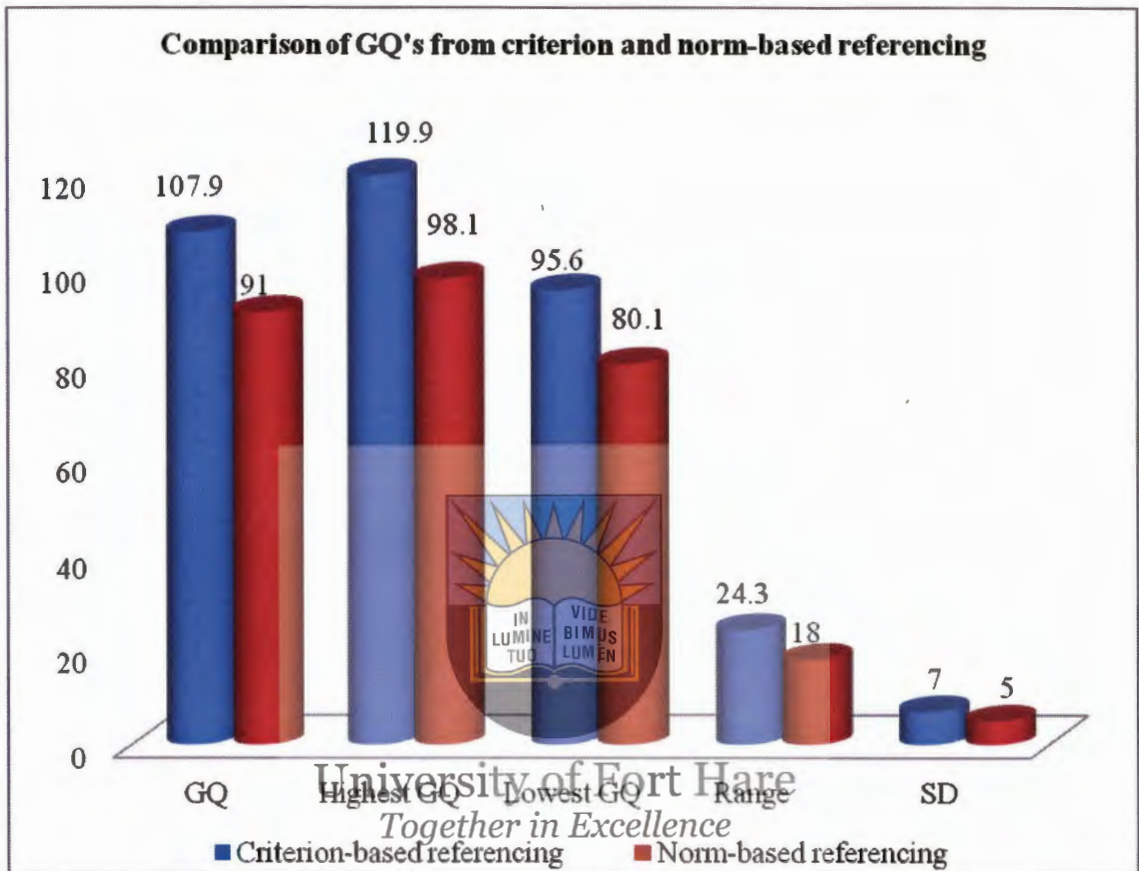


Figure 2: Comparison of the sample's general performance using criterion-based and norm-based referencing

The above diagram shows that the African sample's performance using norm-based referencing was below that of criterion-based referencing in the mean general quotient (GQ), lowest GQ, highest GQ. A One Way Anova post hoc analysis was used to further make inferences about the sample's means. Although both scores were average, a statistical significant p value of .000 showed that the participants' mean score performances using criterion-based referencing were significantly different from the norm-based referencing mean scores.

These findings give rise to the need for development of South African norms if developmental assessment is to accurately assess children in spite of their race, language, socio-

economic status and geographic area; factors which have been found to influence performance on developmental assessment measures.

### 5.5.2 Sample's performance on the six subscales of the GMDS-ER: norm-based referencing

A comparison of the performance of the African sample across the subscales further showed that the performance of the sample using norm-based referencing was below that of criterion-based referencing. Figure 3 shows a comparison of the sample's performance using the two referencing points.

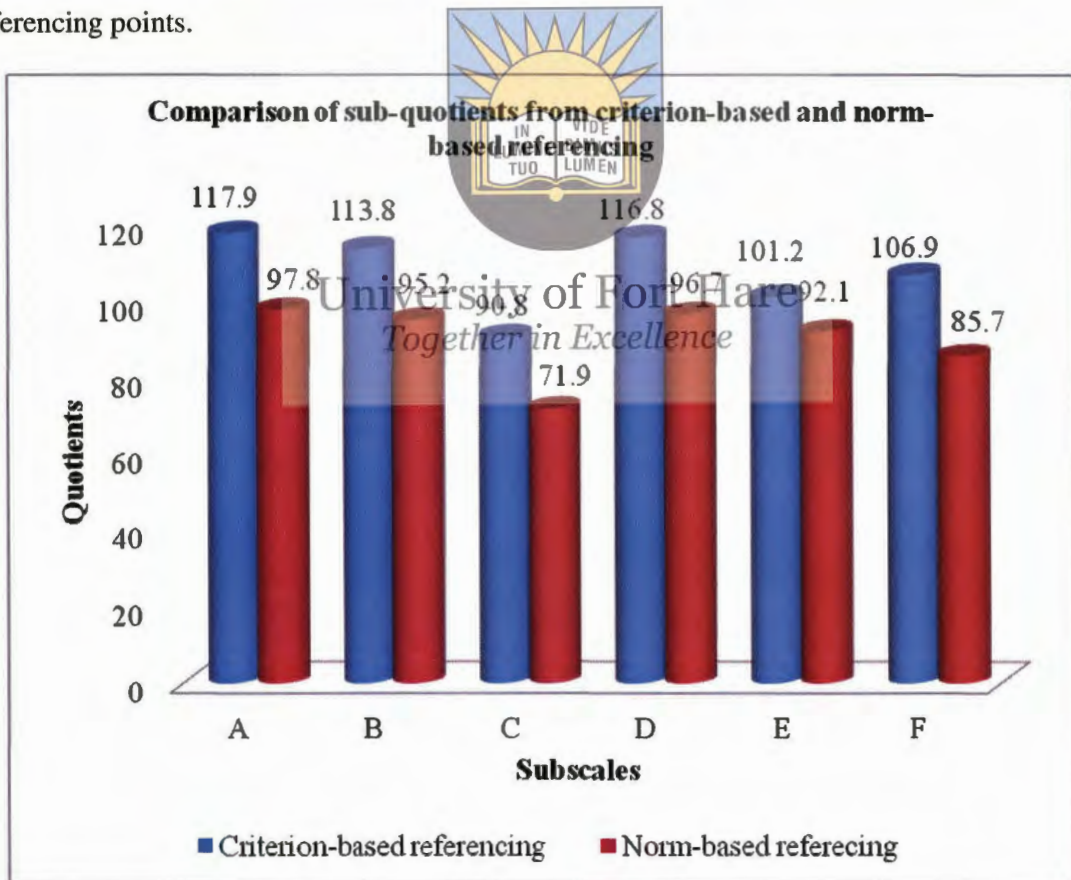


Figure 3: Comparison of African sample's sub-quotients performance using criterion-based and norm-based referencing

The differences in the African sample's performance on criterion-based and norm-based referencing further highlights the need for establishment of South African norms in order to enhance the applicability and utility of the GMDS-ER as a diagnostic and developmental assessment measure. As Van Rooyen (2005) highlighted, tests not standardized for specific ethnic or cultural groups may lead to a misdiagnosis if used on these groups. Further exploration of the African sample's performance was done using thematic analysis discussed underneath.

### **5.6 Aim 3: Contextual links on the performance of the participants**

The third aim of the study involved developing qualitative links between the developmental profiles of the participants and the information acquired from the biographical questionnaire, clinical interviews and clinical observations. According to Meisels and Atkins-Burnett (2006) a child's functional capacities should be examined in a variety of contexts in order to fully comprehend how the child integrates them into his or her repertoire of behaviours and responses. As discussed in Chapter 4, the strength of the case study method, which was used in this study, is its capacity to deal with a full range of evidence (Yin, 1994) and to provide a context for the phenomenon being investigated. The results thus provide qualitative links between the performances of the participants, the qualitative information acquired and clinical observations done.

#### **5.6.1 Early experiences during and after birth**

##### **5.6.1.1 Experiences of mothers**

Ten participants' biographical questionnaires (except for participants A and E) did not report anything unusual in the mothers' pregnancies. Although participants A and E were not the only children raised by their grandparents, their grandparents were not cognizant of their late mothers' experiences prior to delivery of the children. This was attributed to the pregnancies

being unplanned and hidden as teenagers. Three other pregnancies, for participants G, H, and J were reported to be unplanned. However, it is possible that the extended family that characterizes the African culture provides social support and enables mothers even in unplanned pregnancies to better provide developmentally appropriate interactions that their children need (Center on the Developing Child at Harvard University, 2009). Furthermore, the involvement of the grandmothers, characteristic of African families, helped provide guardianship, care and support to the participants, some of whom are now orphaned. Participant G though raised by grandparents was one of the two participants with a high average general development quotient whilst participants H and J had average scores. Contrastingly, participant C born from a planned pregnancy and raised by both parents had the lowest average GQ.



In spite of the reported unplanned pregnancies, none of the participants' mothers had problems bonding with their children or experienced post-partum depression. As highlighted in Chapter 2 depressed mothers may have classically inflicted the needs of their children (Von Wielligh, 2012) which may affect mothers bonding and infants' secure attachment. Although a secure attachment in infancy does not guarantee continued good parenting, it does launch the parent-child relationship, as well as enhance the personal social development of children. To correspond with these assertions, the participants had average (participants B, C, D, E, I, and L) and high average scores (participants A, F, G, H, and K) on the personal-social subscale.

#### 5.6.1.2 Experiences of children

None of the participants were one of a twin, were anoxic at birth, and only participant A was born prematurely although the grandmother did not have full details of how early the child was born. However, the participant's GQ was average and matched the average range obtained by the sample for the GQ.

