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A descriptive study investigating the quality of the physical and social environment for infants and toddlers living in residential care facilities in Johannesburg, South Africa

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A research report submitted to the Faculty of Health Sciences, University of the Witwatersrand, Johannesburg, in partial fulfilment of the requirements of the Master of Science Degree in Occupational Therapy.

Johannesburg, 2014

Declaration

I, Ghida Bernard, declare that this research report is my own work. It is being submitted for the degree of Master of Science in Occupational Therapy in the University of the Witwatersrand, Johannesburg. It has not been submitted before for any degree or examination at this or any other University.

__Ghida Bernard  _____

_____20th___ day of _____February____ 2014

Dedication

For all the vulnerable and orphaned children passing through residential child care facility environments:

May you be seen as individuals

and not as a group.

Abstract

The number of children needing care outside of the home environment is increasing. Little is known on quality of residential child carechild care environments in South Africa. To address this knowledge gap, a quantitative descriptive research protocol with a cross-sectional study design was employed to survey residential child care facilities in Johannesburg. The Infant-Toddler Environmental Rating Scale – revised edition was used to describe the social and physical environments provided to children (0-30 months) residing in 18 facilities. Furthermore, caregiver (n=45) and facility demographic information were gathered to determine whether an association existed between three aspects of the environments (caregiver education, training, and child to caregiver ratios) and overall quality scores. Results showed that the environments provided were inadequate and no statistical significant correlations were found between structural aspects and quality scores. The results indicated that the environment restricted children in the fulfilment of meaningful occupation, highlighting the importance of intervention by occupational therapists.

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Definitions

Operational definitions

Residential child care facility: This refers to a “child and youth care centre” as stipulated in the children’s amendment act (2007): “a facility for the provision of residential care to more than six children outside the child’s family environment in accordance with a residential care programme suited for the children in the facility.” (1)

Caregivers: For the purpose of this study ‘caregivers’ included all individuals who were directly responsible or involved in providing care to infants and toddlers residing in the residential child care facilities included in the study. These included adults employed by the facilities as well as directly involved volunteers. (2)

Infant: Infants are defined as humans from birth to the age of 11 months. (2)

Toddler: Toddlers are defined as children between the ages of 12 and 30 months. (2)

Resident children: ‘Resident children’ refer to all the infants and toddlers that were permanent residents of the residential child care facilities that took part in the study.

Early childhood development: This encompasses the process of emotional, cognitive, sensory, spiritual, moral, physical, social and communication development of children from birth to school going age. (1)

Developmental delay: Developmental delays occur when “a child has not attained developmental milestones expected for the child’s age adjusted for prematurity, as measured by qualified personnel using informed clinical opinion, appropriate diagnostic procedures, and/or instruments. The functional areas measured are cognitive, physical, communication, social-emotional, or adaptive development.” (3)

Bigshoes Children’s Foundation: A Non-Governmental Organisation which is based in Johannesburg, and serves the needs of children affected by HIV/AIDS. They take care of orphaned and abandoned babies, assist in medical clinics and are involved in the training of personnel.(4)

Occupation: ‘Occupation’ can be defined as “culturally valued, coherent patterns of actions that emerge through transactions between the child and the environment and as activities

the child either wants to do or is expected to perform".(5) These include activities of daily living (ADL) (self-care: dressing, feeding, toileting), instrumental activities of daily living (iADL) (develop more towards adolescents and includes care of pets, younger siblings, household chores, care of bedroom), rest and sleep, education, work / productivity (school work), play, leisure (games, sports, hobbies) and social participation. (6)

Occupational Deprivation: "A state of preclusion from engagement in occupations of necessity and/or meaning due to factors that stand outside the immediate control of the individual." (7)

Environment:

Process features of the environment: Process features encompasses "activities that are carried out to protect children's health and safety, and to encourage their positive physical, language, intellectual, emotional, and social development." (8) The process quality of an environment is often grouped with the social environment and includes aspects such as the nature and frequency of human interactions (between adults and children as well as peer interactions). (9)

Structural features of the environment: This refers the dimensions of quality such as staff to child ratios, group size, level of caregiver formal education, and level of caregiver specialised training related to children. (10)

Overall environment: The 'overall environment' included both the social and physical components of the environment as well as the process and structural features. (11)

Physical environment: The physical environment can be described as 'the physical conditions that somebody/something exists in'. (12) For example the physical environment will include the buildings, furniture, indoor and outdoor space, room arrangement, displayed pictures, equipment and toys. For the purposes of this study the structural features of an environment was grouped with the physical environment.

Social environment: The Social Environment refers to the human interactions that occur within certain physical and social structures that are set within a specific cultural context. (13) For the purpose of this study, process features of an environment were also considered part of the social environment.

Infant/Toddler Environment Rating Scale –Revised test: child care standards (ITERS-R test)

Low/inadequate category: Average quality scores (M score) <3 on a 7-point Likert-like scale. (2)

Moderate category: M score greater than or equal to three and less than five on the 7-point Likert-like scale. (2)

High category: M score greater than or equal to five on the 7-point Likert-like scale. (2)

ITERS-R overall quality score: This refers to the overall mean that is calculated across all seven subscales of the ITERS-R test. This is done by adding all item scores across all seven subscales and then dividing it by the total number of items scored. (2)

Item score: Items are individual sections found within each of the seven subscales. Each item receives a score ranging from 1 to 7: 1 (inadequate), 3 (minimal), 5 (good), and 7 (excellent). The scores are given as guided by the ITERS-R manual criteria. (2)

Subscale score: This is calculated by adding all item scores of a subscale and dividing it by all the items administered within that subscale. This average is then considered as the subscale score. (2)

Abbreviations

AIDS – Acquired Immune Deficiency Syndrome

ANOVA – Analysis of variance

ARV – Anti Retro-Viral

CD – compact disk

CV – Coefficient of Variance

dBA – Decibels (Acoustic)

HIV - Human Immuno-deficiency Virus

ITERS-R test- Infant/Toddler Environment Rating Scale -Revised

M – Mean/Average

NGO – Non- governmental organisation

SD – Standard Deviation

SIDS - Sudden Infant Death Syndrome

UNICEF – United Nations International Children's Emergency Fund

U.S.A. – United States of America

Chapter 1 INTRODUCTION

The topic of early childhood development is well-researched across the globe and has captured researchers' attention for decades. Internationally, children needing care outside of nuclear family structures have significantly increased over the last two decades, mostly due to the effects of HIV/AIDS and poverty.(14,15) This is particularly true for sub-Sahara Africa which has the world's highest rates of HIV positive individuals (adults and children). (16) When combined with the fact that the majority of the population live below the poverty line this has resulted in a situation where more and more children are dependent on care outside of traditional structures. (17)In addition to poverty and HIV/AIDS, this increase have been driven by the need for both parents to generate an income, which leaves children needing care while parents are occupied at work. Migrant work practices as a result of the economic climate also leaves children being cared for by extended families networks while their parents are away working. (17)

There has been a concurrent increase in the number of residential child care facilities both nationally and internationally.(18) Researchers identify the effects of HIV/AIDS and poverty as contributing to the extended use of residential child care facilities. (19,20) Many believe that the number of children needing care outside of the traditional family structure has not yet stabilised, and that numbers will still increase for at least two more decades, making the current and future use of alternative care options relevant and necessary. (20)

Concerns have been raised with regards to current alternative care structures' ability to meet the need of the increasing numbers of children requiring care. (19,21,22) Many feel that current community structures, such as extended families who are responsible for the care of most orphaned and vulnerable children in sub-Sahara Africa are being exhausted with depleting resources which reduces its ability to accommodate all children in need. (22) Thus, focus has shifted again to alternative care options such as residential child care facilities in order to meet the increasing need. However, many believe that residential child care facilities should be a 'last resort' option as researchers continue to raise concern with regards to the variable and insufficient quality associated with these environments. (19,23)

Researchers are particularly concerned with the quality of the environment in residential child care facilities and make reference to the social and physical aspects as important contributors to the overall quality in child care settings. (11) The literature has demonstrated that the physical and social environments that children (from a variety of different cultures

and backgrounds) are exposed to play a crucial role in their development. (24,25) Overall the message is clear: when the environment is rich in stimulation children have the best opportunity and the highest success rates in reaching positive developmental outcomes, while in stimulation poor environments the opposite is true.(24,26–30) This has been found with regards to all forms of care environments provided to children, such as day care centres (crèches, pre-primary schools, home caring), home environments, residential child care facilities, places of safety and foster care arrangements.

When specifically considering residential child care facilities, the majority of evidence from around the world suggests that the environments provided to developing children are of suboptimal quality, and specifically poor with regards to the socio-emotional environment (for example caregiver and child interactions). (31,32) Residential child care has historically been linked to poor developmental outcomes, with the negative impacts affecting the child not only while residing in a facility, but long after leaving it.(10)

Areas of negative developmental outcomes that have been linked to residential child care include: cognition, language and communication competence, social and behavioural competence, emotional adjustment and attachment, neuroendocrine regulation (cortisol activity), and physical growth (in height, weight and head circumference). (24,25) (33,34) Evidence suggests that there is an association between time spent in residential child care facilities and poor developmental outcomes. (35–38) Literature shows that more time spent as an infant or toddler in centre-based care increases behavioural problems in later stages of life. (27) Furthermore, research suggests there is a substantial difference between social patterns of children brought up in- and outside of residential care. (39)

These types of negative developmental outcomes in children stemming from poor quality in the physical and social environment have been identified internationally, in both developing and developed countries.(8,18,40–42)(8,18,40–43) It appears from available literature however, that evidence exists to suggest that some children are able to benefit from residential child care environments. Research in counties like the Netherlands, United States of America (USA), Canada, Germany, Greece, South Africa, Chile, Botswana and Zimbabwe has linked better quality of care environments with better developmental outcomes. (8,18,40–42)(8,18,40–43) A recent study conducted in South Africa found significant improvements in all growth parameters in institutionalised children over a period of six to eight months indicating these children benefitted from the residential child care environment.(44) It has been argued that children exposed to the same environment may express different developmental competencies and thus children's biological vulnerabilities as well as environmental factors should be acknowledged as contributing to resident

children's development (32,45–50). This has been supported by other research, which indicated that the mere fact of being institutionalised does not necessarily mean that a child's development will be delayed. It has been shown that two children exposed to the same stimulation-deprived residential child care environment can follow very different developmental profiles, with one seemingly unharmed, and the other showing severe developmental delays. (51,52) However, the majority of available literature on resident children's development and environmental quality supports the negative affect that this type of care more often than not has on the children. (24,26–30) (24,25) (33,34) (8,18,40–42)(8,18,40–43) Consensus has not yet been reached as to what factors contribute to known developmental outcomes and more research is required to clarify this aspect.

This research is particularly relevant to the South African context where in recent years a significant increase in the number of children needing alternative care has been experienced. (20) In particular there has been a significant increase in the number of orphans among the South African child population which has contributed to the noted increase in the number of children needing care outside of their families. (53) Even though the majority of key role players in early child care and welfare still view residential child care facilities as a 'last resort' option for the care of children in South-Africa, a large number of orphans and vulnerable children continue to rely on these type of facilities and with the increasing orphan population it is unlikely that this reliance will disappear in the near future. (53–56)

In South Africa, the structure and functioning of residential child care facilities is variable according to size, structural setup, relationship with the local community, approach to care and staffing practises. (19) Very little is known regarding the physical and social environment within the residential child care sector, especially within the more informal types of residential child care facilities because they are typically not registered with the Department of Social Development and are difficult to locate and monitor.(19) Although some studies give a useful description of the nature of care within these facilities, they are limited geographically, and thus there is a large knowledge gap regarding the quality of the environment of residential child care facilities in South Africa as a whole.(21,57,58)

Considering the evidence of the potential risks that residential child care environments can pose to developing children, it is important that the quality of residential child care environments be assessed. (21,53) Measuring of these environments is necessary in order to develop a clear understanding of the nature of those environments before any intervention or monitoring strategy can be implemented. (59) Thus, research investigating the quality of the residential child care environments should be prioritised in order to provide accurate and

meaningful descriptions. Based on these descriptions recommendations and strategies can be developed to ensure conditions are appropriate for normative child growth and ultimately contribute to the protection of the children's rights.

1.1 Problem Statement

The rising number of children needing care outside of their families in South Africa is an area of concern. According to the literature residential child care facilities still play an important role in caring for these children. However, limited research has been done investigating the quality of the environment provided by these residential child care facilities, despite the important role both the social and physical environments play in promoting normal development. Thus, limited knowledge exists of how these environments are currently meeting the developmental needs of the children in their care making it an important area of research. This is one of the areas of concern for occupational therapists, who have a crucial role to play in assessing the environmental needs in order to fulfil the developmental occupational needs of the resident children.

1.2 Research Question

What is the quality of residential child care facility environments provided to infants and toddlers in Johannesburg, South Africa?

1.3 Study aim

The aim of this study was to describe the quality of residential child care facility environments provided to infants and toddlers in Johannesburg, South Africa. This was with special reference to the overall physical and social characteristics of the environment.

The purpose of the study was to add to the body of knowledge concerning environments in residential child care facilities in South Africa, as little is known with regards to the impact these environments have on children's occupational engagement.

1.3.1 Study Objectives

The objectives of this study were:

- To describe the physical and social environments that the infants and toddlers were exposed to within the residential child care facilities that were included in the study.
- To determine the overall quality rating of the environments and to compare this rating with child care standards on the Infant/Toddler Environment Rating Scale –Revised test (ITERS-R test)
- To determine whether there was an association between three structural aspects namely (i) child to caregiver ratios; (ii) level of caregiver education; and (iii) level of specialised child care training and the overall quality rating of the environment.