Furthermore, although research has revealed fewer tendencies towards breastfeeding due to HIV/AIDS and work, 10 participants, except participants E and L were breastfed by their mothers. According to the World Bank (2011) whether or not children are well-nourished during their first years of life can have a profound effect on their health status, as well as their ability to thrive developmentally (Grantham-McGregor et al., 2007). In this study, none of the participants were reported to have experienced any childhood illnesses, and only participants I and K were reported to be on medication for asthma. Furthermore, breastfeeding has long been purported to supply nutrients to infants and has been correlated with increased cognitive gains later in childhood (Kramer et al., 2008) as well as psychosocial and motor development (Dewey, Cohen, Brown, & Rivera, 2001; Pérez-Escamilla, 2008; Vestergaard et al., 1999). Although participants E and L were formula fed, both their parents were reported to be working and thus able to meet their nutritional needs. The contribution of reported inadequate nutrition on the sample's locomotor (high average) and personality (below average) and social performances cannot be overlooked.



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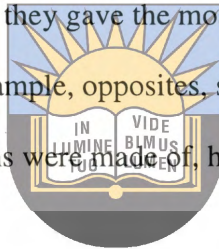
Gaining insight on the participants' history was not only essential for ascertaining normalcy of the sample; but provided understanding of the sample's early life experiences. Although these reported experiences seem not to be very different, there are some factors that impede children's development and which influenced differences in development and performances on the GMDS-ER.

### **5.6.2 Attention, task-orientation and task completion**

Attention can be defined as the ability to concentrate on an idea or activity as well as the completion of the activity (Bjorklund, 2005). The ability to concentrate plays a pivotal role in the development of children. Qualitative information obtained from the biographical questionnaire

as well as clinical observations recorded during the assessment highlighted the children's ability to sustain their attention at any given time, the way in which they went about initiating a task as well as completing it.

Participants C and K had a short attention span during the course of assessment and had to be reminded or prompted to complete certain tasks (especially writing their names, which they were not able to do) and were generally slower in the pattern making and 11 piece form boards. Hence their average and low average scores on the performance subscale. They often did not listen to or follow instructions adequately which resulted in failure of the task at hand. Furthermore, together with participant F they gave the most "I don't know" and no responses to certain items during assessments, for example, opposites, similarities, differences, comprehension questions, and what items were made of, hence the borderline developmentally delayed score on the language subscale.



Participant F's teacher believed that the participant needed to be pushed in order to submit complete work and sometimes does not respond to verbal instructions in the classroom. Although on the biographical questionnaire, participants F and K's guardians reported that the participants seem not to hear when spoken to, this was not identified as a problem by the teachers. Both participants have not been assessed for hearing difficulties. Based on the results of the participants discussed above the three dimensions of persistence, distractibility and activity level seem to be a common difficulty for these participants.

Participant K was reported to have experienced physical abuse characterized by excessive beating from the mother at an early age leading to the grandmother taking a guardianship role. The participant is also on medication for asthma. Although participant F was not reported to exhibit any poor emotional development on the biographical questionnaire, information from the

clinical interviews from the mother revealed a tendency to become frustrated and emotional if faced with a difficult task. Participants I and L on the other hand frequently sought validation in the completion of tasks and would wait for approval to know they were right. Participant L often asked "here?", "like this?" when attempting items like form boards, using a pair of scissors and threading items. Although the participant's attempts were most often accurate, seeking approval sometimes gave a slower completion time in timed items especially for participant L. Participant L attained an average score on the performance subscale whilst participant I attained a high average score. However, it is noteworthy that seeking attention and approval from peers and significant adults is characteristic of preschool children as their social relations expand beyond the family. The examiner served as a significant adult that the children sought approval and validation from.



### 5.6.3 Cultural influences

#### 5.6.3.1 Influence of culture on development and test performance

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Child development is a byproduct of all cultural products used from the simple artifacts, for example, a pen, spoon, or table, to the more complex such as language, traditions, beliefs, arts or science (Cole, 1997; Vygotsky, 1982) that children have been exposed to in their families, school and communities. Carrasquillo and London (1993) describe black African parents as controlling and demanding whilst Schwartz and Scott (2012) asserted that they use coercion to elicit obedience and conformity. For example, when asked what you should do if you are on your way to school and you find it is getting late, participants F and L stated that a person should be beaten, whilst participant G and J responded you should go back to the house and not go to school, respectively. Participant B and K reiterated that if you missed the bus you should go back home and remove school clothes, respectively. All of the children in the study, except for

participant D used hired public transport to commute to school. It could be that due to budget constraints and non-availability of alternative transportation for some children missing the available transport would mean being disciplined and subsequently missing school for that day. As such, although these responses were reflective of the children's cognitive and reasoning development, it also reflected the punitive child-rearing practices they may be directly or indirectly exposed to.

One of the characteristics of extended African families is story telling (folktales) by grandmothers and less of a culture of reading story books. However, the sample indicated that story telling has been replaced with watching television. As such, participants A, C, E, F, J, K, and L do not have stories told or read at home. Even though the main reason given was lack of story books, the depletion of the practice of folktales which helped improve language development could be reasons for their poor performance on the language subscale as mentioned before.



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Furthermore, most of the participants (participants A, B, C, E, F, J, K, and L) failed the item of “what one should do if they are lonely” because they did not fully understand what the word meant even after trying to explain it in their first language. This could be attributed to the African culture of “Ubuntu” which speaks of the interconnectedness, common humanity and the responsibility towards one another that flows from the deeply felt connection (Nussbaum, 2003) and relatedly, the fact that in the extended families that characterize African society children often have siblings and other relatives in their company. As highlighted in Chapter 2, extended families can provide interaction advantageous for development of social skills (Berk, 2009).

On observation, cultural influences thus seem to have exerted a bearing on the sample's poorer language performance whilst the extended families characteristic of especially African culture would have influenced the sample's performance on the personal-social subscale, which though average was higher than the language subscale.

#### 5.6.3.2 Familiarity and non-familiarity with test items in assessment performance

The participants' familiarity with some of the test items, for example, utensils, shapes, animals, amongst other items available in the school's learning materials enhanced participants' overall performance. Participant G stated that there was no table at home; as such she did not know what a table was made of. None of the participants identified the tall buildings in the picture description item with participants H, I and L identifying the windows and participant L seeing the person inside the building. This could be influenced by the poor infrastructure that characterizes the rural South African context and lack of familiarity with tall buildings.

Furthermore, the participants did not perform well in the items focusing on comparisons and what items are made of. The samples' conceptualization of the item questions was limited by their not knowing a watch and a bicycle (participants F, H, J, and K) and not having tables at their homes (participant G). The role of education in bridging the gap between children's current experiences of their world and the possibilities is made pivotal. According to Bodrova and Leong (1998) the teacher plays a significant role of arming children with cultural tools and enabling the child to use these tools independently and creatively. As such, even when children do not have some items at home, education provides an opportunity to empower these children to have a wider understanding of their immediate and external world. This research finding supports Piaget's assertion that social interaction and transmission, for example, schooling are important factors in cognitive development (Piaget, 1972).

Furthermore, although participants C, E, F, H, and J were reported to be able to make purchases without assistance, only participants J and L were able to pass all two items related to which costs more, whilst participants F and H failed on both items. Participants A, B, C, D, G, H, I, and K were able to name a watch but failed the item on which costs more between a watch and an ice-cream. The participants' lack of familiarity with larger amounts of money (due to economic constraints or not being given the responsibility to handle money) could be one of the factors influencing their lack of understanding of the value of items. Being able to make purchases with (participants A, B, D, G, I, K, and L) or without assistance improves children's independence. However, without guidance on the value of money and differences in costs children may not develop the needed moral and social daily reasoning related to monetary issues.

#### **5.6.4 Level of teacher involvement in preschools**

##### **5.6.4.1 Lack of structured play**

On the days of testing the researcher was able to observe the children at play and noted that the playschools did not have structured and coordinated activities to stimulate the different areas of child development (Jareg & Jareg, 1994). Though through structured play children would be able to learn team work, being competitive and know right from wrong the children were observed not to be fully exposed to the benefits of structured play which can only be possible at playschools rather than at home. From the observations done during testing the children were often left to play on their own and only supervised as a safety precaution against accidents during play. Furthermore, indoor games were limited by lack of resources. The playschools reported that they have molding planes, logs and puzzles used for indoor plays. However these were insufficient for all the children and are in themselves in need of variety to enhance children's development as measured by the performance subscale.



Another identified contributing factor to lack of structured play was limited space especially in one of the playschools. The school had small classrooms and is built on an elevated plane which does not provide an adequate play area. This challenge is characteristic of poor infrastructure faced in South Africa and more devastatingly in the rural areas.

#### 5.6.4.2 Large children to staff ratio

Early childhood researchers who examined classroom practices in community programmes found that smaller groups of children and a lower staff/child ratio of seven children to one adult resulted in better social and cognitive outcomes for children (Biersteker & Kvalsig 2007; Meyer 2008). According to Biersteker and Kvalsig (2007) a smaller group size and a lower ratio of children to staff appeared to enhance children's development by permitting more positive interaction to occur between the children and the teacher, and between the children and the learning materials. However, in both preschools the proportion of children to staff was approximately 20 children to 1 teacher per day. This could have impacted on the participants' overall development, especially the more intellectual areas of development, as observed in the poorer performances of the participants on subscales C, E, and F.



Providing the necessary support to fit a child's current level of performance, engaging in adequate dialogue and social interaction as well as offering relevant instructions and guidance as propagated by Vygotsky (1962; 1978) is thus a challenge in large children to staff ratios, thereby hampering effective learning and development. Furthermore, the teachers' implementation of the skills and techniques necessary for enhancing child development was affected by inadequate training and lack of resources.

#### 5.6.4.3 Lack of adequate training and needed resources

Clinical interviews revealed that only the principals and one teacher in one of the preschools had attained level 5 early childhood development training. Three of the other five staff members had level 4 training, whilst the other two had passed grade 9. All staff reported to have not received any further skills development training from the preschool or outside in the past two years or since their tenure in the preschool. Lack of knowledge of skills development furthering professional development, lack of finances and poor coordination and facilitation of training activities in consultation with the SGBs are some of the reasons raised by the teachers and principals for lack of further personal development and training.

Both preschools met the Department of Social Development and UNICEF's (2006) requirements of providing safe and hygienic toilet facilities, water, weatherproof and well-ventilated centres. They, however, did not have sufficient indoor (1.5m<sup>2</sup>) and outdoor (2m<sup>2</sup>) space per child due to inadequate land availability and overpopulation characterizing rural communities. According to Atmore et al., (2012) poor infrastructure at early childhood development facilities not only presents significant health and safety risks to children attending these facilities, but can also point to poor quality early childhood development service provisioning.



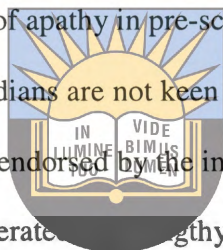
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#### 5.6.5 Inadequate facilitation of child development, stimulation and developmental assessment

Although the parents and guardians of the participants understood the importance of early childhood education marked by the participants' enrolment in playschools, they were observed to have inadequate knowledge of the different areas of children's development and ways of enhancing development. For example, most of the participants were not actively engaged in

reading and story-telling with their parents and guardians. Participant H read story books at home and was the only participant to respond accurately to all the comprehension questions. As highlighted in Chapter 2, an environment that does not prioritize learning can have negative impact on the cognitive and overall development of a child. Evidently, participant F (who was one of the participants not assisted at home in academic work) passed only two comprehension items and failed items related to opposites, similarities and differences because of not responding or saying “I don’t know”.

To further expand on the need for parental involvement, the principals from both playschools reported a substantial level of apathy in pre-scholars’ academic development. The principals stated that the parents or guardians are not keen to assist with home work and to attend meetings. These assertions were further endorsed by the incomplete biological questionnaires returned which one of the principals reiterated strongly for the parents and guardians to complete.



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A lack of understanding developmental assessment and its importance in child development was identified especially from the parent(s) and guardians of the participants. Furthermore, the participants who were reported to seem not to hear were not identified as such by the teachers in both preschools and had not been referred for possible hearing problems. The lack of identification could be due to poor communication by both parties on children’s developmental behaviour and needs both at school and at home. It would seem that early developmental assessment remains a foreign practice to the African community (Foxcroft & Roodt, 2006), and may perhaps be accessed when severe developmental delays are identified and the window of opportunity to respond optimally to intervention is lost (Shah, 2013).

## 5.7 Chapter Summary

This chapter provided a discussion of the results of the performance and developmental profiles of the sample based on the aim and objectives of the study. Discussions of the sample's general and sub-quotients was done in order to meet the quantitative aspects of the research, whilst thematic analysis was done to find a qualitative link between the developmental profiles and qualitative data acquired in the study. Chapter 6 will integrate the findings of the present study by providing a summary of the trends observed in the sample's performance on the GMDS-ER as well as make concluding comments about the study. Limitations and recommendations for future studies will also be provided.



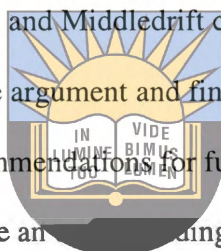
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## CHAPTER 6

### CONCLUSIONS, LIMITATIONS AND RECOMMENDATIONS

#### 6.1 Chapter Preview

This research study highlighted the need for the accumulation of knowledge on the performance of all population groups in South Africa, including normal African children from a rural setting, in order to enhance the applicability of the GMDS-ER to the South African multi-cultural context. The purpose of this study was to generate information on the development of normal African children from a rural setting by exploring the developmental profiles of 5 to 6-year old children from Alice, Hogsback, and Middledrift communities in the Amathole region. This chapter brings a logical close to the argument and findings of the study by presenting the limitations, conclusions as well as recommendations for future research. Central to Vygotsky's socio-cultural theory, utilized to enhance an understanding of child development in a multi-cultural context, is the influence of the vast network of environmental systems that operate in and around the child. As such, conclusions are provided on some of the environmental factors shaping the development of the rural African children included in the study.



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#### 6.2 Conclusions


The study provided important insight into the development of African children from a rural South African setting. Conclusions are made on the overall development of the African children on the GMDS-ER and identified factors influencing development. The conclusions, drawn from the participants' general development quotients, performances across the six subscales of the GMDS-ER and thematic discussions, follow underneath:

## 6.2.1 African children's development as measured by the GMDS-ER.

### 6.2.1.1 Summary of performance according to the General Quotient (GQ)

Participant	CA	GQ (C)	Subscale A	Subscale B	Subscale C	Subscale D	Subscale E	Subscale F
MEAN	67.5	107.9	117.9	113.8	90.8	116.2	101.2	106.9

Color	Descriptions - Intellectual or mental range of function
Blue	High average
Green	Average



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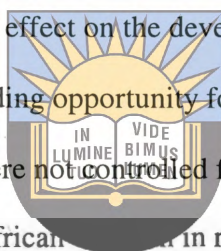
### 6.2.1.2 General development *Together in Excellence*

The research findings revealed an average general development quotient for the sample's mean performance on the GMDS-ER. In spite of the negative factors influencing child development in a rural setting, none of the children in the sample had general development scores lower than average. Exposure to early childhood education and availability of extended families that characterizes African culture are some of the contributing factors to this general development profile. However, it is noteworthy that only two children had high average general quotients and none had superior and very superior developmental quotients, which may be an indication of need for more developmental strategies aimed at enhancing the development of African children from a rural setting.

### 6.2.1.3 Strongest performance

The strongest performance identified for the African sample was on the locomotor subscale. The sample had a high average mean score which is consistent with other studies on the GMDS-ER where the South African sample performed better on the locomotor subscale than on the other subscales (Jakins, 2009; Knoesen, 2003; Smit, 2008; Van Heerden, 2007).

The participants were identified to be receiving opportunities of engaging in outdoor play activities with their peers essential for stimulating children's locomotor skills. Contextual factors such as poverty and malnutrition (Louw & Louw, 2007), and the high frequency of crime appears to have had less of an inhibitory effect on the development of the sample's locomotor skills in comparison to the factors providing opportunity for gross motor stimulation as mentioned above. Since these factors were not controlled for in the study, this assumption cannot be over emphasized or generalized to African children in rural areas. Furthermore, none of the children had developmentally impeding health issues which could have affected their attendance of school, interaction with peers and invariably their involvement in play activities.



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Despite the locomotor subscale being the best performance subscale for the sample, the impact of financial constraints and the poor rural infrastructure was however seen in the performance of the sample on certain items such as riding a bicycle, jumping stairs as well as running up and down stairs due to not having these toys and facilities at home and due to the poor rural infrastructure. Most of the items where the sample failed, for example, riding a bicycle and playing with a skipping rope, were due to a lack of opportunity to practice these motor skills.

### 6.2.1.4 Weakest performance

The weakest performance of the sample was identified on the language subscale. Possible factors attributing to this performance of the sample were educational factors (preschool

challenges such as lack of teaching aids, lack of structured activities, infrastructural challenges and teacher-child ratios) as well as the lack of language stimulation received at home, for example the lack of story-telling and the reading of story books.

Another identified influence on the sample's language performance and development was the use of both English and Xhosa as a medium for learning at the playschools. For 11 participants English was a secondary language. Although, the test was administered in English, the sample was supported with Xhosa translations by the administrator who is fluent in Xhosa.

#### 6.2.1.5 Performance on the other four subscales

While Knoesen (2003), Van Heerden (2007) and Von Wielligh's (2012) studies found their sample's performances on the eye and hand coordination subscale to be one of the weakest, this was not the case for this study. The sample's performance in this study was high average and was the second highest performance after the locomotor subscale. Although previous studies may have differed in terms of age, geographic area and socioeconomic status, the differences in performance offer support and justification for further investigations into the performance of African children on GMDS-ER. It could further enhance the relevance of the Scales in South Africa, as well as contribute to the development of appropriate and suitable programmatic interventions that are much needed.

An average mean score was attained by the sample on the Personal-social subscale. As highlighted in the treatise, children may take responsibility and develop self help skills earlier. This was attributed to the South African economic environment which may encourage early independence (Van Rooyen, 2005; Von Wielligh, 2012) and the presence of extended family members that characterizes African communities.



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The mean performance score of the sample on the Performance subscale was also average. Lack of familiarity with timed games, the lack of toys and educational factors (such as lack of structured activities) were identified to be some of the possible contributing factors influencing children's development on this subscale. Most of the children in the sample did not have toys like puzzles, brick games and computer games at home which could have enhanced their performance on the Performance subscale.

The practical reasoning subscale is one of the more intellectual subscales of the GMDS-ER and on this subscale the performance of the sample was average. This was one of the weaker performances of the sample and cultural and educational transmission factors were identified as possible factors influencing the sample's performance.



### **6.2.2 Significant differences in the sample's performances between criterion-based referencing and norm-based referencing**

Average mean scores for both criterion-based and norm-based referencing were identified for the general quotient; however a statistically significant difference was found in the sample's performances between these. This statistical significant difference indicates that compared to themselves, African children's performance on the GMDS-ER was above their chronological age. However, when using norms derived from a British sample their performance and development was below their chronological age.

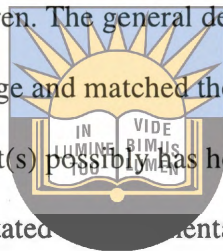
These findings further emphasize the need to develop South African norms for use with the GMDS-ER to enhance the applicability and clinical utility of the Griffiths Scales in South Africa's multi-cultural context.

### 6.2.3 Other identified matters pertaining to rural African children's development

The following matters related to the rural African children's development were noteworthy:

#### 6.2.3.1 Role played by grandparent(s) in rural African children's development

The contributions of grandparents in rural African children's development are important to mention. Some of the children in the sample were orphans or not adequately cared for by their mothers, most of whom were absentee mothers due to work. However, the presence of the grandmothers in the extended family structure common in the African culture was pivotal in enhancing the development of the children. The general development quotients of the children brought up by grandparent(s) was average and matched the average range obtained by the sample for the GQ. The presence of grandparent(s) possibly has helped curb the vulnerability of the children in the sample and further facilitated educational opportunities for these children.