1.4 Justification

Many children in South Africa still depend on residential child care facility environments to provide them with care. By conducting this study, the researcher was able to gather important information that contributed towards filling the knowledge gap with regards to the current nature of residential child facility environments in Johannesburg, South Africa. This information will benefit the population as it provides useful and needed insight into the strengths and weaknesses that are currently found within the physical and social environments in those residential child care facilities.

This information can serve as a baseline from which to plan intervention strategies, which will enable organisations or individuals to provide more appropriate changes/interventions, allowing for better use of time and resources contributing to the optimisation of child development within residential child care facilities. Other organisations that are involved with protecting children's rights can also use the information for monitoring and reporting purposes.

From an occupational therapy perspective, the results from this research will be able to guide intervention aimed at residential child care facilities by identifying what the needs are and where the focus of intervention should be. This in turn will maximise input to benefit the majority of resident children and not only one or two individuals.

Chapter 2 LITERATURE REVIEW

2.1 Introduction

This chapter aimed to give an overview of the environmental quality found within national and international residential child care facilities as described by the literature. The majority of available literature on residential child care environments were found to investigate developmental outcomes of resident children and ranged from a variety of different sources: medicine, speech and language therapy, occupational therapy, physiotherapy, psychology, psychiatry and early education. (24,25) (33,34) It was found that little literature exist specifically investigating environmental quality of residential child care facilities. As a result information was drawn from available literature and literature from early child care educational settings such as day care centres who frequently describe environmental quality for young children. (8,18,40–42)(8,18,40–43)

This chapter first provides a general overview of current residential child care facilities followed by a description of child developmental outcomes often associated with these types of facilities. This is followed by a description of what is meant by 'environmental quality' whereby concepts such as 'physical and social environments' as well as 'environmental quality' will be defined and factors influencing that quality will be explored. This will be done for child care environments in general and for residential child care environments in particular. Lastly, the nature of residential child care facilities in the South African context will be described and the chapter will conclude with an overall summary.

2.1.1 Brief overview of key South African policies regarding residential child care facilities

It is important to consider what South African policies say with regards to residential care facilities as they play a key role in the regulation of quality in those facilities. Key policies include the Children's Act no. 38 of 2005, Children's Amendment Bill no.19 of 2006, Minimum standards for South African Child and Youth Care centres and the Constitution of the republic of South Africa no.108 of 1996 (Chapter 2 'Bill of rights'). All of these policies and legislation are focussed on the protection of the child and the policies from post 2000 have placed more emphasis on 'early development' and 'preventative care' than in previous years. (19) The policies are mostly in agreement with international policies on residential child care which promotes community and family care structures as the 'first option' of care

intervention and residential child care as a ‘last resort’. The South African policies’ perception on residential child care facilities remains that of the larger, highly organised institutions and its approach is according to that perception. (19)

The Children’s Act no. 38 of 2005 and Children’s Amendment Bill no.19 of 2006 are key documents to the regulation of quality of care standards in residential child care provided to children as it defines what standards should be upheld. (1) Within these documents residential child care facilities are referred to as ‘Child and Youth Care Centres’. (1) This refers to any facility that is providing residential care to more than six children who are not related or ‘outside the family environment’. (1) By law, these facilities should then be registered with the Department of Social Development and adhere to specific criteria/norms as stipulated in the Children’s Act no. 38 of 2005 and Children’s Amendment Bill no.19 of 2006 (Chapter 13 section 191 under ‘Child and Youth Care Centres’). (1) Overall these national norms dictate that the residential child care facilities should be regulated by the department of social development and should provide children with an environment that is safe and promotes healthy development. (1) There is mention that therapeutic and developmental programmes should be provided to the children in residential care, however no norms with regard to the content of these programmes are specified. (1) The norms with regards to operations, management and staff regulations in these facilities are much more specific. (1)

The Minimum standards for South African Child and Youth Care centres also provides important guidelines to residential child care sector with regards to prevention, early intervention, statutory process, the continuum of care services, and resources. (78) Furthermore this document offers practice guidelines as well as guidelines on how the minimum standards should be monitored from within the facilities (internal quality assurance) and from outside of the facilities (objective and statutory monitoring). (78) This document was presented in 1998 in draft form by Ms G J Fraser-Moleketi then Minister for Welfare and Population Development. The document was never formally finalised however it was implemented and built into legislation. (19,78,79)

The Constitution of the republic of South Africa no.108 of 1996 (Chapter 2 ‘Bill of rights’) clearly defines what the rights of the child are. (80) This is of particular importance for children who are in alternative child care as literature provides evidence that they are vulnerable to their rights being infringed upon. (8,23,31,81) (23,82–85) With regards to the environment, section 24 of the Bill, it stipulates that everyone has the ‘right to an environment that is not harmful to their health and well-being’. Section 28 of the Bill further

defines the specific rights of the child, which includes the right ‘to be protected from maltreatment, neglect, abuse or degradation’ amongst other things.

From the policies it is clear that there are guidelines to help residential child care facilities protect and nurture children in their care. However, to what degree these policies and their standards are upheld in reality is unclear due to the lack of data on residential child care facilities in South Africa and the lack of specifics in these documents. Thus it is left to the individual to judge what an “environment that is not harmful to health and well-being” might mean.

2.1.2 General overview of current residential child care facilities

Alternative child care has been an area of interest for researchers over many years. In the last decade it has received additional attention due to the significant rise in the number of children needing care outside of the family environment. (21,22,60–62) This increase is thought to be as a result of the devastating impact of poverty and HIV/AIDS on the world’s population, especially in sub-Sahara Africa, where these numbers are expected to continue rising. (19)

Until recently, the majority of vulnerable and orphaned children in Africa were successfully accommodated in extended family and community networks. (20) However, a large body of research suggests that these structures are becoming exhausted and in its current form will not be able to accommodate this growing need. (20,22,63) As a result researchers have been refocusing their attention on different alternative care options including residential child care in order to find realistic solutions to the increasing problem.

Most international government structures and key role players view the use of residential child care facilities as a ‘last resort’ option if no other community or extended family placements are available, a belief that is shared by South African government and key role players in child welfare. (15,16,18,39,64–66) This is mostly due to the poor developmental outcomes often associated with residential child care environments along with the high costs involved running those facilities. Residential child care has been found to be the most expensive alternative care option when compared to community placements such as foster care, adoption, kinship or extended family networks.(15,21,22,67,68)

The overall concept for the appearance of the physical and social environments in residential child care facilities comes from studies conducted prior to the mid-1990s. In this literature, the physical and social environments are negatively portrayed, and considered detrimental

to children's development and well-being. These results have led to a historically negative connotation associated with residential child care facilities, and this connotation has been carried forward into popular opinion. (32,38,69)(15,16,18,39,64–66)

For example, in late 1994 an intense debate was initiated in the USA by the then elected speaker of the United States House, Newt Gingrich, who proposed that the welfare system was not sufficiently helping children in its current form. He proposed that private orphanages be reconsidered to give children better stability, a factor he considered to reduce the ineffectiveness of the foster care system. These comments were met with harsh criticisms by the media and politicians forcing him to retract his opinion. (70) Professor Richard B. McKenzie from the University of California has also considered this, however the majority of current evidence still supports the traditional view that residential child care facilities are a 'last resort' option. (15,16,18,39,64–66)(71) In contrast, a few studies have documented positive outcomes and potential uses of modern residential child care facilities, but these results are overlooked as the bulk of the literature demonstrates the negative developmental outcomes associated with inadequate physical and social environments of residential child care facilities. (32,51,52)

Despite this there has been a significant increase in the number of residential child care facilities nationally and internationally, especially between 1995 and 2005, which is indicative that residential child care still provides a service that remains relevant to current researchers (14,15)(20). With the decrease in community and family structures' ability to accommodate all children in need, it is crucial to find alternative solutions to the problem. Thus, seeing that residential child care is still being utilised, efforts should be made to investigate what these structures offer in terms of environmental quality. However, regardless of this, most researchers tend to focus their efforts on the developmental outcomes of children in residential child care and few on the quality of the environment provided, or what contributes to a good quality environment for resident children (27,32,36,44,72–77).

This is of particular concern in the South African context as almost no environmental data on South African residential child care facilities currently exist (19). Furthermore South Africa forms part of sub-Saharan Africa which serves the biggest population of orphaned and vulnerable children in the world (16). As such, the absence of data makes it is impossible to determine if the facilities are serving these children according to a standard that protects their rights and well-being. It is therefore crucial that a conscious shift is made to investigate the current nature of residential child care facility environments in South Africa to prevent and manage potential threats to the vulnerable children occupying alternative care facilities.Residential child care environments and associated child developmental outcomes

As mentioned previously, historically residential child care environments have been linked to many unfavourable child developmental outcomes. (22,35) Environmental factors that have been implicated in contributing to these outcomes include: (i) suboptimal living conditions contributing to the spread of communicable diseases, (ii) poor nutrition, (iii) under stimulating environments and (iv) abuse. (86,87) However, most researchers agree that risk factors linked to negative developmental outcomes are both from the environment itself as well as predisposed biological risk factors that are inherent to the children. Biological risk factors may include aspects such as poor pre-natal care and diet, substance abuse by the mother during pregnancy, consequences of premature birth and genetic vulnerabilities. (46,88) Thus, there is consensus that it is the combination of both depriving environments and biological vulnerabilities that contribute to the increased risk of developmental delays in the resident child population (46–50)

Developmental delays often associated with children resident in child care facilities include: (i) cognitive, (ii) physical (hormonal regulation, anthropometric measurements), (iii) social-emotional (attachment styles, relationships with peers and adults) and (iv) behavioural delays, when compared to what is expected for their chronological age. (35,51,76,89) Interestingly, research provides evidence that the environment a child is exposed to can to some extent mediate a child's inherent biological risk factors. (90) This has been found to be particularly true of the social environment, with specific mention of the role that social interaction between a caregiver and a child plays on the expression of a child's biological risk factors. (91) This knowledge highlights the need for environments that are of sufficient quality within residential child care facilities, especially the social environment, as it has the potential to mediate developmental delays in resident children. What "sufficient quality" means will be further explored in section 2.3.2 . Thus, if no data exist on the quality of an environment, it is very difficult or even impossible to determine if the potential risks are being mitigated.

It is logical that not all environments and not all children are the same. Indeed the way that children will express, or not express biological vulnerabilities will differ, just like siblings growing up in the same household are expected to differ. As a result, it is not surprising that children exposed to the same residential child care facility environment express many different types of developmental outcomes. (45) Researchers provide evidence that children are not equally affected by residential child care environments and that some children have been shown to benefit from these types of environments (32) Because of this, it is acknowledged that being resident in a residential child care facility does not inevitably lead to developmental delays. (51,52)

For example, a research team from Spain set out to test the hypothesis that being in a residential child care facility does not inevitably contribute negatively to children's development and well-being. (52) The team compared two groups of resident children: The first group (n=101) was exposed to the more traditional, large institutional child care settings of the mid 1980s and the second group (n=66) was exposed to more family-like, smaller institutional settings of the mid-1990s. They measured all the children in terms of anthropometry, nutrition and development (including psychometrical tests) and analysed the data by means of Student's *t*-tests. The results were compared to child development norms which indicated that the children in the second group scored much higher in all the tested areas. This led to the conclusion that being institutionalised in itself does not necessarily have a negative effect on all children and that some institutional settings, such as more family like, smaller environments, can benefit residential children. (52) However, the limitations of this study appears to be that it over simplifies the problem by comparing two groups of children with only one factor in common, being cared for in a residential child care facility, which does not consider all the other potential factors that could have influenced their results, making the conclusions questionable. With this said, the study commented on an important and relevant point also considered in the literature: should residential child care facilities only be utilised as a 'last resort' option or is there still a valuable role that they can play in helping to care for orphaned and vulnerable children?

Similarly, researchers in South Africa have considered the potential benefits of residential child care environments. (44) A study that included children from two residential child care facilities in Johannesburg (n=40) provided some evidence of potential developmental gain for children in such an environment. The children were matched in terms of their sex, age, length of stay at the institution and cultural and socio-economic backgrounds and the researchers measured anthropometric and neurodevelopmental changes in the children over a six to eight month period. The results indicated that even though there was no evidence of cognitive/mental gain in that period, the children were benefitting from the environment in terms of their physical growth, indicated by the anthropometric measurements. Although no other data of this nature are available in South Africa to support this conclusion, international literature has shown that some residential child care environments can be beneficial to children. In instances residential child care environments can even be more beneficial than a home environment (including foster care and adoptive care) due to the negative influences of extreme poverty and cases of neglect and abuse that do not contribute to the child's development and well-being. (21,22,92,93)

The potential benefits described in the literature for resident children are mostly limited to the physical sphere of their development and do not extend to the cognitive or socio-emotional sphere.(38,76,94,95)(32,52,92) Researchers that comment on benefits of residential care almost always also report negative outcomes such as cognitive, behavioural and emotional delays, with the majority of studies reporting negative rather than positive outcomes. (96) Thus, from the available literature it appears that even though resident children can benefit somewhat from residential child care facility environments, the overall outcome still remains unfavourable as the benefit is only experienced in one or two limited areas of development. More evidence is therefore needed to argue a stronger point of the benefits associated with residential child care environments.