#### 6.2.3.2 Level of involvement of parent(s) or guardian(s) in rural African children's development

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Although maternal or guardian's education is a very important demographic characteristic that has been linked to better cognitive and social outcomes in children during early childhood, the GQs of children from educated and not educated parent(s) or guardian(s) did not differ according to categorization. Being educated did not propel the caregivers towards showing a better level of involvement in the development of the children, for example, reading story books, providing structured play, or participating in school activities necessary for the general development of the child. A general limited knowledge and understanding of childhood development, stimulation and developmental assessment was evident from both educated as well as non-educated caregivers.

### 6.2.3.3 Influence of the preschool context on African children's development

The introduction of the now formalized preschool reception year is some acknowledgement that not all children have shared the same educationally stimulating environment and need to be brought on par before formal schooling begins (Biersteker, 2010). However, although there is a growing commitment on the part of the South African government to expand the quality day care services for vulnerable children to improve their chances to participate meaningfully and to achieve their potential, Biersteker (2012) highlights that little is being achieved. This is true especially in the historically disadvantaged communities, namely, townships and rural areas in which norms and standards of what constitutes quality care centres are not being applied (Manyike, 2012). The participating preschools lacked adequate infrastructure, availability of teaching aids and learning material in terms of the number of learners, (for example, children were sharing material) and lacked a diversity of learning materials. Inadequate staff-child ratios were also evident.



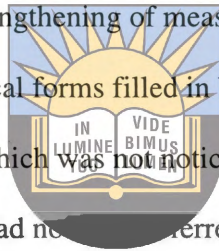
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Children at the playschools were exposed to naming objects, capital letters and colors, defining objects by use, counting numbers, and repeating digits. However it was noted that the playschools lacked focus in areas related to language development and abstract reasoning. The sample performed better on items that they have been exposed too more than on the items which were not explored at the playschool (such as comprehension, opposites, directional concepts, which costs more). Practical reasoning, general linguistic and applied language skills may also require more teacher-child attention for effective learning and could have been a further contributing factor to the poorer performance of the sample on these developmental areas.

#### 6.2.3.4 Teacher involvement

The need to identify developmental delays early whilst the window of opportunity is high is important especially for the rural child who often does not have access to the much needed developmental assessment services. This gives rise to the need for constant training of preschool teachers to identify behavioural and developmental problems and assist in the referral of children for developmental assessments in order to receive needed interventions from relevant professionals in liaison with the child's parent(s). The preschool teachers' active involvement in this regard will further assist in revealing gaps in the developmental services rendered to children in the rural setting and contribute to strengthening of measures related to accessibility of services to this population group. The biographical forms filled in by caregivers revealed some concerns regarding the children's development which was not noticed by the teachers. For example, some children's hearing was questioned but had not been referred to the relevant professional.

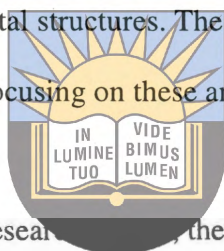


#### 6.2.3.5 Influence of rural infrastructure and financial constraints

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The influence of the rural infrastructure on the development of the sample was evident such as the informal housing in the area and the lack of stairs which had an impact on the general thread of failure on items such as draw a house, jump off stairs and what a house is made of. There was also a general lack of stimulating material both at home and at the playschools. Most of the children in the sample lacked toys and story books. None of the children in the sample owned a bicycle. Play activities with toys were further restricted to reduce breakage by the child or their playmates. This made children more inclined to engage in physical outdoor activities with other children and is seen as a contributing factor to their better performances on the locomotor subscale and personal-social subscale. The rural infrastructure therefore also had positive spin-offs for the sample's development.

This study concurs with Muthivi's (2009) conclusion, namely, that the poorer performances on certain subscales and specific items should not just be viewed and interpreted as symptomatic of a cognitive lag in the subjects' development, or a deficiency in their culture accounting for the subjects' inability to perform competently on certain subscales or items. Instead, their development should be enclosed in the socio-cultural processes in which and through which such development takes place. It further highlights that in order to gain a thorough understanding of a child's development, it is necessary to understand the child and family in relation to both the immediate and larger socio-cultural environment, including his or her neighbourhoods, communities and societal structures. The need for further research on the development of rural African children focusing on these and other factors thus remains.



### 6.3 Limitations

Methodological issues such as research design, the sampling procedure and uncontrolled variables have a bearing on the findings of this study. The following limitations need to be acknowledged.

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#### 6.3.1 Limitations regarding research approach

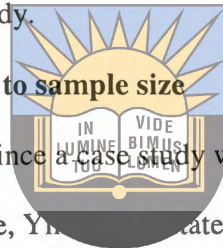
As highlighted in previous chapters, the research design was exploratory in nature and employed a descriptive research approach. When using this design the researcher lacks full control over the extraneous variables in the study, as such cause-and-effect conclusions cannot be drawn. Consequently, the findings of the study cannot be confidently generalized beyond the sample of children assessed.

### **6.3.2 Limitations regarding the sampling procedure**

A non-probability purposive sampling method was used to identify suitable children to be assessed. With such a sampling method, the researcher uses his/her own judgment in selecting participants to best suit the aims of the study. Furthermore, the researcher is not aware of the statistical probability that an individual will be included in the study, and therefore cannot claim that the sample is generally representative of the larger population (Van Rooyen, 2005). However, a non-probability sample is adequate if the study is a trial run for a larger study, or if the researcher does not intend to generalize the findings beyond the study's sample (Gregory, 2010), as was the case in the present study.

### **6.3.3 Limitations with regards to sample size**

A sample size of 12 was used. Since a case study was employed to provide an in-depth exploration of the sample's performance, Yin (2003) states that six to ten cases may be sufficient to satisfy this strategy. However, although the sample size was theoretically appropriate, it did not allow generalization of the findings.



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Another limitation with the sample size was encountered in the small number of 6-year old participants which did not allow adequate and statistical comparison of the two age groups' performance. Although this was not the core of the study, this knowledge would have provided insight into the developmental profiles and possible needs for the two age groups.

### **6.3.4 Limitations regarding data collection measures**

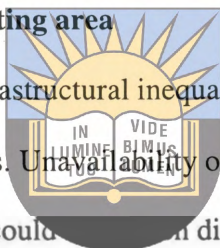
Data was collected using the GMDS-ER, biographical questionnaire and clinical interviews. The biographical questionnaire was completed by the parents and guardians and thereby relied on their knowledge and honest reporting of the experiences during pregnancy, at birth and the current development of the child. This may impact on the accuracy, validity, and

reliability of the research findings (Kaplan & Saccuzzo, 2005) as one of the major concerns was reducing inaccurate responses due to social desirability. Also the parent(s) or guardian(s) level of education and understanding of the questions had a bearing on their completing of the questionnaire alone. As such, the importance of providing accurate information in order to fully benefit from the assessment was highlighted in the letter distributed to the parents or guardians and preschools and parents were contacted for clarifications if discrepancies were identified in their responses. Also opportunities for asking questions were made available to the parent(s) and guardian(s) to enhance the accuracy, validity and reliability of acquired data.

### **6.3.5 Limitations regarding testing area**

As mentioned in the treatise, infrastructural inequality is one of the problems affecting South Africa especially in the rural areas. Unavailability of infrastructure with stairs in the communities meant that some children could be disadvantaged with regards to scoring of items related to stairs. However, effort was made to acquire information from the parents, guardians, preschool teachers and to make use of some stairs in a nearby area in order not to underscore the participants in these performances.

The impact of this problem was also felt in one of the preschools in which there was no available conducive testing area in the morning. According to Luiz, Barnard, et al., (2004) a quiet, spacious, unrestrictive testing area should be prioritized for reliable and valid assessment. In order to deal with this limitation as best as possible and minimize its impact on the assessment and performance of the participants, testing was done in the afternoon after the preschool's morning classes.



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### **6.3.6 Limitations regarding assessment time**

Another limitation experienced related to the amount of time needed to perform an assessment on the GMDS-ER. As mentioned in the treatise assessment using the GMDS-ER may be quite lengthy, and therefore requires children to concentrate on the assessment process for a period of time. Furthermore, assessment was done in the school premises within the time allocated by the school. In most instances testing was done in the afternoon which affected some children's attention and availability. As a result, due to the limited concentration span of children between the ages of 3 and 8-years (Sirpal, 2013) and the availability of time, it was expedient that assessment be done in two sessions in order to accommodate this limitation.

### **6.3.7 Limitations regarding lack of South African research conducted on African children from a rural setting**



As discussed in the treatise, to date limited South African research has been conducted on a selected group of African children from a rural setting to provide their general development. It is therefore difficult to link the findings of the present study with related research. However, Chapter 2 highlighted the various factors that may affect the development of children especially in a multicultural South African society and the performance of African children in studies using heterogeneous population groups were referred to.

### **6.3.8 Limitations regarding lack of familiarity with some test items**

The study revealed that some children were not familiar with some test items, for example, a table, riding a bicycle, a tall building, climbing stairs amongst others. Some of these items were not culturally relevant, for example, tall buildings and inavailability of stairs due to the infrastructural artifacts that characterise rural communities. As highlighted, South African rural areas are characterised by RDP houses and informal shacks. As a result, the architecture

and housing that characterises rural cultures has influenced the acquisition of mental or cultural tools that shape the African children's experience of their world and subsequently their development.

Furthermore, lack of culturally relevant items, like a table at home, due to financial constraints means that children were limited not only in their attempting test items but also in their experience of the world around them. As Bodrova and Leong (1998) highlighted the teacher plays a significant role of arming a child with the available cultural tools and enabling them to use these independently and creatively. As such, a lack of familiarity with a table and what it is used raises questions on the adequacy of the quality of the education received by the children to assist them to fully experience the world around them. In dealing with this limitation, Vygotsky's concept of scaffolding was applied in participants' responses, particularly on test items which were unfamiliar. Furthermore, Griffiths tests' elements of demonstrating, practicing, and giving participants two trials were adhered to.



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Based on the above mentioned limitations and conclusions, the following recommendations are made:

#### **6.4 Recommendations**

Although the researcher acknowledges the aforementioned limitations of this research, it is suggested that the findings of this study have important implications for future research. One of the objectives in the revision and standardization of the GMDS-ER is gaining more insight into the development of children from various backgrounds and population groups. This objective adds to the process of norm development for the South African child which in turn will enhance the applicability of the GMDS-ER in the multi-cultural South African context. The present study thus contributed to this objective by focusing on a sample of normal African

children from a rural setting. However, further research is needed to gain a widespread understanding of the development of African children from a rural setting and to identify the extent to which findings of the present study may be generalized.

The researcher would therefore recommend that:

- South African norms are developed for the GMDS-ER in order to enhance the applicability of the Scales in satisfying South Africa's multi-cultural assessment needs.

Other recommendations reached from the results include:

- The need for the GMDS-ER to be researched with a larger, and more representative African sample from a rural setting.
- The need for further research that compares African children's performance by gender, age group, socio-economic status, parent or guardian level of education and other factors that influence development.
- Conducting more systematic research to establish the effect of variables such as age, language, socio-economic status, and parent or guardian level of education on rural African children's developmental profiles.
- Developing a longitudinal inquest in order to assess the rural African children's performance on the GMDS-ER over time.
- An item analysis of each subscale to further investigate the appropriateness of the Griffith Scales' items in a rural South African context taking into consideration the lack of familiarity with some test items by the African sample. As Baker (2005) highlighted that a more realistic approach to developing a culture-free test is developing a test with content that is based on experiences which are common across cultures and thus proves to be 'culture-fair', a further study on the relevance of items on the African children and



different South African contexts is needed. Furthermore, the development of contextually and culturally equivalent items to enhance the applicability of the GMDS-ER in South Africa's multi-cultural context is recommended.

- Despite the need for norm development and analysis of some test items, the performance of the sample concurs with the assertion that the Griffiths Scales can be used successfully to assess children from various languages which include English, Afrikaans and Xhosa (Allan, 1992) and from different multi-cultural contexts (Griffiths, 1984; Van Heerden, 2007; Van Rooyen, 2005; Von Wielligh, 2012).

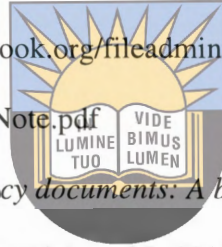
The recommendations above are offered as they are believed to further enhance the fair utilization of the GMDS-ER in the rural South African setting and may help improve intervention strategies aimed at the holistic development of all South African children.



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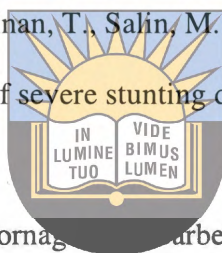
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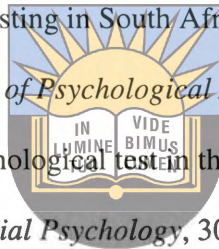
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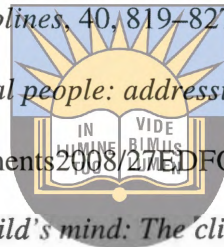
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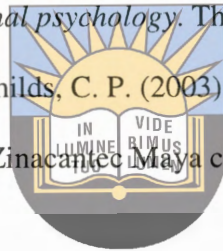
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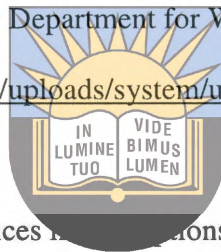
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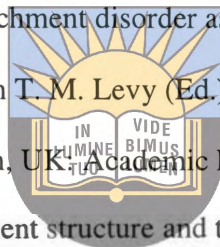
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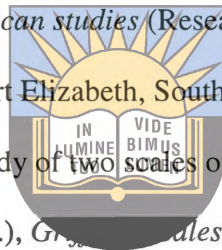
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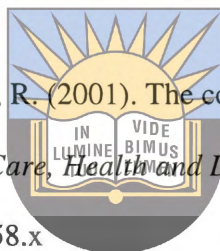
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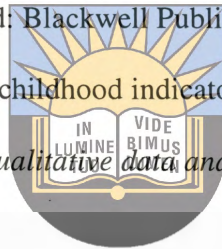
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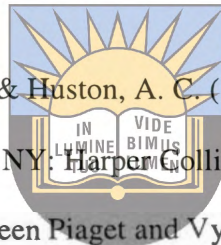
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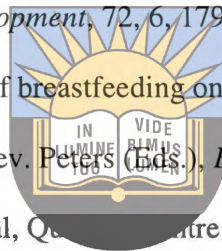
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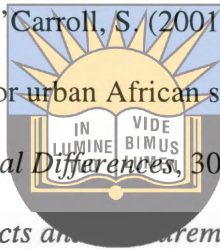
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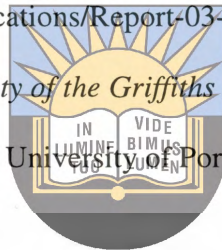
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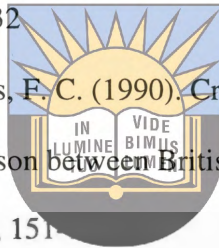
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## APPENDICES

### APPENDIX A



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Biographical Questionnaire to be completed by participant(s) or caregiver(s)

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#### SECTION A (*INDIMA A*)

#### PERSONAL DETAILS OF PARTICIPATING CHILD (*IINCUKATSHA ZOMNTWANA OYINGXENYE*)

Name and Surname: \_\_\_\_\_ Gender  M  F  
*Igama ne fani: \_\_\_\_\_ Ubuni*

*(Tick one box) (Khetha ibhokisi ibenye)*

Residential address: \_\_\_\_\_  
*Idilesi yokuhlala:*

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Suburb or Area: \_\_\_\_\_  
*Ilokishi okanye ilali:*



Cellphone number: \_\_\_\_\_ Home language: \_\_\_\_\_  
*Inombolo yomnxeba: Ulwimi lwasekhaya:*

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Relationship with child being tested \_\_\_\_\_  
*Ubudlelwano nomntwana ozakuhlolwa*

Date of Birth: 20\_\_\_/\_\_\_/\_\_\_  
*Usuku lokuzalwa:*

Date of testing: 20\_\_\_/\_\_\_/\_\_\_  
*Usuku lokuhlolwa*

Current School \_\_\_\_\_  
*Isikolo akuso:*

Grade \_\_\_\_\_  
*Ibanga*

School Telephone No: \_\_\_\_\_  
*Inombolo yomnxeba yesikolweni:*

**Family Background (*Imvelaphi yosapho*)**

How many children do you have in your family?  
*Bangaphi abantwana onabo ekhayeni lakho?*

State number of children according to gender and age. (*Xela inani labantwana ngoko buni nange minyaka*)

GENDER ( <i>UBUNI</i> )	AGE ( <i>IMINYAKA</i> )	GENDER ( <i>UBUNI</i> )	AGE ( <i>IMINYAKA</i> )



Where is the child being tested being raised? (the family site, the youngest, etc)  
*Ngumntwana we singaphi ohloliweyo kolusapho? (unzkelo, ngomdala, ngomncinci, njalonjalo)*

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Mother / guardian's age .....  
*Iminyaka kamama okanye unogadi*

Are you currently working? Yes  No   
*Uyaphangela? Ewe Hayi* Since when? \_\_\_\_\_  
*Kusukela nini?*

Current \_\_\_\_\_ or previous \_\_\_\_\_  
*Umsebenzi wangoku okanye odlule*

work employment.

**Educational qualifications** *(Please tick all relevant blocks below)*  
*(Sicela ukhethe kuzo zonke ibhokisi ezifanelekileyo kwezilandelayo)*

Type of qualification	Attained ( <i>Unayo</i> ) or not attained ( <i>okanye awunayo</i> )
No qualification	
General Certificate of Secondary Education (GCSE) / O Levels	
Advanced Levels	
GSCE	
Higher education (e.g., University or college ) <i>Imfundo ephezulu (umzekelo, idyunivesithi okanye kwi-college)</i>	
Other (e.g., NVQ) <b>Please specify</b> <i>Ezinye (umzekelo, NVQ) Nceda ucacise</i> ..... ..... .....	

Father / guardian's age .....  
*Iminyaka ka tata okanye unogadi*

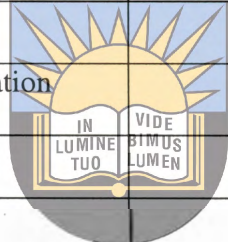
Are you currently working? Yes  No  Since when? \_\_\_\_\_  
 Uyaphangela? Ewe  Hayi  Kusukela nini?

Current \_\_\_\_\_ or previous \_\_\_\_\_  
 Umsebenzi wangoku okanye odlule

work employment.

**Educational qualifications** (Please tick all relevant blocks below)  
 (Sicela ukhethe kuzo zonke ibhokisi ezifanelekileyo kwezilandelayo)

Type of qualification	Attained (Unayo) or not attained (okanye awunayo)
No qualification	
General Certificate of Secondary Education (GCSE) / O Levels	
Advanced Levels	
GSCE	
Higher education (e.g., University or college) <i>Imfundo ephezulu (umzekelo, idyunivesithi okanye kwi-college)</i>	
Other (e.g., NVQ) Please specify <i>Ezinye (umzekelo, NVQ) Nceda ucacise</i>	
.....	
.....	
.....	



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**SECTION B (INDIMA B)**

**BIRTH AND DEVELOPMENT HISTORY OF PARTICIPATING CHILD  
 (IMVELAPHI YOKUZALWA NOKUKHULA KOMNTWANA)**

1. Please describe anything unusual about the pregnancy or delivery:

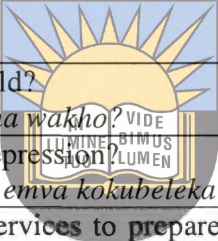
1. Nceda uchaze nontoni na engaqhelekanga eyenzeke ngexesha ukhulelwe okanye ubeleka:

---



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Please tick either Yes, No and/or complete the spaces where applicable.  
(Nceda uchonge u Ewe, Hayi okanye ugcwalise izikhewu xa kuyimfuneko).