Although developmental delays are often linked to children reared in residential child care, evidence suggests that these delays may not be permanent over the course of their lives. Most of the available literature on the developmental outcome and improvements (or 'catch-up') of resident children is focussed on school-going age children, including early adolescence, but very little exist on adults. It is evident that children have the potential to show significant developmental improvements or 'catch up' after leaving the institutional setting or when the quality of environment they are exposed to is improved. Whether it be improvements to the quality of the residential child care environment itself or being removed and placed in another environment such as an adoptive or foster care environment is not clear. (38,97) Furthermore, greater 'catch up' has been associated with shorter stays in residential child care facilities, such as being placed in adoption or foster care earlier in life. (95,98,99)

The link between the developmental outcome of children and time spent in residential child care environments, especially with regards to communication skills has been researched extensively. Longer residence has been associated with poorer communication and language skill development. (35) Many follow-up studies of children being adopted after spending their early years of life (< five years) in residential child care indicate that more time spent in residential child care facilities is associated with more severe and predictable developmental delays. (36–38) Thus it is generally found that being admitted into residential care later on in life (> five years) is less associated with predictable developmental delays, than when admitted as an infant or toddler. A study investigating the developmental delays of Romanian children before and three years after adoption indicated that children who spent four or less months in residential child care facilities showed normal development after the three year period being removed from the facilities, whereas children who stayed four months or longer showed cognitive, behavioural and emotional delays. (100)

Even though most studies report a link between time spent in residential child care and associated developmental outcomes, this observation is not always supported statistically, suggesting that other factors may influence this pattern and highlighting the complexity of the environments. (32,35) From the various studies investigating the effects of foster care and adoption on the development of post-institutionalised children, it seems that the areas that show the most improvement or 'catch up' are physical growth and cognitive development. Similarly, studies demonstrate that growth deficiencies can be reversed when an environment that children are exposed to is changed to a more socially stimulating one with improved nutrition. (38,97) On the other hand, behavioural and social development does not appear to show much improvement, and has longer lasting negative effects. (38,76,95)

Although not a lot of studies have investigated the long term consequences of early residential child care experiences into adult life, the majority of available evidence suggest that adults show more physical illness symptoms relating to stress and social isolation patterns than expected for the general population. (101) However, research conducted in the USA found that 2500 adults from 15 American residential child care facilities who grew up there in the 1950s had positive outcomes in social and financial indicators as adults, with 39% of the study sample having a higher rate of college level education than same aged peers in the general population. This was supported by another researcher from the University of Alabama who replicated the study with 700 adults and found similar results. (71) However, because limited literature is currently available it remains inconclusive what the persisting long-term effects of early child care facility environments are over the course of life, and thus more research is necessary before comments can be made about the long-term implications.

As researchers acknowledge both child biological and environmental risks as contributing factors to the known developmental delays associated with this population, it is short sighted to only look at one of those factors, namely child outcomes. Without knowledge of the environment, and its contribution to normal development, it is impossible to modify or develop it in order to help mediate or decrease potential risks to resident children.

2.2 Environmental Quality

2.2.1 What is meant by the physical and social environment?

Before reviewing what contributes to the quality of an environment, it is important to consider how the environment is defined. Child care environments are often categorised into the

physical and social environments which allows a greater understanding of how the different aspects contribute to the overall quality observed in those environments. (102–104)

The physical environment is described as ‘the physical conditions that somebody/something exists in’. (12) For example the physical environment will include the buildings, furniture, indoor and outdoor space, room arrangement, displayed pictures, equipment and toys. Structural characteristics of an environment are often categorised with the physical environment and includes aspect such as adult to child ratios, level of adult training and qualifications, years of experience and size of the group of children being cared for. (9)

The social environment is defined as the social relationships that occur in the physical environment in which human beings function that is set within cultural norms. (13) The process quality of an environment is often grouped with the social environment and includes aspects such as the nature and frequency of human interactions (between adults and children as well as peer interactions). (9)

However, even though it is useful to separate the physical and social environments from each other in order to gain a better understanding of how their individual contributions influence the overall quality of the environment, it is impossible to completely separate them as they interact on a continuous basis.(105)

2.2.2 What is meant by quality of the physical and social environment?

The quality of a child care environment is considered important because it has the potential to influence child developmental outcomes. However ‘environmental quality’ is considered to be a relative concept with no single definition since it is influenced globally by different values, beliefs, interests and cultural practices. (9,106) In general ‘environmental quality’ refers to characteristics of an environment that impact people in some way and is measured with regards to the requirements of that specific environment. (107)

Research has indicated four different approaches to quality of child care environments, including top-down (from adult’s perspective), bottom-up (from the child’s perspective), outside-in (from parent’s perspective) and inside-out (from caregivers/staff perspectives). Most researchers use the top-down approach to measure the quality of child care environments incorporating the concepts of structural and process quality into the social and physical environments and making reference to the global (overall) quality as well. (9,10,27) A possible reason for the frequent use of this approach is that the environmental features can be measured by observation with little interference by the observer. In addition, the

observer remains objective and somewhat removed from the situation, by not obtaining information from a single component of the environment such as the perspective from caregivers/staff, parents or children, which could make this approach more favourable. In South Africa, using a top-down approach can be very useful in understanding the factors influencing the environmental quality. However, complete understanding of the social environment is limited through only observation and thus some attempt at understanding the caregiver/staff perspective is also needed.(19)

Most of the information with regards to what contributes to an adequate/good quality child care environment comes from the extensive research that has been done in day care and early educational settings. (9) (8,18,40–43) Studies on the quality of day care and early educational environments have been conducted internationally, including the Netherlands, USA, Canada, Germany, Greece, South Africa, Chile, Botswana and Zimbabwe. (8,18,40–43) From these studies common characteristics have been identified and generally accepted as contributing to a good quality child care environment. (9) However, it is acknowledged that some caution should be taken in the generalisation to residential child care environments as they are known to be complex in nature. However, since research of residential child care environments is limited, this information serves as the best starting point in understanding what contributes to environmental quality.

Common areas of the physical environment that have been associated with good quality environments include (i) the safety of the environment, (ii) indoor and outdoor space, (iii) programme content and structure, (iv) available equipment and toys, (v) setup of the facility, (vi) managerial and caregiving structures and (vii) staff characteristics. (9,108,109) To regard an environment as physically safe, it should comply with recommended national health care standards and regulations. (9) These standards and regulations include for example that buildings' infrastructure should be maintained and broken items continuously fixed to prevent injury or illness. Nutritious meals that are developmentally appropriate in amount and content should be provided. As for hand washing procedures, disposal of waste etc. should be adhered to as prescribed by national regulations. (9)

When considering the indoor and outdoor spaces, large enough spaces that allow children and adults to move around freely and safely are considered desirable and contribute to a good quality physical environment. The recommended indoor space is approximately 36 square feet (3.3 m^2) per child and outdoor space is 100 square feet (9.3m^2) per child. (110) In addition to the size of the indoor space, researchers highlight the importance of sufficient lighting, noise, temperature and ventilation control when considering the quality of that environment. (110)

Good quality child care programmes are expected to include sufficient developmentally appropriate and stimulating activities. These activities need to change regularly to take individual needs and interests into account, with enough play opportunities that include imaginative play.(21) (111) In high quality physical environments equipment is in working order and developmentally appropriate for the children that use them. It is also important that there is sufficient storage for equipment and materials used in the physical environment and toys and activities should be accessible by children themselves. (108) A place should be provided for individual children's personal belongings to develop a sense of self-worth. (108)

Managerial structures form part of the physical environment and should provide sufficient support and promote the development of staff and children in the environment. (108) This includes the appropriate grouping of children according to their developmental needs in order to promote health and well-being (physical, emotional and cognitive). (109) In addition to this, low child to caregiver ratios are expected, that comply with national regulatory standards (usually recommended between 1:3/4 for infants and 1:4/6 toddlers), together with low staff turn-over rates that promote consistent caregiving. (10)(112) Furthermore, staff characteristics that include staff/caregivers with specialised training and education in child care have been associated with higher quality of child care environments. (113)

Common areas of the social environment that influence quality include (i) caregiver and child interactions (verbal and non-verbal), (ii) management of behavioural challenges and discipline, (iii) mediation of peer interactions, (iv) consistency and nature of caregiving, (v) encouragement of independence and self-worth and (vi) the modelling of appropriate behaviour by caregivers/staff. (9,108,109)

For the most part the social environments in child care settings are created by caregivers/staff and child interactions, as well as between peers. To create a good social environment, caregiver and child interactions (verbal and non-verbal) should be sensitive, warm and responsive and should happen often during the course of a day within many different situations.(9,108,109) As children are still learning how to interact socially, it is crucial for caregivers/staff to create opportunities and mediate positive peer interactions, such as sharing and conflict management. (9,109) Furthermore, caregivers/staff that model the correct social appropriate behaviour contribute to a better quality social environment. (108)

In good quality social environments it is also expected that caregivers/staff address behavioural challenges and discipline issues in a developmentally appropriate way in order to teach appropriate social skills. (108) As most of the available information on what is

considered important in early child care social environments comes from day-care and educational settings (as mentioned before), some differences in residential child care social environments may be expected. Cultural differences may also play a role as much of the research has been conducted outside of South Africa. However, continuous, predictable and consistent caregiving that is equal to all children is expected to also be important (if not more) in residential child care settings and is considered a universal feature of infant caregiving regardless of culture. (108)

2.2.3 What factors influence the quality of the physical and social environments?

After considering what makes a good quality environment, researchers find it important to reflect on what factors have the potential to influence environmental quality. Many factors have been identified to influence the quality of an environment. The most prominent factors that have been mentioned in the literature to specifically influence the quality of the physical environment include (i) the type and quality of available housing (including the quality of the indoor environment and accessibility to equipment), (ii) managerial structures and staff characteristics (structural features of the physical environment) and (iii) type and quality of the greater community setting in which the housing occur. (102,104,114–117) Managerial structures and staff characteristics' influence on the environment is not explored in depth under the physical environment as it has a more profound influence on the social environment and will be discussed in greater depth there.

The type and quality of housing (physical structure, setup, and available material and equipment) is usually the most common aspect of the physical environment that is considered where environmental quality is of concern. Factors in the indoor environment of a housing structure can either improve or decrease the quality of the physical environment experienced. These include the degree of ventilation, temperature regulation, air pollution, lighting and noise control, structural safety, toxins, dampness, as well as size of the house and rooms (incidence of overcrowding). Accessibility to equipment has also been identified as an important factor impacting on environmental quality and includes access to items such as stoves, fridges, washing machines, computers, telephones, and televisions. (118) These aspects mentioned above have been associated with health, mortality and well-being and because of this are important factors to consider in the environment. (118)

In recent years there has been a general shift towards people spending more time in the indoor environment than in previous years. Some studies suggest that people are spending up to 90% of their day indoors. (119) Because of this, a lot of research has been done on

indoor environments and its effects on humans. Research has determined that most indoor environments have associated dampness and household material emissions that can harm people if they are not properly managed. Children have been found to be particularly vulnerable to these factors as their immune and respiratory systems have not fully matured. Furthermore researchers indicate a link between the increased number of allergies and respiratory disease with spending too much time in an indoor environment. (114)

The quality of the available air in the indoor environment is also frequently considered by researchers. Data indicates that indoor air is polluted through the mixing of polluted air from outside with what is generated indoors and includes traffic pollution, tobacco smoke, ozone agents known to be harmful (such as PM_{10} or $PM_{2.5}$), and carbon monoxide. (114) A review on research published the World Health Organization (WHO) Regional Office for Europe and two universities in Italy (Trieste and Udine) indicated that polluted air can have devastating effects as it leads to child deaths if not correctly managed.(120) They calculated the link between disease and environmental risk factors in children by using data from published studies on such topics across all the WHO European countries. Children under the age of four years have been identified as being the most vulnerable to the effects of air pollution.(114)(120) Therefore, it is clear that the management of air pollution is very critical part of the quality of the physical environment and even more so in environments that are responsible for the care of young children, as neglecting it can lead to serious consequences. Furthermore, if children are at risk (such as those that reside in residential child care) it is even more crucial to manage the environment that they are exposed to.

Noise is a natural product of an environment, but research indicates that chronic and acute noise negatively influences people who function in them by increasing stress related illnesses. (121) Children are the most vulnerable to the effects of noise, especially infants and high risk child populations (i.e. pre-term infants and orphans). (122) Any noise above 80 acoustic decibels (dBA) is considered harmful. (122) Common factors creating noise that can exceed 80 dBA in children's environments are music (radios or televisions on too loud), other people (crying children, adults talking continuously) and noise from various forms of transportation in the vicinity of the environment, such as traffic, airplanes and trains. (121,122) According to the World Health Organisation, if children are exposed to continuous loud noises for more than 8 hours it can lead to chronic hearing damage and interference with speech acquisition. (122) A further consequence of noise pollution for children is negative lifelong effects on learning and education. (122) Thus, noise pollution should be considered in environments caring for children, as they are the most vulnerable to the effects of noise, especially considering that these negative effects are preventable.

As mentioned above, too many adults or children in an environment can contribute to noise pollution. However, overcrowding (too many people per room in a dwelling as defined by national regulations) can have even more negative effects on the physical environment. This is because it decreases accessibility to resources, and increases health and safety risks. Overcrowding has the potential to infringe on a child's rights to health (communicable diseases spread easier) and privacy (if the child has no space to change or wash in private) and can increase a child's risk of sexual abuse (due to sharing of beds with adults). (123) It also has a negative effect on the social environment as it impacts on interpersonal behaviours, motivation and the mental health of adults and children exposed to overcrowding. (115,118,124) National government structures acknowledge the negative effects of overcrowding and as a result provide regulations to prevent risks to adult's and children's well-being.

These and other national regulations are passed on to managerial structures, however the level of enforcement results in the quality of the physical environment varying between different facilities. In addition to this, managerial and staff norms, and expectations within the physical environment, together with formal and informal values and beliefs have been shown to affect environmental quality. (116) Access to financial resources (adequate and stable funding) by managerial structures contributes to the quality of the physical environment by affecting their ability to establish and maintain physical infrastructure, salaries, and access to resources.(125) Research has also shown that staff characteristics, such as caregiver/adult level of education, can influence the quality of the physical environment that is provided for children. For example, higher levels of education and specialised training have been associated with environments that provide a more developmentally appropriate and stimulating physical environment for children. (124,125)

Most housing structures do not occur in isolation and it is acknowledged that the physical environment extends to the greater community in which it occurs. The following elements of a community setting have been proven to affect physical environments of individual housing structures: (i) stability of residences, (ii) overcrowding, (iii) noise pollution, (iv) service quality offered by the municipal structures, (v) community recreational structures, (vi) accessibility of natural settings such as parks, (vii) the quality and accessibility of transport, (viii) health care and (ix) other community resources. (115,126)

When the social environment is considered, factors involving human interactions influence its quality and include the frequency and quality of adult-child and child-child (peer) relationships, the size of the group and the ratio of children to adults. Other factors that

influence environmental quality include adult and caregivers level of education and training, and staff turnover rates.

The quality and frequency of adult and child interactions have been proven to have a significant impact on the quality of the social environment available to children. The size of the group and the ratio of children to adults affect the social environment in a similar way to overcrowding if not managed appropriately, as it creates too much demand for the available resources. For example, when there are too many children and not enough adults in an environment, it makes reciprocal, meaningful one-on-one interactions difficult as the demand is too great for the adults to be able to provide sensitive and responsive reactions to all children equally. Thus, the quality of the social environment is reduced by restricting opportunities to form meaningful relationships and reducing learning opportunities. Furthermore, high staff turnover rates negatively influences the quality of adult and child interactions as building relationships when the turnover of caregivers is frequent is difficult. (116)

Not only are the adult and child interactions crucial to the quality of the social environment, but child to child (peer) interactions are equally important. When children are young it is necessary for adults to mediate and encourage positive interactions as the children are still learning acceptable social norms. Through peer interactions they have an opportunity to learn appropriate social behaviours, such as sharing and working in a team, as well as problem solving which can serve them with important social skills in order to become functional adults. (127) When peer relationships are not positively mediated or no peer interactions are possible, the forming of friendships (that promote social and emotional development), the acquisition of important social skills and the construction of social support networks are negatively affected. (127)

The mediation of peer interactions can be influenced by the level of staff training and education, both of which are known to contribute to the quality of the social environment. The majority of available literature indicates that adults and caregivers with high levels of training and education are better able to understand individual differences and provide for the individual needs of children, thereby increasing the quality of the social environment. (40,128–131) However, other studies have reported that the level of staff training or education has no statistically significant effect on quality of the environment provided. (132,133) Even though this conflicting evidence exists, most researchers agree that level of staff training and education play an important role in environmental quality, however it is debated whether this is the case under all circumstances.

As one can imagine there are many more factors that have the potential to influence environmental quality, both for the physical and social environments, but the above mentioned are the most prominent and consistently featured in the literature.

2.2.4 Global appearance of the physical and social environments in residential child care facilities

Available literature shows that the quality of the environment in residential child care facilities is extremely variable throughout the world. (15,21,61,93) However, the results show that facilities generally do not provide adequate quality environments necessary for normal development. (31,32,51) Residential child care environments are often described as being clean, providing adequate medical care, safety and nutrition, but when it comes to socio-emotional, behavioural and educational factors, the caregiving environment seems to be of sub-minimal quality that does not promote normative development. (31,32) In other words, the physical environment tends to be adequate whereas the social environment does not. Where overall quality of the environment has been measured in residential child care facilities worldwide, evidence suggests that most facilities fall in the low/inadequate category. (23,82–85)

Within the variable nature of residential child care facilities, a group of common characteristics can be identified, despite differences in culture, beliefs and economic backgrounds. (51) These characteristics include a ‘residential child care culture’ that is associated with the known negative influences on resident children’s development. In terms of the ‘culture’ of the physical environment, many residential child care facilities are licensed to care for big groups of resident children, resulting in high child to caregiver ratios. (88) These ratios have been reported to be anything between eight to one and 31 to one. (51) Residential child care facilities often group children together in terms of chronological age or disability status, both of which do not necessarily take developmental needs into account. These “homogeneous” groups then tend to move from one ward or room to another when they reach specific ages such as six months, 12 months, and two years of age. This usually includes a change in caregivers responsible for a certain age group and means that children are constantly disrupted in terms of living area and caregivers. (51) Caregivers are most often female, untrained in child development, while the majority have completed formal education on a high school level or below. (18,25,31,128,134,135) In instances where caregivers were found to be trained, the content of the training usually includes basic health care without any social interaction or behavioural management topics. (51)

Residential child care facilities are often described as having sufficient access to resources, such as toys and educational material like books, but often these are left on shelves and are not accessible to children. (61,83,134) This makes children extremely dependant on their caregivers to structure their play and provide them with stimulating environments. Unfortunately, the majority of literature suggests that caregivers do not provide adequate stimulating environments for resident children (8,23,31,81) (23,82–85) With specific reference to books, it is reported that these are rarely used with resident children by caregivers. (81)(136)

In terms of the 'culture' of the social environment, interactions between caregivers and resident children are often described as limited in frequency and emotional availability. (51,137) The interactions are described to lack in reciprocity, warmth, sensitivity, and caring. (136) In some instances high child to caregiver ratios, as well as high workloads (cleaning, cooking and laundry duties on top of caring duties) are reported by caregivers to be the main contributing factors that limit available time for meaningful interactions. (51,53)(84) However, a study has shown that even with one to one child to caregiver ratios, caregivers still tend to be less sensitive in their interactions than what biological parents typically are. (81)

It has been reported that resident children spend most of their time not engaging with caregivers, or in peer interactions. (84,128,138) This influences their ability to develop cognitive and emotional regulation skills. (139) Here, evidence suggests that the age plays an important role, with infants considered to be more negatively affected than toddlers, as the time available for caregiver to infant interactions is more restricted (138) (128) Consequently, some researchers suggest that the first few months of an infant's life in residential child care environments are the most depriving. (51) Researchers from a residential child care facility in Greece indicated that the first few months of an infant's life in the facility were found to be most depriving. The study was conducted in the facility which housed 100 children mostly between the ages of zero and two and a half years. In the facility children ages zero to five months were each kept in a separate room in a special unit away from the older toddlers. From the study the researchers found that social interaction and contact within the facility was restricted for those children. (51) Staff turnover rates in a residential child care facility are another important factor of a social environment. It is reported in the literature that many caregivers move in and out of young resident children's lives due to rotating shifts, especially within larger facilities (housing >20 resident children). For example, researchers found that resident children can have up to 100 different caregivers before their second birthday. (51) Many other informal staff or adults also tend to move in and out of young resident children's lives on a monthly and even weekly basis.

These may include casual/temporary caregiving staff, prospective foster or adoptive parents, volunteers, and professionals such as therapists, social workers and/or medical personal. (51)

Although this 'culture' is true for many residential child care facilities, there is research that identifies facilities that deviate from the norm and provide a stimulating and caring environment (62)(84). Unfortunately these facilities are more the exception than the rule as little evidence of this is available in the literature.

2.2.5 Which factors influence the quality of residential child care facility environments?

As mentioned earlier, most of what is known about environmental quality comes from early child educational and day-care settings. Factors that have been identified to influence the quality of the social and physical environment in those settings also influence environmental quality of residential child care facilities (refer to section 2.3.3 for clarity). However, the difference with residential child care environments is that they are highly variable in nature, and it remains unclear to what extent these different factors contribute to positive and/or negative outcomes for children.

Researchers typically develop an understanding of the factors that influence the environment in a residential child care facility by looking at developmental outcomes of children and then drawing relationships between developmental outcomes and factors present in the environment that have the potential to influence this outcome. For example, if children have positive developmental outcomes in a specific residential child care environment, that environment is then identified as having positive factors which are considered good for resident children. Unfortunately this approach is limited as it doesn't provide clarity in terms of causal relationships, reducing its ability to accurately identify which factors increase or decrease the environmental quality, and to what degree each factor plays a role.

Interventions aimed at improving resident children's development outcomes have also contributed to the understanding of what factors increase or decrease environmental quality in residential child care facilities. Researchers agree upon the significance of socio-emotional interventions, as they are proven to result in the greatest improvement in resident children's behaviour and physical development. (140,141) Thus factors influencing the socio-emotional environment are of concern as it appears to contribute significantly to child outcomes. Specific factors that influence the socio-emotional environment of residential child care facilities include the child to caregiver ratios and the level of caregiver training, with

lower ratios and higher levels of training most often associated with better outcomes. (38) This is an example of how factors in the physical environment (child to caregiver ratios and level of caregiver training) influence the social environment. Some researchers also provide evidence that improved daily structures and programmes with improved range and nature of developmentally appropriate activities positively impacts the quality of the physical and social environments. (142) Researchers implemented an early intervention program in residential child care facilities in St. Petersburg in the Russian Federation and documented the positive changes that the interventions made. The program focussed on two interventions: training of caregivers and making structural changes to the environment such as changes in daily programmes, grouping children together in “family units” rather than large peer group wards, and assigning one staff member to each group as a permanent caregiver who would not rotate. The researchers implemented the full program in one residential child care facility (caregiver training and structural changes), only training to another, and one was measured as a control. This was based on the need expressed by the managers of these facilities. The number of participants within each of these three facilities ranged between 80-100. The results indicated positive changes in both the caregivers and the resident children within the facilities where both the training and structural changes were implemented. Positive changes included changes in children’s scores on standardized tests as well as measures of the quality of the environment in terms of caregiver interactions. Staff also reported increased job satisfaction and decreased levels of stress. This research shows that a good-quality environment not only impacts on the well-being of the resident children, but also on the well-being of the facility staff members. (142)

Not only have the socio-emotional factors been shown to influence residential child care environments, but the physical environmental factors are also considered important. One factor that is much debated in the literature is the impact of facility size on environmental quality. Studies suggest that smaller facilities provide better quality environments than larger facilities, as they are more manageable and as a result there has been a general trend towards the establishment of more smaller, more ‘family-like’ residential child care facilities. (143)(85) With this said, numerous studies indicate no statistically significant relationship between facility size and quality of the environment and have found that the management style of the facility can be more influential than the mere size of the facility. (144) Researcher from the University of Chicago compiled a review of the literature, which indicated that the way the environment is managed in residential child care facilities is important and that these facilities should be child centred rather than management centred environments. This is supported by the fact that a variety of different quality environments exist in both large and small facilities, indicating that the mere size of the facility does not determine its

environmental quality. (15,21,61,93) As such, much debate still exists about the effect of facility size on the quality of residential child care environments and therefore there is no conclusive evidence to support facility size's effect on environmental quality.

A significant amount of research has investigated social environments in residential child care facilities. Research has specifically focussed on child and caregiver interactions, and to a lesser degree on peer interactions. (89) Researchers report that in most circumstances large group sizes (making child to caregiver ratios too high: 8:1 – 31:1), caregiver rotating shift schedules (resulting in children being cared for by many different caregivers) and heavy workloads influence the quality of the social environment negatively due to decreasing caregivers availability for interaction with resident children. (51) Heavy workloads significantly influence caregivers' ability to interact with children by increasing stress levels and decreasing available time and mental capacity to interact with children. The time that caregivers should be interacting with the children is then occupied by work duties such as cleaning, bathing, dressing and laundry duties. (51,53)(84)

It is clear that caregivers are central to the quality of the social environment in residential child care. Unfortunately very few studies look at caregivers and as mentioned before most focus on child developmental outcomes instead. The studies that do consider caregivers have given much needed insight into how they contribute to the quality of the social environment. Caregivers' perception of their work has been shown to be an important factor influencing the social environment. For example, some caregivers describe that they see themselves as being professionals and therefore must keep a professional boundary between them and the children within their care. (61) (62) Furthermore, studies have indicated that in some instances caregivers are unwilling to form relationships with the resident children due to the potential emotional difficulties of losing the child when they are removed from the facilities (for example through adoption, foster care, or reunited with biological family). (61)

This has led researchers to further investigate individual caregiver characteristics as being an important factor influencing the quality of the social environment. (51,145) These individual characteristics (either positive or negative) are thought to create a microenvironment that has a significant influence on the quality of the social environment in residential child care facilities. These individual characteristics are crucial as it has the potential to mediate biological risk factors and thus influence developmental outcomes for resident children. (90)

Just as caregiver characteristics influence the social environment, it is expected that individual characteristics of resident children also contribute to the quality of the social environment experienced. Literature reviewed by Ijzendoorn, Sonuga-barke, Gunnar, Vorria, Mccall, Mare, et al suggests that certain individual child factors (such as physical appearance or something in their personality) are thought to illicit certain responses from caregivers, either negative or positive. (51) For example, if a child is seen to be physically 'cute', caregivers might chose to interact with the specific child over and over again when there is time for interaction, thus providing more potential for increased stimulation than what other in the same setting children might enjoy.