Birth History (Imvelaphi ekuzalweni)		Y (Ewe)	N (Hayi)
2	Was your pregnancy planned? <i>Bekucebile ukukhulelwa kwakho?</i>		
3	Was your child anoxic (i.e. did he/she lack oxygen at birth?) <i>Uye waswela umoya ekuzalweni umntwana wakho?</i>		
4	Was your child born either prematurely or after more than 41 weeks of pregnancy? <i>Uzalwe phambi kwexesha okanye emva kweviki ezingaphezulu kwamatshumi amane ananye (41)</i>		
5	Did you breast feed your child? <i>Umncancisile umntwana wakho?</i>		
6	Is your child one of a twin? <i>Ingaba ungomnye we wele?</i>		
7	Did you bond easily with your child? <i>Liye lasondelelana lula nomntwana wakho?</i>		
8	Did you experience postpartum depression? <i>Uyewahlangana nokwehla umoya emva kokubeleka?</i>		
9	Did you receive any post-natal services to prepare you for raising your child? <i>Uye wafumana uncedo emva kokuba ubekile ukukulungiselela ekukhuliseni umntwana wakho?</i>		
 <p>University of Fort Hare Together in Excellence</p>			
Motor Development (Ukukhula ngokwasemzimbeni)			
10	At what age did your child sit:.....months  Crawl:.....months  Walk:.....months  <i>Umntwana wakho uhlale enangaphi? ..... inyanga</i>  <i>Ukhase enangaphi? ..... inyanga</i>  <i>Uhambe enangaphi? ..... inyanga</i>		
11	Is your child extremely underactive? <i>Ingaba umntwana wakho akadlali ngokudlulileyo?</i>		
12	Is your child noticeably physically overactive? <i>Ingaba umntwana wakho ujongeka edlala ngokudlulileyo?</i>		
13	Is your child clumsy? <i>Ingaba umntwana wakho lixelegu?</i>		

Language Development ( <i>Ukukhula ngokolwimi</i> )			
14	Did your child have difficulty with sucking and chewing? <i>Ingaba umntwana wakho ubenengxaki ngokufunxa nokuhlafuna?</i>		
15	At what age did your child start to babble? .....months <i>Uqale nini umntwana wakho ukulinganisa ukuthetha? .....inyanga</i>		
16	Does your child use single words? If yes from what age? ..... <i>Ingaba umntwana wakho usebenzisa igama elinye?</i> <i>Ukuba ewe uqale eneminyaka emingaphi? .....</i>		
17	Does your child speak in sentences? If yes, from at what age? ..... <i>Ingaba umntwana wakho uthetha ngokwezivakalisi?</i> <i>Ukuba ewe uqale eneminyaka emingaphi? .....</i>		
18	Does your child ask repetitive questions? <i>Ingaba umntwana wakho uyaphindaphinda ukubuza imibuzo?</i>		
19	Does your child talk to himself excessively? <i>Ingaba umntwana wakho uyabonga yedwa ngokwaziwayo?</i>		
20	Does your child echo words or phrases constantly? <i>Ingaba umntwana wakho usebenzisa amagama nje ekukhulumeni ixesha elininsi?</i>		
Emotional Development ( <i>Ukukhula ngokwemvakalelo</i> )			
21	Does your child cry or laugh for no reason? <i>Ingaba umntwana wakho uyalila okanye ahleke ngaphandle kwesizatho?</i>		
22	Does your child prefer to be alone? <i>Ingaba umntwana wakho ukhetha ukuba ahlale yedwa?</i>		
23	Does your child enjoy cuddling and respond to affection? <i>Ingaba umntwana wakho uyakonwabela ukugonwa nokuboniswa uthando?</i>		
24	Does your child have temper tantrums regularly? <i>Ingaba umntwana wakho ubanomsindo ixesha elininsi?</i>		
25	Does your child display extreme distress for no apparent reason? <i>Ingaba umntwana wakho ubonisa ukwehla emoyeni kungekho sizatho?</i>		
Social Development ( <i>Ukukhula ekuhlaleni</i> )			
26	Does your child have difficulty in mixing with other children? <i>Ingaba umntwana wakho unengxaki nokuhlangana nabanye abantwana?</i>		



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27	Does your child make little or no eye contact? <i>Ingaba umntwana wakho ujonga kancinci okanye akajongi umuntu emehlweni?</i>		
28	Does your child form inappropriate attachment to certain objects? <i>Ingaba umntwana wakho uba nemvakalelo ezingalunganga kwizinto ezithile?</i>		
<b>Sensory and Hearing Development (Ukukhula ekumameleni nasekuveni)</b>			
29	Does your child appear as if he/she does not hear you? <i>Ingaba umntwana wakho ukhangeleka angathi akeva?</i>		
30	Does your child cover his/her ears? <i>Ingaba umntwana wakho uyazigquma indlebe?</i>		
31	Is your child upset by noises? <i>Ingaba umntwana wakho uyacaphukiswa yingxolo?</i>		
<b>General Development (Ukukhula jikelele)</b>			
32	Is your child on any kind of medication?  If yes for what? ..... <i>Ingaba umntwana wakho uphantsi konyungo?</i> <i>Uba ewe lolantoni?.....</i>		
33	Has the teacher complained that your child is very restless and struggles to concentrate in class?  <i>Ingaba utitshela ukhe wakhalazela ukuphithizela komntwana wakho nokusokolisa ekumameleni egumbini lokufundela?</i>		
34	Does your child receive any special help at school?  <i>Ingaba umntwana wakho ufumana uncedo olulodwa okanye olukhethekileyo esikolweni?</i>  If yes, specify reason ( <i>Ukuba ewe chaza isizathu</i> ) ..... ..... .....		
35	Does your child stutter? <i>Ingaba umntwana wakho uyathintitha?</i>		
36	Does your child faint frequently? <i>Ingaba umntwana wakho uyafeyinta amaxesha amaninzi?</i>		
37	Does your child bite his/her nails excessively? <i>Ingaba umntwana wakho utya inzipho zakhe ngokudlulisileyo?</i>		



## SECTION C (INDIMA C)

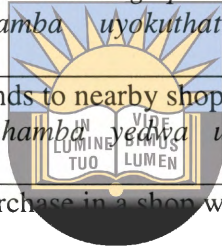
The following questions are applicable to children of a broad age range; therefore, we do not necessarily expect your child to be capable of all of the tasks listed below. Please do not be concerned if your child is not yet able to complete each of the activities. We would appreciate a completely honest evaluation of your child's ability. Tick either yes or no where applicable.

*Imibizo elandelayo ifanele abantwana abakwiminyaka ebanzi; ngakokho, asilindelanga ukuba umntwana wakho akwazi ukwenza zonke ezindima zibhalwe ngaphantsi. Sicela ningahlupheki ukuba umntwana wakho akakwazi ukwenza zonke ezindima. Singabulela ukuphendulwa ngokwenyani ngokwenelisa komntwana.*



No:	Question (Imibuzo)	Y Ewe	N Hayi
1	Does your child help with small household tasks? <i>Ingaba umntwana wakho uyancedisa ngemisebenzi yasekhaya?</i>		
2	Does your child help with routine tasks when requested? <i>Ingaba umntwana wakho uyancedisa kwimisebenzi yamanoqo xa eyalelwe?</i>		
3	Does your child help tidy a room? <i>Ingaba umntwana wakho uyancedisa ukucoca igumbi?</i>		
4	Does your child bath or shower with minimal assistance? <i>Ingaba umntwana wakho uyahlamba ngoncedo oluncinane?</i>		
5	Does your child clean his/her own teeth? <i>Ingaba umntwana wakho uyahlamba amazinyo akhe?</i>		
6	Does your child wash own hands and face but needs assistance with drying? <i>Ingaba umntwana wakho uyazihlamba izandla nobuso adinge uncedo ekuzomiseni?</i>		
7	Does your child wash and dry own hands and face but needs checking? <i>Ingaba umntwana wakho uyazihlamba omise izandla nobuso adinge ukujongwa?</i>		
8	Does your child wash and dry own hands and face without assistance? <i>Ingaba umntwana wakho uyazihlamba omise izandla nobuso ngaphandle koncedo?</i>		
9	Does your child need some assistance to bath or shower? <i>Ingaba umntwana wakho uyaludinga uncedo ekuhlambeni?</i>		
10	Does your child bath or shower without assistance? <i>Ingaba umntwana wakho uyahlamba ngaphandle koncedo?</i>		

11	Does your child bath or shower, and dry him/herself without assistance? <i>Ingaba umntwana wakho uyazihlamba azomise ngaphandle koncedo?</i>		
12	Does your child need assistance to put on his/her own shoes and socks, e.g. putting shoes on correct feet? <i>Ingaba umntwana wakho uyaludinga uncedo ukunxiba izihlangu ne kawusi, umzekelo, ukufaka isihlangu kunyawo olululo?</i>		
13	Does your child put on his/her own shoes and socks without assistance? <i>Ingaba umntwana wakho uyazinxiba izihlangu ne kawusi zakhe ngaphandle koncedo?</i>		
14	Does your child choose his/her own clothes? <i>Ingaba umntwana wakho uyazikhethela impahla zakhe?</i>		
15	Does your child deliver a simple message? <i>Ingaba umntwana wakho uyawudlulisa umyalezo olula?</i>		
16	Does your child go on instruction to get a specific item in a public area, e.g. go and get bread from the counter and bring it to mother? <i>Ingaba umntwana wakho uyawulandela umgaqo okufumana into ecacileyo esidlangalaleni, umzekelo, hamba uyokuthatha isonka kwidisika yokuthengisela usizise kumama?</i>		
17	Does your child go alone on errands to nearby shops, etc.? <i>Ingaba umntwana wakho uyahamba yedwa ukufuna akuthunyiweyo kwivinkili ezikufuphi?</i>		
18	Does your child make a small purchase in a shop with some assistance, e.g. checking the change? <i>Ingaba umntwana wakho uyakwazi ukuthenga into encinci evenkileni ngoncedo, umzekelo ukujonga ushintshi?</i>		
19	Does your child make a small purchase in a shop without assistance? <i>Ingaba umntwana wakho uyayithenga into encinci evenkileni ngaphandle koncedo?</i>		
20	Does your child demonstrate an understanding that it is unsafe to accept rides, foods, or money from strangers? <i>Ingaba umntwana wakho ubonakalisa ukuqonda ukuba akuphephile ukwamukela ukukhwela, ukutya okanye imali emuntwini ongamaziyo?</i>		
21	Does your child need to be reminded to follow the rules in a simple game? <i>Ingaba umntwana wakho udinga ukukhunjuzwa ukuba alandele imigaqo emidlalweni elula?</i>		
22	Does your child follow a rule in a simple game, without being reminded? <i>Ingaba umntwana wakho uyalandela imigaqo emidlalweni elula, ngaphandle kokukhunjuzwa?</i>		
23	Does your child neaten (brush or comb own hair in the morning)? <i>Ingaba umntwana wakho uyakwazi ukuzilungisa inhloko ngokwakhe ekuseni?</i>		
24	Does your child ask to use the toilet? <i>Ingaba umntwana wakho uyacela ukusebenzisa indlu yangasese?</i>		
25	Does your child have bladder control during the day, with a few accidents? <i>Ingaba umntwana wakho uyakwazi ukubamba umchamo phakathi kwemini, enze ingozi kancinci?</i>		



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26	Does your child have complete bladder control during the day and night? <i>Ingaba umntwana wakho uyakwazi ukubamba umchamo phakathi kwemini nobusuku?</i>		
27	Does your child get a drink of water from the tap without assistance? <i>Ingaba umntwana wakho uyakwazi ukusela empompeni yamanzi ngaphandle koncedo?</i>		
28	Does your child get a drink of water from the tap with some assistance? <i>Ingaba umntwana wakho uyakwazi ukusela empompeni yamanzi ngokuncedwa kancinci?</i>		
29	Does your child eat without assistance? <i>Ingaba umntwana wakho uyakwazi ukutya ngaphandle koncedo?</i>		
30	Can your child pedal a tricycle or other pedal toy without help? <i>Ingaba umntwana wakho uyakwazi ukunyova ibhayisikile okanye i-thoyi yokunyova?</i>		
31	Can your child run at a slow speed out of doors? <i>Ingaba umntwana wakho uyakwazi ukubaleka ngokucocileyo ngapha kwamacango?</i>		
32	Does your child run fast out of doors? <i>Ingaba umntwana wakho uyakwazi ngokukhawuleza ukuphuma emnyango?</i>		
33	Does your child run upstairs without holding the banisters (handrails) or touching the stairs? <i>Ingaba umntwana wakho uyakwazi ukunyuka izitepisi ngaphandle kokubamba iinsimbi yezipisi okanye izitepisi?</i>		
34	Does your child run up a staircase of at least 8 steps? <i>Ingaba umntwana wakho uyakwazi ukubaleka enyuka izitepisi ezisisbhozo ukuyaphezulu?</i>		
35	Does your child run upstairs in an adult manner? <i>Ingaba umntwana wakho uyakwazi ukunyuka izitepisi njengomntu omdala?</i>		
36	Does your child jump 3 steps and land with both feet touching the ground simultaneously and without touching the floor with his hands? <i>Ingaba umntwana wakho uyakwazi ukutsiba izitepisi ezintathu afike ngenyawo zombini ngexesha elinye phantsi kwaye angabambi phantsi ngezandla?</i>		
37	Does your child jump 4 steps and land with both feet touching the ground simultaneously and without touching the floor with his hands? <i>Ingaba umntwana wakho uyakwazi ukutsiba izitepisi ezine afike ngenyawo zombini ngexesha elinye phantsi kwaye angabambi phantsi ngezandla?</i>		
38	Does your child run downstairs? <i>Ingaba umntwana wakho uyakwazi ukubaleka esehla izitepisi?</i>		
39	Does your child ride a bicycle (two-wheeler)? <i>Ingaba umntwana wakho uyakwazi ukuqhuba ibhayisikile?</i>		
40	Does your child ride a bicycle (two-wheeler) with skill? <i>Ingaba umntwana wakho uyakwazi ukuqhuba ibhayisikile ngokuqinisekileyo?</i>		

41	Does your child use a spoon or fork without help? <i>Ingaba umntwana wakho uyakwazi ukusebenzisa icephe okanye ifolokhwe ngaphandle koncedo?</i>		
42	Does your child enjoy playing with other children? <i>Ingaba umntwana wakho uyakonwabela ukudlala nabanye abantwana?</i>		
43	Does your child play well with other children? <i>Ingaba umntwana wakho uyakwazi ukudlala kakuhle nabanye abantwana?</i>		
44	Does your child know how to undress himself? <i>Ingaba umntwana wakho uyakwazi ukuzikhulula?</i>		
45	Does your child know how to undress his jersey, jacket, raincoat without any assistance? <i>Ingaba umntwana wakho uyakwazi ukukhulula ijezi angancediswanga?</i>		
46	Does your child have a special (preferred) playmate? <i>Ingaba umntwana wakho unomntu wokudlala okhethekileyo?</i>		
47	Is your child selective as to whom he plays with? <i>Ingaba umntwana wakho uyakhetha ukuba udlala nobani?</i>		
48	Does your child assist with setting up a table for serving or eating with supervision? <i>Ingaba umntwana wakho uyakwazi ukuncedisa ukulungisa itafula lokuphaka okanye lokutya ngokujongwa?</i>		
49	Does your child dress or undress completely, without help? <i>Ingaba umntwana wakho uyakwazi ukunxiba nokukhumlisa ngokupheleleyo ngaphandle koncedo?</i>		
50	Does your child have one special school friend? <i>Ingaba umntwana wakho unesihlobo esikoleni esikhethekileyo?</i>		
51	Does your child tie own shoe laces? <i>Ingaba umntwana wakho uyakwazi ukubopha imitya yezihlangu zakhe?</i>		
52	Does your child set a table for serving or eating completely without help or supervision, on all occasions? <i>Ingaba umntwana wakho uyakwazi ukulungisa itafula lokuphaka okanye lokutya ngokugcweleleyo ngaphandle koncedo okanye ukujongwa ngawo wonke amaxesha aqhelekileyo?</i>		

Thank you for your co-operation in filling in this Questionnaire. All the information that you have supplied us with will be treated as strictly confidential.

(Siyabulela ngentsebenziswano yenu ngokugwalisa lemibuzo. Lonke ulwazi enisinike lona luzokuphathwa ngemfihlakalo.)

**Appendix B**



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Letter to principals to acquire permission to conduct the study in their playschool

Dear .....

April 2013



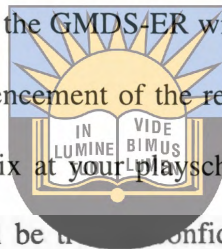
**Re: Request for permission to conduct a research project**

The Fort Hare University has plans to conduct a Research Project exploring a developmental profile of normal black South African children from a rural setting between the age of five and six using the Griffiths Mental Development Scales (GMDS). The GMDS were developed in Britain in the 1960s and are used internationally for the developmental assessment of young children. It assesses six areas of general development using different subscales which include: Locomotor; Personal-Social; Language; Eye-and Hand Co-ordination; Performance and Practical Reasoning. These scales have been revised making them more culture fair and contemporary.

The planned research is thus a pilot investigation of the general development of children from a rural setting. In spite of the applicability of the GMDS-ER in the South African context, limited research and assessment have been done on black South African children, especially from a rural setting.

The research aims to explore and describe the performance of black South African children between the age of five and six from a rural setting in the Amathola region, using the Griffiths Mental Development Scales – Extended Revised (GMDS-ER). The purpose of the study is to generate information on the general development of children from rural settings that can further inform on the needs of this population group and enhance the development of relevant child intervention strategies.

Two psychologists trained in the use of the GMDS-ER will administer the scales to the identified sample of learners. Prior to the commencement of the research, we require your permission for learners between the age of five and six at your playschool to participate in the study. All the information gathered in the study will be held confidentially and will be used only for the mentioned purpose of the study.



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Feedback on the findings of the study and performance of the participants will be provided to the participating playschools and the parents or guardians of the participants respectively. Should certain participants be in need of intervention, they will be referred to the appropriate professionals in consultation with the parent(s) or guardian(s) and playschool authorities.

Please find attached a copy of a covering letter, biographical questionnaire and consent form to be completed by the parent(s) or guardian(s) of possible participants.

We would like to stress that the success of this project depends entirely on your voluntary cooperation and we thank you in anticipation. Should you require any further information, please

feel free to contact Ms Sithembinkosi Dawu-Tshuma (083 531 8123) or Mrs. Rivca Marais (040 602 2280).

Yours sincerely

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Principal investigator: Ms. Sithembinkosi Dawu-Tshuma

Master in Psychology Student

(Department of Psychology, University of Fort Hare)



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Mrs. R. Marais

University of Fort Hare  
*Together in Excellence*

Supervisor

(Department of Psychology, University of Fort Hare)

## Appendix C



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Letter to parents or guardians for permission for their children to participate in the study

Incwadi ku mzali okanye unogadi enikeza imvume yokuba umtana athathe inxaxheba esifundweni

Dear parent

*Mzali obekekileyo*



April 2013

*kuSilimela 2013*

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**Re: Request for permission to conduct research project**

**Re: Isicelo semvume yokwenza umsebenzi wophengululo**

The Fort Hare University has plans to conduct a research project exploring the developmental profile of normal African children from a rural setting between the age of five and six using the Griffiths Mental Development Scales (GMDS). The GMDS were developed in Britain in the 1960s and are used internationally for the developmental assessment of young children. It assesses six areas of general development using different subscales which include: Locomotor; Personal-Social; Language; Eye-and Hand Co-ordination; Performance and Practical Reasoning. These scales have been revised making them more culture fair and contemporary.

In spite of the applicability of the GMDS-ER in the South African context, limited research and assessment have been done on African children from a rural setting. As such, the planned research is a pilot investigation of the general development of children from a rural setting.

*Idyunivesithi yaseFort Hare iceba ukwenza umsebenzi wophengululo ijonga ukuphuhla kwabantwana emaphandleni abaphakathi kweminyaka emithandathu kusetshenziswa i-Griffiths Mental Development Scales (GMDS). I-GMDS yenziwa e-Britain ngomnyaka wama 1960s kwaye zisetyenziswa kumazwe amakhulu ukuhlola uphuhlo lwabantwana abancinci. Ihlola ingingqi ezintandathu zophuhlo jikelele isebenzisa i-subscases ezohlukeneyo kuquka: Locomotor; Personal-Social; Language; Eye-and Hand Co-ordination; Performance ne Practical Reasoning.*

*Ezi-scales ziye zalungisiswa zenziwa zalungeta ukusetshenziswa kubantu abaningi.*



*Noba le GMDSR-ER ikwazi ukusetshenziswa kwizwe lonke, lusezingeni oluphansi uphengululo no hlolo oselwenziwe kubantwana baseAfrika abancinci emaphandleni kusetshenziswa yona. Ngakho ke, le-research seyicetyiwe luphando olutsha lophuhliso jikelele lwabantwana abasuka emaphandleni.*

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## **Aim**

The aim of the study is to explore and describe the performance of African children between the age of five and six from a rural setting in the Amathola region, using the Griffiths Mental Development Scales – Extended Revised (GMDS-ER). Its purpose is to generate information on the general development of African children from rural settings that can further inform on the needs of this population group and enhance the development of relevant child intervention strategies.