Even though many insights into what influences residential child care environments have been gained through research, it is clear that it is currently insufficient to provide clarity on causal relationships with the known developmental outcomes. More objective measurements of residential child care environments are required, as well as longitudinal studies in order to provide more clarity on the subject.

2.2.6 What is the situation in South Africa

The nature of residential child care facilities in South Africa is similar to what is found internationally. It is very complex in nature and variable in the environmental quality that it offers. Residential child care facilities in the South African context have an additional challenge as no consolidated official data is available. This makes it difficult to fully comprehend what the current situation is on the ground. Collecting data on residential child care facilities has proved to be challenging as many attempts have been made by South African Government structures, such as the Department of Social Development, but as facilities continuously open and close and as a complete database is not maintained it is difficult to keep track of what is happening amongst residential child care facilities. (19) Furthermore, the data that do exist generally only consider facilities that are registered with the Department of Social Development resulting in an incomplete picture that is not representative of the current reality of South African residential child care facilities. (19)

It is estimated that there are between 181 and 204 registered residential child care facilities in South Africa. (146,147) The majority of these facilities appear to be located in Gauteng (53) and Kwazulu-Natal (48) with an estimated capacity of approximately between 10,361 and 12,920 resident children across all residential child care facilities. (147) In general these numbers are considered to be largely an underestimate of residential child care facilities and the resident child population, due to the lack of data for the unregistered residential child care facilities. (146,147)

Although no exact numbers are available, there has been a definite increase in the number of residential child care facilities over the last decade in South Africa, especially between 1990 and 2003 and most prominently in Johannesburg. (18,19) Current available data indicates that 77% of known residential child care facilities in Johannesburg were established in the last decade between 1995 and 2006. (19) Researchers are of the opinion that the socio-economic climate and the effects of HIV/AIDS on the South African population make the current and future use of residential child care facilities inevitable. (148)

The increased demand for alternative child care calls for a shift in thinking in order to realistically address this problem. As such, researchers have started to consider the role of residential child care facilities in modern South African society. Many believe that the use of residential child care still holds a relevant place today, even though they accept that the facilities are not ideal, as it is better than children ending up on the street. For example, there are instances when no other alternative care arrangement is available (and thus residential child care has a role to play in acting as a safety net or temporary placement. (21) However, it is acknowledged that research is required to find the most appropriate way to utilise residential child care facilities in South Africa, as no appropriate research is available.

With the knowledge of the potential threats that residential child care environments pose to the development of resident children, it is surprising that very few studies have investigated the quality of the environments in residential child care facilities in South Africa. (21,53) Within the few studies that do exist, there is consensus that the quality of the environment provided is variable and in general inadequate. (18,19,53,128) However, these results are based on studies making use of small sample sizes and restricted in geographic coverage, making it difficult to make generalisations.

In order to fully understand the potential impact of residential child care environments on resident children's development in South Africa, it is first important to know the nature of the current situation. (59) Only with effective and accurate descriptions of residential child care environments will we be able to plan appropriate interventions and best serve and protect the rights of this vulnerable and growing population.

2.3 Conclusion

It is evident that the number of orphans and vulnerable children needing care outside of the traditional family structure are increasing and will not stabilise for many more years. (19,21,22) It is not always possible for children to be placed in the care of community or

family structures thus other alternatives need to be available and considered. As a result of this, as well as the noted increase in the number of residential child care facilities in the last two decades, research acknowledges that the use of residential child care facilities still remains relevant today.

Globally residential child care environments are considered to be inadequate and not conducive to normative child development. This is specifically true for the socio-emotional environment, whereas the physical environments are often reported to be adequate. Available research in South Africa supports these international findings. This has led to most key role players (NGOs, child welfare and government structures) sharing the opinion that residential child care facilities should be used a 'last resort' option for the care of orphaned and vulnerable children. However, researchers are beginning to consider its continued use as it is evident from the increasing number of residential child care facilities that they are still being utilised. It has also been proven to provide a useful safety net when children are unable to be cared for by other alternative care options such as extended family networks, adoption or foster care. As such, use of these alternative care structures requires careful consideration, while monitoring of the environmental quality is recommended to protect the rights and well-being of the child population they intend to serve.

Researchers acknowledge that being resident in a residential child care facility does not inevitably lead to developmental delays, as some children have been shown to benefit from these environments. (32,51,52) With that said, these benefits appear to be restricted to one or two areas of development and mostly accompanied by some degree of other developmental delays, specifically behavioural and social-emotional. (38,76,94,95)(32,52,92)

Even though some controversy still exists whether the length of stay in residential child care have a significant impact on developmental outcomes, there is agreement that resident children's show the ability to 'catch up' on developmental delays. (38,76,95,97) To what degree 'catch up' is possible still remains unsure as very little data demonstrating the effects of residential child care environments across the life span into adulthood are available. (35)

Much understanding has been gained through research into how residential child care environments impacts on resident children's development, however it is clear that more information on what influences the residential child care environments itself is needed. Therefore future research should investigate residential child care environments, specifically with regards to the causal relationships between specific environmental factors and developmental outcomes and what contributes to a good quality environment in those settings. Furthermore, the role of residential child care facilities possibly in combination with

other alternative care options should be explored as a solution to the increasing number of children needing care outside of the traditional family structure.

Chapter 3 METHODOLOGY

3.1 Introduction

This chapter aims to describe the study design details, the study sample, and the research instruments and procedures used for data collection during this study. The ethical considerations relating to this study are provided and the main methods used for data analysis are given at the end of this chapter.

3.2 Study design

The main aim of the study was to describe the quality of the physical and social environments provided to infants and toddlers living in residential child care facilities in Johannesburg, South Africa.

A quantitative descriptive research protocol with a cross-sectional study design was employed to address the aims of the study. (149) The social and physical environments of selected residential child care facilities were measured once off, following a standardised protocol, the Infant Toddler Environmental Rating Scale -Revised test (ITERS-R). This provided a quantitative description of the quality in those environments at the time when the study was conducted. This was thought to be the best approach and design when considering the research aim and objectives. The researcher implemented an objective, top-down approach to measuring quality as the intention was to describe the quality of environments and provide a measure of whether these environments were of an adequate standard or not. This is best done in a quantitative way. The complexities of factors influencing the quality of the environment were not explored in great depth and caregivers' motives, attitudes and perceptions were not measured. The cross-sectional design allowed the researcher to measure a variety of facilities in a short period of time and thus was chosen as an appropriate design.

A quantitative research design was specifically chosen for gathering the data of this study as it provides a high level of measurement precision, and can be statistically analysed to provide clear objective information. In addition, due to time and resource constraints on this study, high quality quantitative data were considered to be better suited to meet the study objectives, compared to data obtained from a qualitative study.

A descriptive study is one where the environment and aspects of the environment that is being assessed is left unchanged during data collection. It thus provides information about the naturally occurring characteristics of a particular group or environment. (149) The descriptive study design was thus suitable to meet the objectives of this study which aimed to describe the naturally occurring environments in residential child care facilities.

Furthermore, this study aimed to provide a once off assessment of the quality of the different residential child care environments in order to provide a description of the environments measured. This made the cross-sectional design an appropriate choice as it allowed the researcher to gather information at a certain point in time. As a cross-sectional design also aims to describe the association between variables, it was applicable to the objectives of this study. (149)

3.3 Residential Child Care Facility Population (study area)

The sample population consisted of all the residential child care facilities geographically situated within the Greater Johannesburg Municipality administration area (Figure 3.1). The most comprehensive available data base of residential child care facilities located within Johannesburg at the time of the study was obtained from the Big Shoes Foundation. This data base served as the sampling frame for the study.

The original list obtained from the Big Shoes Foundation consisted of 179 facilities. These facilities included places of safety, residential child care facilities and youth development centres and shelters. Information regarding each facility on the list included the name of the facility, type of facility, contact person, contact details, registration status with the Department of Social Development, child carrying capacity of the home, age group of children cared for, and geographic location including physical address.

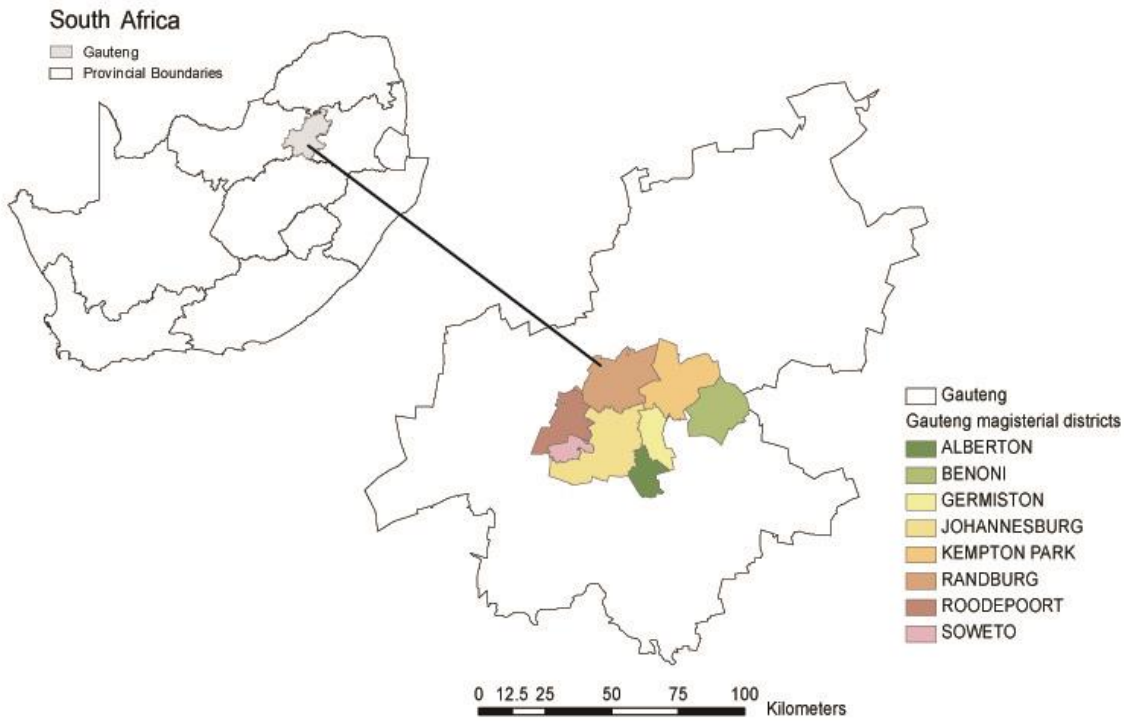

Figure 3.1: Map of South Africa showing the location of Gauteng together with the location of magisterial districts targeted within the Greater Johannesburg Area

3.4 Sampling approach

3.4.1 Inclusion Criteria for Residential Child Care Facilities

Only residential child care facilities geographically located in the City of Johannesburg administration area (Figure 3.1), and providing 24 hour care to toddlers and infants between the age of zero months and 30 months were considered for selection. In addition, all selected residential child care facilities had to have been operational for at least 12 months.

3.4.2 Exclusion Criteria for Residential Child Care Facilities

This study did not consider residential child care facilities that provide care exclusively for physically or mentally disabled infants and toddlers. In addition, residential child care facilities that had less than five 0-30 month old infants and toddlers in their care were not considered for selection.

3.4.3 Sampling Method for Residential Child Care Facilities

Initially it was planned to include 26 residential child care facilities to make the data collection feasible and permit detailed statistical analysis of the results. From the literature it was noted that there is a possible 25% noncompliance when recruiting residential child care facilities and to make provision for this it was planned to approach at least 35 facilities to take part in the study. (150)

Applying the inclusion/ exclusion criteria to the Big Shoes Foundation data base, a total of 21 facilities were excluded as they fell outside of the geographic area (12 from Pretoria; four from Vereeniging; three from Magaliesburg; one from Walkerville and one from Meyerton). A further 74 were not classified as residential child care facilities but rather places of safety, youth development centres and shelters and therefore excluded as well. An additional 27 residential child care facilities did not cater for children between 0-30 months and were therefore excluded, leaving 57 facilities on the sampling frame.

The 57 remaining facilities were contacted telephonically to identify which residential child care facilities were still in operation. This step was included and not planned in the initial protocol as it was felt to be an important step to clarify data that might be out of date from the list. A further 18 residential child care facilities were found not to be in operation or contact numbers were out of use, leaving 39 potential facilities on the list.

The remaining facilities were stratified according to the following criteria:

- The size of the facility: The residential child care facility was considered to be either large or small. Small facilities cared for less than or equal to 20 children. Large facilities cared for more than 20 children. (19)
- The status of registration with the Department of Social Development (DSD): According to the list, facilities were classified to be either registered or not registered.

This resulted in four stratification levels (i.e. large: registered; large: unregistered; small: registered; small: unregistered). Of the 39 facilities, 25 were classified to be registered, 14 unregistered, 17 small and 22 large. To ensure that the sample collection was representative of the population, a proportional design (in relation to prevalence) was employed to allocate the distribution of samples between the different strata combinations. (151) Following this, target facilities were selected from a randomised list generated online. (152)

The stratification process was included in the sampling in order to ensure that the sample was representative of the diverse population of residential child care facilities in Gauteng and

also to provide subgroups for later data analysis. In particular, the researcher wanted to ensure that the sample was representative of facilities that are registered or unregistered with the department of social development and the different sized facilities often found (large or small) in order to be able to compare the quality of the environments in these different subgroups to each other. These were identified as potential factors that can influence the quality of the environment. However, when the sampling procedure commenced, the researcher had difficulty in filling all four stratification groups due to the difficulties in finding all these facilities (despite the list appearing to be long.). Thus the sampling procedure shifted to total population sampling which was not found to be representative of these two aspects. Only size of the facility was representative of the population and thus registration status was not included in the data analysis.

The managers of each randomly selected facility were contacted telephonically to invite them to participate in the study. Some of the facilities requested that an information sheet (Appendix A) be emailed to them outlining the planned research in order for them to discuss the invitation with the rest of their respective management teams. After the first 33 randomly selected facilities from the 39 on the list were contacted, the researcher contacted the remaining six facilities as the desired number of participating facilities (28 samples) was not yet reached, thus shifting the sampling method from random stratified sampling to total population sampling. (149) From the 39 facilities on the list, two declined the invitation and 19 did not respond after numerous attempts telephonically and/or via email to get into contact with them. This resulted in 18 facilities who accepted the invitation to participate and was resultantly included in the study. A flow diagram illustrating the sampling procedure of residential child care facilities is in Appendix B.

Despite the fact that the sampling method was changed, it was felt that the sample included in the study was still representative of all four categories initially used to stratify the facilities, including registered and unregistered facilities which were represented in both the small and large facilities. From the 18 participating facilities, 13 were classified as registered (five small and eight large) and five unregistered (three small and two large). This was also proportionate as the number of registered facilities on the original list obtained from the Big Shoes Foundation exceeded that of the unregistered facilities.

3.5 Infant and Toddlers Sample

Following the selection of suitable residential child care facilities, the criteria for the selection of a suitable child sample were applied. Using total population sampling, all children between

the ages of zero to 30 months residing in the chosen residential child care facilities were included in the study.(149) It is well documented in the literature that children at this age group are at a crucial point in their development, and thus the researcher was interested in describing the environment specifically relating to this age group. (153)

As the children were unable to give informed consent or verbal assent because of their young age, the managers of each facility were asked permission for the children to be present in the environment during the data collection (Appendix A).

3.6 Caregiver Sample

The sample of caregivers included all individuals responsible or involved in the direct care of infants and toddlers working during the day shift (total population sampling method). (149) This included permanent and casual caregiving staff, as well as volunteers and caregiving students. Inclusion of all individuals responsible or involved in the direct care of infants and toddlers is a stipulated requirement for the application of the ITERS-R research tool. (2) An additional benefit of this approach is that it provide a more complete and realistic view of the possible care that resident children would receive as normal caring practises in the majority of the residential child care facilities are known to involve a combination of different types of caregivers.

3.6.1 Sampling method for Caregivers

All caregivers present on the day shift of each participating residential child care facility were approached individually to gain informed consent. A total of 45 caregivers were approached and using an information sheet the researcher explained what participating in the study would entail (Appendix C). All 45 caregivers that were approached gave informed consent and the researcher explained to all caregivers that they were able to withdraw from the study at any stage if they so wished and that there would be no negative consequences for deciding to do so as participating was at their own free will. No caregiver withdrew during the study and as all the 45 caregivers met the inclusion criteria stipulated by the ITERS-R they were all included in the study. The ITERS-R criteria stipulated that all adults who are directly involved with the children and present in the environment within the observation period should be included. (2)

3.7 Ethical Considerations

Ethical Clearance to conduct this study was obtained from the Medical Human Research Ethics Committee through the University of the Witwatersrand, with clearance certificate number M 111138 (Appendix D)

Informed consent was obtained from all participants in the study including the managers of facilities, as well as the individual caregivers (Appendix A and C). As the children were too young to give informed consent themselves or give verbal assent, this was obtained from their official guardian (managers of the facilities) (Appendix A). Throughout the contact time with participants it was made clear to them that they were welcome to decline the invitation extended to participate in the study and by doing this there would be no negative consequences.

All information was kept confidential and it was agreed that participants would have access to the results of the study once completed. The researcher agreed to send an electronic copy of the research report to the participating facilities once completed. In addition the researcher made herself available for consultation regarding the findings of the study on request. Confidentiality was ensured by keeping identifying data, including individual names of participants and facilities, on separate sheets and by coding the names of facilities (Appendix E). No individual names of caregivers were used in the data analysis. The coded names of the facilities and the caregiver names that appeared on informed consent forms were securely filed, with access only by the researcher. The secured files were kept in a locked filing cabinet with access only by the researcher.

By developing an understanding of the strengths and weaknesses in these environments, this study hoped to benefit children passing through these residential child care facilities in the future. However, it is important to recognise that the chosen population is a vulnerable group of individuals and thus additional safeguards were included in this study in order to respect and protect their rights and welfare.

The research procedure, nature of the observations and what was expected from the environment (which included the children, caregivers and facility environment) were discussed in detail with the managers in order to ensure that the children's rights would be protected and not taken advantage off. It was also explained that the researcher would not engage with the children individually and would just observe them as part of the environment. The researcher communicated to the manager that she would only engage with the children if their safety was threatened.

The researcher invited the caregivers to take part in the study directly, as a neutral person, rather than relying on the manager to do so who is in a position of power. The reason for this was to avoid the caregivers being coerced into taking part in the study. Furthermore, manipulation of the caregivers was prevented by stating the nature of the study without lying, exaggerating or withholding information from the participants. There were specific questions raised by the caregivers about receiving rewards for participating in the study, and it was clearly explained that there were no direct rewards for participating in the study. Furthermore it was made clear to all caregivers that taking part in the study was not a job evaluation and that no individual names would be reported. All participants that were approached accepted to take part in the study.

During the study further ethical issues arose. During the contact times at the facilities some potentially harmful behaviours were observed, for example during feeding practices, which was address immediately when observed. Possibly harmful practices were discussed with caregivers and managers on site. Often caregivers and managers were not aware of the potential for harm of these practices. On one occasion the researcher had to stop the observation in order to report gross misconduct and abuse (physical) that she witnessed during feeding time to the manager of the facility and this was addressed immediately. Luckily gross misconduct and abuse was only witnessed on this one occasion. The researcher attempted to act timely to potential threats and reported where necessary in order to uphold ethical responsibility at all times. When any harmful behaviour was observed (as reported throughout the discussion section) it was always addressed during the contact time with the managers.

3.8 Research Measurement

3.8.1 Measurement Instruments

3.8.1.1 Demographics of the Residential Child Care Facilities

Information on the demographics of the residential child care facilities were collected during a structured interview with the manager of each of the 18 participating facilities. The interview took place on the premises of each residential child care facility on the day that the data was collected from the facility. The data gathered during this interview were recorded on a residential child care facility demographic information sheet (Appendix F). The demographic information included the name of the residential child care facility, physical

address, name of the manager, setup of the facility, date when it was established, mission statement or purpose of the facility, total number of children in the facility including ages of youngest and oldest child currently cared for, and number of caregivers providing care to the children of the facility.

3.8.1.2 Demographics of Caregivers

Demographic information was collected from each participating caregiver during a structured interview on the day of data collection. The structured interview took 10-15 minutes to complete and was conducted after the observation period of the ITERS-R research tool. The information was recorded on a caregiver demographic information sheet (Appendix G). This information included age, gender, level of education, level of training, most recent employment history and work experience caring for children between 0-30 months old. The caregivers' anonymity was ensured by not recording any individual names on the demographic sheets.

3.8.1.3 Research measuring instrument: Infant Toddler Environmental Rating Scale -Revised test

The measuring instrument that was used to measure the global quality of the different environments during this study was the Infant–Toddler Environment Rating Scale- Revised Edition (ITERS-R). The ITERS-R was developed and adapted from the original standardised test called the ITERS (Infant- Toddler Environment Rating Scale) to make the scale more inclusive and culturally sensitive. (2) The ITERS-R was developed because a need existed for a valid and reliable tool to measure quality of care specifically for infants and toddlers. (2,154).

The original and revised editions were developed by authors Harms, Cryer, and Clifford and were released by Teachers college Press (USA). (2,154). The original test was released in 1990 and the revised edition was released in 2006. (2,154).

The instrument assesses overall or global quality of the environment for infants and toddlers in institutional care. It consists of 39-items presented on a 7-point Likert-like scale: 1 (inadequate), 3 (minimal), 5 (good), and 7 (excellent). These 39-items are grouped into seven subscales and within each subscale there are multiple items. The subscales included: 'Space and furnishings' (five items), 'Personal Care Routines' (six items), 'Listening and talking' (three items), 'Activities'(10 items), 'Interaction' (four items), 'Program structure' (four

items), and ‘Parent and Staff’ (seven items). Each item that is measured receives an item score from 1 to 7 and the scores are added and averaged within the subscale it was grouped in to provide a subscale score. The ITERS-R overall quality score can then be calculated by adding all item scores across all seven subscales and then dividing it by the total number of items scored. Most of the data were collected through observations, while items that were not observable in the prescribed time were gathered through a short interview with the caregiver in charge (Appendix H). The authors of the scale also acknowledge that different environments can have different needs. Thus the scale allows for a ‘not applicable’ score and allows the researcher to remove this item from the final quality score calculation. Thus this adaptability of the scale in situ makes it particularly suitable for measuring quality of the environment in multiple different settings or contexts. (2,154)

Because of the extensive use of this test, many studies have demonstrated its reliability and validity in different settings. (8) The ITERS-R manual lists several inter-rater reliability measures. It was found by the authors that raters reached an agreement of 91.65% when scoring all the items in the test. The authors also used Cohen’s Kappa as a measure of reliability and the item scale Kappa was found to be 0.58. In statistics a Kappa score between 0.41 – 0.60 is a moderate agreement and acceptable. A Kappa of 0.61 indicates a substantial agreement and it is clear that the Kappa score of 0.58 is an acceptable agreement and close to a substantial agreement. (10) In terms of analysis of the internal consistency of the ITERS-R, a Cronbach’s alpha of 0.93 for the overall scale was found. (154) This indicates a high level of internal consistency as an alpha coefficient of 0.7 and higher is considered acceptable in most research studies.(155)

When looking at the validity of the ITERS-R, the authors state that because the test is an improvement on the earlier version (ITERS) and the changes are only slight, the test can be assumed to have the same validation of the original version.(154) The content validity of the ITERS was determined by comparing the tool to several other infant/toddler assessment tools. Results showed that 82% of items were covered by the other tools that the ITERS was being compared to. (156) This suggests that the ITERS-R was a highly appropriate tool to conduct the research objectives for this study.

The ITERS-R test has been widely used in various developed and developing countries. This test has been previously used in South Africa on infants and toddlers and was identified as an appropriate test for our context. (150) Other countries where this test has been used include: Canada, United Kingdom, Sweden, Finland, Iceland, Germany, Spain, Portugal, Italy, Chile, Israel, Japan, Singapore, Hong Kong, Taiwan, Mainland of China, Netherlands, Denmark, Brazil, Bahrain and Greece. (157)

Formal training for the administration of the ITERS-R was not available in South Africa at the time of this study as the test was developed in the USA. However, the researcher identified and approached an expert in early childhood development, Lyndsay Koch (lecturer at the University of the Witwatersrand and the researcher's supervisor), to assist her during a short pilot-study that aimed to develop consistency in the researcher's application of the ITERS-R tool. The level of inter-observer agreement was set at 85% during a once off administration of the ITERS-R test. A rating of 85% is considered acceptable in the literature for observational tools. (158)

3.8.1.4 Child to Caregiver Ratios

Research has shown that observation of actual child to caregiver ratios every hour is more reliable than self-report ratios. (159) Thus, while administrating the ITERS-R (which took three hours to complete) the researcher observed this ratio every hour by noting down the total number of children and total number of caregivers in the room during the observation period. These numbers were recorded on a child to caregiver ratio data collection sheet (Appendix I).

3.9 Research Procedure

3.9.1 Pilot study

After ethical clearance was obtained, the researcher obtained permission from a manager of a residential child care facility not participating in the study in order to conduct the pilot study. The pilot study aimed to develop consistency in the researcher's application of the ITERS-R tool before collecting data. An expert in early child development, Lyndsay Koch, assisted the researcher during the pilot-study.

The administration of the pilot study took place between 7:45-12:00 on the premises of the residential child care facility on a typical weekday, as per the protocol for the full study. The inter-observer agreement set at 85% was reached.

The pilot study revealed that some items of the ITERS-R were irrelevant and these were omitted from the test for the full study. The modification to the ITERS-R administration (leaving out irrelevant items) did not influence the overall quality scores as the test is designed to leave out irrelevant items. Thus, if the number of administered items changes, the administrator can then still calculate the overall quality score by using the manual

instructions (dividing the overall total by the number of administrated items). This is encouraged by the authors of the scale. (2)

The items that were deemed not appropriate included the following: under the subscale 'Personal care routines' item six, titled 'Greeting and departing' was not administered as the children did not arrive or depart the residential child care facilities as they were residents there. Under the subscale 'Activities' items 21 ('Sand and water play') and 24 ('Promoting acceptance of diversity') were not administered as it was winter when the data were collected making water play inappropriate and item 24 was designed for the American culture and not appropriate to the South African population being studied. Under the subscale 'Program structure', items 31 ('Group play activities') and 32 ('Provisions for children with disabilities') were not administered as 'Group play activities' were not part of any of the 'Program structure' as defined by the ITERS-R manual and the study investigated residential child care facilities not restricted to the care of disabled children and was thus not applicable to the sample of facilities for this particular study.(2) In the subscale named 'Parents and staff', items 33 ('Provisions for parents') and 35 ('Provisions for professional needs of staff') included items as defined by the manual not to be appropriate for the caregiver population for this study and were thus omitted from the administered test. (2) Refer to Appendix J for a summary table of above mentioned changes to the administration of the ITERS-R test.