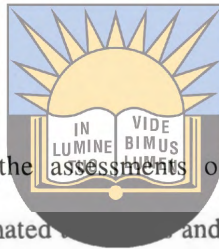
## **Injongo**

*Injongo yesi sifundo kukukhanyisa nokuchaza intsebenzo yabantwana baseAfrika abaphakathi kweminyaka emihlanu nemithandathu abasuka emaphandleni kwingingqi yase-Amathole kusetshenziswa*

*i-Griffiths Mental Development Scales – Extended Revised (GMDS-ER). Injongo kukufumana ulwazi kuphuhlo jikelele kubantwana baseAfrika abasuka emaphandleni okunganikeza ulwazi ngeliqela labantu kwaye incedisa ekwenzeni indlela zokukhuliswa kwabantwana.*

### **Procedure**

Your permission as parent(s) or guardian(s) is required for the participation of your child. You will be requested to provide written consent by completing the attached **parent consent form** and to complete a **biographical questionnaire** that will provide essential information on the background and general development of your child.



Trained GMDS-ER users will conduct the assessments of the identified sample of children. The assessment of your child will take an estimated 45 minutes and will be conducted over two sessions where needed. Upon participation and assessment of your child, an individual report will be compiled and feedback given to you regarding the performance of your child. Should your child be in need of intervention, they will be referred to the appropriate professionals in consultation with you.

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### **Indlela yokusebenza**

*Imvume yakho njengomzali okanye unogada womntwana iyadingeka ekutheni umntwana abe yingxenywe. Uzawucelwa unikeze imvume ebhaliweyo ngokugcwalisa iphepha mvume nemibuzo emayelana nokukhula komntwana ezakunika ulwazi o'ubalulekileyo ngemvelaphi nokukhula jikelele komntwana.*

*Abantu abaqeqeshelwe ukusebenzisa i-GMDS-ER bazakwenza uhlolo kwiqela labantwana abonyuliweyo. Uhlolo lomntwana wakho luya kuthatha iyure eziqeqelwa kwisibili kwaye kungenziwa iziqendu ezingapha kwesibili ukuba kuyadingeka. Emva kokuba yingxenywe nokuhlolwa, ingxelo yomntwana*

*ngamunye iyadityaniswa unikezwe iziphumo mayelana nokuqhuba komntwana wakho. Xa umntwana wakho efuna uncedo uzakudluliselwa kwiziqeqeshi ezifaneleyo ngemvume nangokukhulimisana nawe.*

### **Risks and benefits**

No major risks to the well-being of your child are envisioned with regards to their participation. Since the scales are based on play, your child will enjoy the assessment process and will be free to refuse or withdraw from participating at any stage of the assessment.

The study will be of benefit in providing information on your child's general development essential for understanding and enhancing your child's early development.



### **Ubungozi nenzuzo**

*Abukho ubungozi okubhekiselwe emntwaneni wakho a yingxenye yalomsebenzi. Ukuba esi-scale singokudlala, umntwana wakho uza yobuqiniso ngobolobolo wakweye ukwavumelekile ukungavumi okanye ayeke ukuba yingxenye nakwesiphi isiqendu sokuhlolwa.*

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*Esi sifundo sizonceda ukunika ulwazi ngokukhula jikelele komntwana wakho olubalulekileyo ukuqonda nokuncedisa ukhulo lomntwana wakho esemncinci.*

### **Confidentiality**

All the information collected using the biological questionnaire and assessment outcomes will be strictly confidential and used only for the purpose of this study. No information provided on your child during the course of the study, including answers to the biological questionnaire, data findings will be shared with any person who is not involved in the research project. The data from the study could be used in reports, presentations and publications but your child will not be individually identified.

## ***Imfihlakalo***

*Lonke ulwazi olufunyenweyo kusetshenziswa imibuzo ngokukhula komntwana neziphumo zohlolo zokuba yimfihlakalo kwaye isetshenziswe kunjongo yesifundo kuphela. Ulwazi olufumenwe ngomntwana aluyi kunikezwa nomangubani ngaphandle komuntu oyingxenye yale projekti. Olulwai luzakusetshenziswa kwinxelo, uthulo ntetho, nakusasazo kodwa umntwana wakho akuzukwaziswa lapho.*

We would like to stress that the success of this project depends entirely on your voluntary co-operation and we thank you in anticipation. As proof of your consent in participation, we request you to sign the attached parent or guardian consent form.



*Sithanda ukukwazisa ukuba ukuphumelela kwalolu phengululo kuxhomekeke ekubandakanyeni ngokwakho, kwaye siyabonga silindele. Ukubonisa imvume yokuba yingxenye, sicela ugcwalise iphepha mvume olinikeziweyo.*

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Should you require any further information, please feel free to contact Ms Sithembinkosi Dawu-Tshuma (083 531 8123) or Mrs. Rivca Marais (040 602 2280).

*Xa ufuna ulwazi oluphangeleleyo, khululeka uxhokane no (Ms) Sithembinkosi Dawu-Tshuma (083 531 8123) okanye uNkosikazi Rivca Marais (040 602 2280).*

Yours sincerely

*Ozithobileyo*

---

Principal investigator: Ms. Sithembinkosi Dawu-Tshuma

Master in Psychology Student

(Department of Psychology, University of Fort Hare)

*Inqunu ephandayo: (Ms). Sithembinkosi Dawu-Tshuma*

*Umfundi owenza i-Master kwi Psychology*

*(Department ye Psychology, iDyunivesithi yaseFort Hare)*

---

Mrs. R. Marais

Supervisor

Registered Counselling Psychologist

(Department of Psychology, University of Fort Hare)

*Unkosikazi R. Marais*

*I-Supervisor*

*Oyi-Registered Counselling Psychologist*

*(Department ye Psychology, iDyunivesithi yaseFort Hare)*



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Appendix D



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Declaration by parent or guardian of participant:

*I-declaration ngumzali okanye unogadi womthathi nxaxheba:*



I, the undersigned, .....

*Mna, ogcwalise ngaphansi*

*(Full name) (Amagama agcweleyo)*

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[ID No: .....], the ..... of

*ndingu*

*ka*


*(Relationship to child) (Isihlobo nomntwana)*

..... [ID No: .....]

*(Participant name) (Igama lomthathi nxaxheba)*

hereby give consent for my child to participate in the research project being undertaken by Ms. S Dawu-Tshuma from the University of Fort Hare.

*ndinikeza imvume yokuba umntwana wami athathe inxaxheba kulomsebezi wophengululo onziwa nguNkosazana S Dawu-Tshuma waseDyunivesithi yeFort Hare*

<b>I understand that:</b> <i>Nginyaqonda ukuba:</i>	<b>Initials</b>
<p>The research project seeks to explore and describe the developmental profile of normal African children from a rural setting between the age of five and six using the Griffiths Mental Development Scales (GMDS).</p> <p><i>Lomsebenzi wophengululo ufuna ukukhangela nokuchaza ukuphuhliswa kwabantwana base Afrika kwizimo zasemaphandleni phakathi kweminyaka yesithandathu nesihlanu kusetshenziswa i-Griffiths Mental Development Scales (GMDS).</i></p>	
<p>My child will be assessed at no cost, at his/her school at a time the teachers have allocated to the researcher.</p> <p><i>Umntwana wami uzakuhlolwa kungela mbadalo esikolweni sakhe ngeloxesha utitshala anikeze lona umhloli</i></p>	
<p>A possible benefit of this assessment is that any developmental concerns could be detected on time which would allow me to intervene in areas of concern sooner.</p> <p><i>Inzuzo enokuba khona kokukuhlolwa kukuba iinxalabo ekuphuhleni zingabonwa ngexesha elizakundivumela ukuba ndingenele kwindawo ezixalebisayo msinyane</i></p>	
<p>The assessment process could reveal information regarding concerns in my child's development and that this information will be shared with me. Any decision for an identified need for intervention will be made in consultation with me.</p> <p><i>Indlela yokuhlolwa ingabonakalisa ulwazi mayelana neenxalabo zophuhliso lomntwana wami kwaye olulwazi luzakwabelwana nam. Nesiphi isinqumo kwisidingo esibonakeleyo ukungenelelwa sizokwenziwa ngokuthetha nam.</i></p>	
<p>My identity or that of my child will not be revealed in any discussion, description</p>	

<p>or scientific publications by the investigators.</p> <p><i>Ubumna bam okanye okomntwana abuzokutyhilwa nakweyiphi inxoxo, ukuchaza okanye imibhalo yezinzungulwazi ngabacuphi</i></p>	
<p>No pressure was exerted on me to consent to participation and I understand that I or my child may withdraw at any stage without any form of penalization.</p> <p><i>Akukho nyazelo eye yafakwa kum ukuvumela ukuba ndithathe inxaxheba kwaye ndiyaqonda ukuba mna okanye umntwana wam singaphuma nakweliphi izinga kungekho noma eyiphi inhlobo yokuhlawuliswa</i></p>	



The information above was explained to me the parent/guardian of the participant by  
*Ulwazi olungaphezulu lucacisiwe kum umzali/umogadi womthathi nxaxheba ngesiXhosa.*

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.....*Together in Excellence*..... in English / Xhosa / Other

*(Name of relevant person) (Igama lomntu ofanele)*

..... I was given the opportunity to ask questions and all these questions

*Ndiye ndanikezwa ithuba lokubuza imibuzo kwaye yonke le mibuzo*

were answered satisfactorily.

*iphendulwe ngokwanelisekileyo.*

I hereby voluntarily consent to participate in the study:

*ndiyazivumela ngikuthanda kwami ukuthatha inxaxheba kwesi sifundo:*

Signed at ..... on ...../...../20.....

*Tyikitywe e*

*ngo*

*(Place) (Indawo)*



Signature of parent / guardian

Signature of witness

*Umtyikityo womzali / unogadi*

*Umtyikityo wo nika ubungqina*

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