In addition, certain items within different subscales could only be administered at certain facilities. Under the 'Activities' subscale item 17, titled 'Art' was only appropriate to administer in two of the 18 facilities where it was offered to their children, and in other facilities the children were all under 12 months old which the ITERS-R manual indicated was too young to be scored on this. (2) Item 19 under 'Activities' which scored 'Block play' was administered in 10 of the 18 facilities and item 23 which scored 'Use of TV, video, and/or computer' was administered in eight of the 18 facilities as they were the only facilities where television was used with 0-30 month old children.

3.9.2 Interactions with selected residential child care facilities

The managers of the 18 participating residential child care facilities were contacted telephonically and a date and time confirmed that best suited the facility. During the initial telephonic contact with the managers from each facility an invitation was extended to participate in the study. A detailed description of the study was given using the 'Information sheet for managers of facilities' as a guideline (Appendix A). During this telephonic contact any questions from the facility were answered and a meeting was set up with the managers

on the most suitable date for the facility. All of the facilities preferred to meet on the day on which the study would be conducted, and the majority required the researcher to email the 'managers information sheet' as discussed on the telephone prior to the confirmed date of data collection.

The caregivers of the facilities were invited to take part in the study on the day of the data collection as it was difficult with changing shifts to get the exact names of the caregivers on duty for a specific shift far in advance when the dates were confirmed. It was found that contact made too far in advance (one to two months) needed a reminder two to three days beforehand as the planned day would be forgotten. The optimal contact time was two to three weeks before the planned day of data collection as this gave the facility managers time to consult with other members of the management team and to confirm with the researcher as well as remember the set date of the planned data collection.

The researcher explored the option of visiting some of the facilities on a weekend, but most facilities communicated that the environment over weekends is very different to week days due to an influx of volunteers and an absence of core managerial staff, which they wanted present when the research was conducted. Thus all the facilities were visited on a week day (Monday to Friday) at a time between 7:00 to 12:00 that suited each facility best. The different facilities' routines differed and it was found generally that the larger facilities started with their routines earlier and the researcher visited them earlier in the morning than the smaller facilities.

On arrival, the researcher met with the manager of the facility. During the meeting with the managers, the researcher collected demographic data of the facility (see Appendix F) and explained that if there are caregivers that declined the invitation to participate in the study that an alternative date would be arranged. All the caregivers that were approached during this study accepted the invitation to participate. All caregivers that took part in this study were able to speak and understand basic English.

During the visit to the facilities only one manager asked for a proof of the researcher's identity (student card) and an ethical clearance certificate. If the managers did not ask for a copy, the researcher would offer one for their records. After the 15 minute meeting the managers showed the researcher to the areas where the children were cared for and informed the researcher of the daily routine for that specific day. The managers also identified the caregiver in charge to the researcher. The researcher familiarised herself with the area before starting with the administration of the ITERS-R.

Before the observation period began, the researcher individually met with the caregivers working on the day of data collection to introduce herself and to discuss the caregiver information sheet with them, inviting them to participate in the study. The majority of caregivers were uneasy at first, but after the researcher explained that the objectives of the study did not include evaluating individual work performances and no individual identifying information will be noted, they were all willing to participate. The caregivers signed informed consent, and permission was asked from the caregiver in charge to conduct a 10-15 minute interview with her or him after the administration of the ITERS-R to acquire any outstanding information that the researcher was unable to observe or needed clarity on. The researcher also explained to the caregivers that she would be an unobtrusive observer and would thus not participate in any activities in the environment and would make no eye contact or engage with the children if they approached her. The administration of the ITERS-R then followed.

3.9.3 Administration of test

With the administration of the test, it was important to have a prior idea of the daily routine in order to administer items of the test at appropriate times when it was most likely to be observed, such as feeding, dressing, outdoor play and nap times. The time was noted with the start of administration of the test and at the same time the number of caregivers and children present were counted and noted on the child to caregiver ratio sheet (see Appendix I). The researcher set her alarm clock for hourly intervals from the test start time to record the child to caregiver ratios observed on the sheet. This was done to ensure conformity. During the administration of the test, the researcher found that the children were initially interested in engaging with her, but when they received no response, they quickly adapted to her being in the environment. This applied to the caregivers as well, as they were very aware of her presence in the beginning but as the morning progressed they ‘forgot’ about her presence.

During all of the observation periods it was necessary to conduct a short interview with the caregiver in charge as there was specific information that could not be observed during the three hour observation period.

3.10 Data Analysis

3.10.1 Methods

Descriptive statistics were used to describe the different subscales (including their individual items) and ITERS-R overall quality scores observed within the sampled population. Furthermore, descriptive statistics were utilised in order to relate the scores to child care standards (ITERS-R standards: low= M score <3; moderate= 3 ≤ M score < 5; high= M score ≥ 5). (2) To assess the scale of the variability around the mean, the coefficient of variation (CV) was used. (160) The CV is simply the ratio of the standard deviation against the mean and a CV > 1 suggests that the variability between the samples averaged to make the mean to high, while when the CV < 1 the variability between the samples is considered acceptable. (160)

Within the samples of residential child care facilities there was an uneven distribution with regards to the registration status of the facilities with the Department of Social Development, and thus no detailed analysis could be conducted. The samples were however evenly distributed in terms of size (9 large and 9 small facilities), and it was sufficient to compare the ITERS-R scores from the large and small facilities. To determine whether or not the facility size had a measurable influence on the quality of the environment, both parametric (in the cases where the tests for normality and equality of variance held) and non-parametric (in the cases where the tests for normality and equality of variance failed) analysis of variance (i.e. ANOVA and Kruskal Wallis ANOVA, respectively) were employed.

To determine the relationship between the ITERS-R overall quality scores and the child to caregiver ratio, the caregiver training and the caregiver eduction, Spearmans Rank correlation analyses were conducted. Guidelines to interpret the strength of the association between two variables when measured with correlation coefficients have been suggested as follows: between 0.1 to 0.3 the strength of the association is small, between 0.3 to 0.5 it is considered moderate, and between 0.5 to 1.0 it is considered large/strong. This is also true for negative values. (161) These guidelines were used in interpreting the results of the statistical tests during this study.

To determine the significance of the correlations p-values were calculated where $p < 0.05$ indicated that the association was significant, $p < 0.01$ the association was highly significant and where $p < 0.001$ the association was extremely significant.(162)

All statistical analysis were conducted in the R environment (version 2.15.1) and R-studio for statistical analysis.(162) All graphs were created with the Lattice and Lattice Extra packages (Sarkar 2008) in the R environment. (163)

3.10.2 Steps of data analysis:

The ITERS-R test was administered in all the residential child care facilities that took part in the study and the data from that were recorded on the ITERS-R score sheet for each facility. Each subscale of the ITERS-R contained individual items which were allocated a numerical value indicative of a quality score as defined by the ITERS-R manual. (2) The item scores within a subscale were added together and divided by the number of items administered for that subscale to get an average score for that particular subscale (subscale score). The individual item scores as well as the subscale score for each of the seven subscales were tabulated separately to represent the data in more detail. Averages, means and standard deviation were calculated and represented in each table.

The calculated values were then compared to the child care standards and grouped into the relevant category of quality (low/inadequate, moderate, or high) which was represented in a summary table for descriptive purposes (see Table 4.3). The ITERS-R standards were used as the child care standards as defined by Harms et al. (2)

The test of normality and homogeneity of variance was done for each of the seven subscales of the ITERS-R, as well as for the ITERS-R overall quality score. Four of the seven subscales (‘Space and furnishings’; ‘Personal care routines’; Activities; and ‘Interaction’) as well as the overall score showed no significant effect indicating that the parametric assumptions of normality and equality of variance held. The parametric ANOVA was used to determine if there was an effect of facility size on these subscale scores.

The remaining three subscales (‘Listening and talking’; ‘Parents and staff’; and ‘Program structure’) showed a significant effect when the tests of normality and homogeneity were performed indicating that the parametric assumptions of normality and equality of variance was not met and therefore the Kruskal – Wallis ANOVA was used.

In order to do the planned correlations between structural features of the environment and the ITERS-R overall quality score, it was necessary for the researcher to classify the level of child care training and education of the caregivers in a numerical fashion. The classification system was based on that described by researchers in a previous study conducted in child care facilities. (40)

The level of education was scored on a 6-level scale: 1 = less than high school completed; 2 = high school completed; 3 = some college/university completed (<2 years); 4 = college/university degree (> 2 years) ; 5 = graduate work / masters ; 6 = advanced degree. (40)

The amount of specialised training was defined as any formal (degree/diploma) or informal (certificate/ in service) training that a caregiver had received at the time of the study in early childhood development and child care. The caregivers that were interviewed provided care for infants and toddlers and thus the researcher specifically wanted to investigate if the caregiver population had any specific training with regards to the population they were serving. The level of training was categorised as 0 = no training; 1 = high school level training; 2 = certification, adult education training; 3 = some college training; and 4 = college or graduate degree. (40)

Correlations were made between three structural aspects of the environment (child to caregiver ratio, caregiver education, caregiver training) and the ITERS-R overall quality score. Thus correlations were only made to the total population (n=18) and not according to facility sizes separately. Spearmans Rank correlation coefficient was calculated and the results were represented in individual scatterplot graphs, with the correlation line overlayed, for each of the three analyses.

The detailed results of the tests of normality, homogeneity and ANOVA scores as well as the Spearman's correlation coefficient results can be reviewed in results section and Appendix K.

Chapter 4 RESULTS

4.1 Overview

The results from this research are presented in three sections in accordance with the objectives of this study: First the demographic information of the residential child care facilities and caregivers that participated in this study is presented. Following this, the description of the quality of the environments observed: overall (including the comparisons made between the subscale scores and ITERS-R overall quality scores and the child care standards) as well as the physical and social components separately. Lastly the results of the correlations that were made between the different structural features of the environment (child to caregiver ratios, level of caregiver education and level of caregiver training) and the ITERS-R overall quality score will be presented. A summary of the results are presented at the end of this chapter.

4.2 Demographic information

4.2.1 Residential Child Care Facilities

Table 4.1 presents the demographic information with regards to the residential child care facilities that participated in the study. The information is presented for all facilities, as well as for small and large facilities separately. The oldest facility in the study was established in 1900 (large facility) and the most recent year of establishment was in 2011 (small facility). The majority of large facilities were established far earlier than the smaller facilities with five of the large facilities established between 1992 and 1999, one in 1984, and three during 1900 to 1930. All, except one, of the small facilities were established between 2000 and 2011, with the exception being a facility that was established in 1939.

4.2.1.1 Resident Children

A greater age range of resident children was found within the large residential child care facilities compared to the small facilities The youngest child in the large facilities was 1 week old and the oldest 20 years, whereas the youngest child in the small facilities was 2 weeks old and the oldest 6 years. The total number of children residing in the 18 facilities was 551,

with six being the minimum number of children found in a facility (small facility) and the maximum number of children within one facility 90 (large facility)(Table 4.1).

Table 4.1: Demographic information of Residential Child Care Facilities

Demographic information	Combined	Small	Large
Residential Child Care Facilities			
Facility distrubution	n = 18	n = 9	n = 9
Range of oldest to most recent establishment	1900 - 2011	1939 - 2011	1900 - 1999
Resident Children			
Total number of resident children	544	102	442
Mean (Standard deviation)	30.2 (25.2)	11.3 (3.2)	49.1 (23.1)
Range (Min - Max)	6 - 90	6 - 15	27 - 90
Children aged 0-30 months	47.8%	83.3%	39.6%
Children aged > 30 months	52.2%	16.7%	60.4%
Caregivers			
Total number of caregivers[a]	217	60	157
Night shift	45	15	30
Range (Min - Max)	1.00 - 15.00	1.00 - 4.00	2.00 - 15.00
Day shift	80	20	60
Range (Min - Max)	1.00 - 8.00	1.00 - 3.00	2.00 - 8.00
direct care <30 months on day shift	63.8%	80.0%	58.3%
Range (Min - Max)	1.00 - 7.00	1.00 - 2.00	2.00 - 7.00

a =the total number of caregivers reported to work in the facilities, thus not only night and day shift combined but all schedules and rotations taken into account

Within all the facilities combined, it was found that the number of children aged 0 -30 months made up 47.8% of the total number of children reported in the facilities. Within the large facilities, the majority of children were aged above 30 months (60.4%) and within the small facilities below 30 months (83.3%).

4.2.1.2 Caregivers

The total number of caregivers on duty during day shifts exceeded the number of caregivers on night duty for both small and large facilities (Table 4.1). The average number of caregivers working on day shift reported by the managers of the facilities was 4.4 (± 3.7), and ranged between one and 15 caregivers. In terms of the caregivers on duty during the night shift, an average of 2.5 (±1.6) with a range between one and eight was reported. From the caregivers employed on day shift 63.8% were directly responsible for the care of the children aged 0 -30 months (small facilities 80%; large facilities 58.3%).

4.2.2 Caregiver demographic information

The demographics of the caregivers that took part in this study are represented in Table 4.2. The facilities are represented separately according to size of the facility and an overall combined representation is also given. It was found that the majority of the caregiver population were female (95.6%) and the average age of the caregivers were 35.7 (± 9.9) years. The age range of the caregiving population was found to be similar in both the large and small facilities with the minimum age in the teens and the maximum age in the fifties.

In terms of education, it was found that 60% of the overall caregiver population had completed highschool. More caregivers in large facilities had completed highschool (70.4%) than in the small facilities (44.4%). In terms of specific training in child care, it was found that 62.2% of the overall caregiving population did not have specific training in child care at the time of the study. In large facilities, 66.7% of the caregivers did not have specific training and in small facilities, 55% of the caregivers did not have specific training. 'Specific child care training' included any training such as diplomas and/or certificates from accredited sources (training colleges, universities, childrens' foundations) with specific focus on caring for and the development of infants and toddlers. From the caregivers who had received training in child care, which included child development and/or caregiver training, the small facilities reported a slightly higher occurance of training (33.3% for child development training and 16.7% for caregiver training) than the large facilities (25.3% for child development training and 14.8% for caregiver training%). It is possible that a caregiver had attended both child development training and caregiver training. Thus these percentages cannot be added together.

The average years of work experience as a caregiver for infants and toddlers was 1.5 (± 2.8), with the small facilities averaging higher (1.7 ± 2.4) than the large facilities (1.3 ± 3.0). The majority of the caregiver population (91.1%) reported that they did not have any previous work experience caring for infants and toddlers. The average years of current employment were 4.0 (± 3.7) years, with the small facilities averaging higher (4.1 ± 3.3) than the large facilities (4.0 ± 4.0). Before the caregivers worked with the infant and toddler groups they worked within other sections of the facilities such as with the older groups of children, adolescents or adults, or in the laundry or kitchen teams, hence the difference between 'average years of work experience with infants and toddlers' and 'average years of current employment'. Some work structures work on a rotating basis which could happen every three months in order to give all the caregivers in the facilities variety in their work.

The majority of the caregiver population (73.3%) were employed in an occupation other than caregiving before the current employment, and only 8.9% indicated that they were working as a caregiver. The remainder, 17.8%, were unemployed. Other occupations included cashiers, domestic workers, hairdressers, waitresses, security guards and factory workers.

Table 4.2: Summary of caregiver demographics.

Characteristic	**Combined n= 45**	**Small n= 18**	**Large n= 27**
Age of Caregiver (in years) Mean(SD)	35.7 (9.9)	38.7 (9.5)	33.7[a] (9.8[b])
Range (Min-Max)	16-56	19-55	16-56
Gender			
Female	95,6%	100,0%	92,6%
Male	4,4%	0,0%	7,4%
Education background			
High school certificate	60,0%	44,4%	70,4%
No High school Certificate	40,0%	55,6%	29,6%
Training in child care			
Child development	28,9%	33,3%	25,3%
Caregiver training	15,6%	16,7%	14,8%
No training	62,2%	55,6%	66,7%
Caregiving work experience[c] (in years) Mean(SD)	1.5 (2.8)	1.7 (2.4)	1.3 (3.0)
Range (Min-Max)	0-14	0-8	0-14
No experience	91,1%	88,9%	92,6%
Some experience	8,9%	11,1%	7,4%
Employment history			
Length of current employment (in years) Mean(SD)	4.0 (3.7)	4.1 (3.3)	4.0 (4.0)
Range (Min-Max)	0.1 - 13	0.1 - 9	0.1 - 13
Previous employment			
Caregiving	8,9%	11,1%	7,4%
Unemployed	17,8%	5,6%	25,9%
Other	73,3%	83,3%	66,7%
Length of previous employment (in years) Mean(SD)	3.2 (3.6)	3.1 (2.6)	3.3 (4.2)
Range (Min-Max)	0 - 15	0 - 9	0 - 15

a : mean
b: standard deviation
c: experience in years employed to care for infants and toddlers

Note, the percentages provided under the 'Training in child care' don't add up to a 100 as an individual could have both child development and caregiver training.

4.3 Quality of the observed physical and social environments

4.3.1 Overall

Table 4.3 provides a summary of the subscale scores for each of the seven subscales, as well as the ITERS-R overall quality scores. This is represented in the table for all the facilities combined (small and large) as well as for the small and large facilities separately. These scores were compared to child care standards as defined by Harms et al, and resultantly grouped within the categories low, moderate and high, depending on their scores. (2) This summary shows that according to these three categories none of the subscales scores fell within the high category. The majority of small facility subscale scores fell within the moderate category (≥3 and <5) with three out of the seven subscales falling in the low/inadequate category. The majority of large facility subscale scores fell within the low category (<3) with only one subscale, 'Listening and talking', falling just within the moderate category.

Table 4.3: Summary of subscale scores and ITERS-R overall quality scores represented in the categories low, moderate and high as defined by Harms et al. (2)

	Low[a]			Moderate[b]			High[c]		
ITERS-R Subscales	Combined Mean (SD)	Small Mean (SD)	Large Mean (SD)	Combined Mean (SD)	Small Mean (SD)	Large Mean (SD)	Combined Mean (SD)	Small Mean (SD)	Large Mean (SD)
ACTIVITIES	2.02(1.16)	2.46 (1.28)	1.59 (0.84)						
INTERACTION			2.94 (1.93)	3.26 (1.68)	3.58 (1.33)				
LISTENING AND TALKING	2.78 (1.82)	2.94 (1.63)	2.63 (2.01)						
PARENTS AND STAFF				3.27 (1.23)	3.49 (1.07)	3.05 (1.39)			
PERSONAL CARE ROUTINES	2.68 (1.89)		2.27 (1.78)		3.09 (1.94)				
PROGRAM STRUCTURE	2.11 (1.21)	2.17 (0.99)	2.06 (1.42)						
SPACE AND FURNISHINGS			2.93 (1.75)	3.19 (1.77)	3.44 (1.78)				
Total overall quality score	2.77 (1.64)		2.48 (1.67)		3.07 (1.55)				

a: low= *M* score < 3; b: moderate= 3 ≤ M score < 5; c: high= M score ≥ 5;

The ITERS-R overall quality score for all facilities combined (2.77 ± 1.64) fell in the low/inadequate category when compared against the child care standards. (2) The small facilities' ITERS-R overall quality score (3.07 ± 1.55) fell just within the moderate category and the large facilities in the low/inadequate category (2.48 ± 1.67). Although there was an observed difference between the ITERS-R overall quality scores for the large and small facilities, the ANOVA test identified no statistically significant effect of facility size on the ITERS-R overall quality scores ($F = 1.92$, $p = 0.18$).

4.3.2 Physical environment

4.3.2.1 Child to caregiver ratio

Table 4.4 provides the means, standard deviations and range (minimum to maximum) of child to caregiver ratios observed across the three hour observation period. Please refer to Appendix L for a detailed breakdown of the child to caregiver ratios and changes in the number of individual caregivers and children present in the environment over the observation period. The large and small facilities are represented separately followed with a combined representation of the facilities together.

Table 4.4: Child to caregiver ratios

Values	Large (n=9)	Small (n=9)	Combined (n=18)
Mean (Standard deviation)	6.4 (3.8)	4.6 (2.2)	5.5 (3.2)
Range (Min- Max)	1.7 - 20.0	1.3 - 13.0	1.3 - 20.0

On average the combined child to caregiver ratio was 5.5 (± 3.2). The large facilities had higher child to caregiver ratios (6.4 ±3.8) compared to the small facilities (4.6 ± 2.2). The highest child to caregiver ratio was found in a large facilities, were a ratio of 20 children to one caregiver was observed. The highest observed child to caregiver ratio in the small facilities was 13 children to one caregiver. Furthermore, the results revealed large changes in the number of children and/or caregivers present in the environment at each 60 minute interval during the three hour observation period when the ratios were recorded (see Appendix L). These changes were found in both the small and large facilities.

4.3.2.2 Space and Furnishings

This subscale of the ITERS-R includes items that mostly refer to the indoor environment provided to the resident children. These items include: Indoor space, Furniture for routine care and play, Provision for relaxation and comfort, Room arrangement and Display for children.

Table 4.5 provides the means (± SD) for the items of the ITERS-R subscale ‘Space and furnishings’. The subscale score was 3.2 (± 1.8). According to the ITERS-R standards this score fell just above the minimum quality rating (low: < 3; moderate: ≥3 and < 5; high: ≥ 5). (2)

The subscale score for the small facilities (3.4 ± 1.8) was higher than that of large facilities (2.9 ± 1.8), which brought down the overall quality score when combined. The standard deviation for the large facilities was higher than that of the small facilities (CV = 0.62 and 0.52, respectively), indicating slightly more variability in the large facilities. However, these standard deviations are not considered to be large (CV < 1.0). (160) For both the small and large facilities the highest scoring items, 'Furniture for routine care and play' and 'Indoor space', were found to have the most variability in the quality scores between different residential child care facilities. The lowest item score was found for 'Provision for relaxation and comfort'.

Table 4.5: Means and standard deviations for items of the ITERS-R subscale 'Space and furnishings'.

Items in subscale	Combined (n=18) Mean (SD)	Small (n=9) Mean (SD)	Large (n=9) Mean (SD)
Display for children	2.61 (0.78)	2.78 (0.83)	2.44 (0.73)
Furniture for routine care and play	4.00 (2.35)	5.11 (2.42)	2.89 (1.76)
Indoor space	4.33 (2.43)	4.56 (2.01)	4.11 (2.90)
Provision for relaxation and comfort	2.00 (0.69)	2.33 (0.71)	1.67 (0.50)
Room arrangement	3.00 (1.53)	2.44 (1.33)	3.56 (1.59)

Even though differences in the quality scores within this subscale for the different sized facilities (small and large) were present, the parametric ANOVA identified no statistically significant effect of facility size on the subscale quality score for 'Space and furnishing' ($F = 1.19$, $p > 0.29$).

4.3.2.3 Program structure

This subscale of the ITERS-R includes items that mostly refer to how the daily routines are run within the facilities. These items include: Schedule, Free Play, Group Play activities, and provisions for children with disabilities. The last two items were not included in this study. Please see methodology chapter section 3.9 for detail.

Table 4.6 displays the means and standard deviations for the items within this subscale. The subscale score for 'Program structure' was 2.1 (± 1.2). The subscale scores for the small and large facilities were similar for this subscale (2.2 ± 1.0 and 2.1 ± 1.4, respectively). The lowest item score was 'free play' for both small and large facilities, and the highest item

score was ‘Schedule’. All scores fell in the low/inadequate category (<3) when measured to the child care standards. (2)

When statistical analysis was conducted, the Kruskal-Wallis ANOVA identified no statistically significant effect of facility size on the subscale quality score for ‘Program structure’ (X^2 = 0.58; p = 0.45).

Table 4.6: Means and standard deviations for items of the ITERS-R subscale ‘Program Structure’

Items in subscale	Combined (n=18) Mean (SD)	Small (n=9) Mean (SD)	Large (n=9) Mean (SD)
Free Play	1.72 (1.27)	1.56 (0.73)	1.89 (1.69)
Schedule	2.50 (1.20)	2.78 (1.09)	2.22 (1.30)

4.3.2.4 Personal care routines

This subscale of the ITERS-R includes items that mostly refer to how the health, safety and personal care needs of the resident children are being met. These items include: Meals/Snacks, Nap, Diapering/toileting, Health practices, Safety practices and Greeting/departing. The last item mentioned here was not included in this study. Please see methodology chapter section 3.9 for detail.

Table 4.7 represents the means and standard deviations for the items of the subscale ‘Personal care routines’. The highest item scores within this subscale were ‘Safety practices’ for both the small and large facilities scoring within the moderate (large facilities) and high (small facilities) categories.(2) The lowest scoring items for both the small and large facilities were ‘Diapering and toileting’ as well as ‘Health practises’ (both in the low/inadequate category). (2)

Table 4.7: Means and standard deviations for items of the ITERS-R subscale 'Personal care routines'

Items in subscale	Combined (n=18) Mean (SD)	Small (n=9) Mean (SD)	Large (n=9) Mean (SD)
Diapering/toileting	1.39 (1.20)	1.67 (1.66)	1.11 (0.33)
Health practices	1.89 (1.41)	2.56 (1.74)	1.22 (0.44)
Meals/snacks	2.89 (1.94)	3.44 (2.01)	2.33 (1.80)
Nap	2.50 (2.01)	2.67 (2.06)	2.33 (2.06)
Safety Practices	4.72 (1.74)	5.11 (1.36)	4.33 (2.06)

The subscale score for 'Personal care routines' was 2.7 (± 1.9), indicating a low (<3) overall quality score when comparing to the ITERS-R child care standards.(2) When looking at the facilities separately, the subscale score for the small facilities (3.1 ± 1.9) was higher than that of the large facilities (2.3 ± 1.8). The parametric ANOVA identified no statistically significant effect of facility size on the subscale quality score for ''Personal care routines'' ($F = 2.41$, $p = 0.14$).

4.3.2.5 Activities

This subscale of the ITERS-R includes items that mostly refer to different types of activities that are made available to the resident children within their program structures/daily schedules. These items include: Fine motor, Active physical play, Art, Music and movement, Blocks, Dramatic play, Sand and water play, Nature/Science, Use of TV, video, and/or computer and Promoting acceptance of diversity. The last item mentioned here was not included in this study. Please see methodology chapter section 3.9 for detail. Furthermore within the 'Activities' subscale of the ITERS-R test the different items were not administered to all facilities equally, as seen in the change of the n-values (Table 4.8). Please refer to paragraph three of section 3.9.1 ('Pilot study') of the Methodology chapter for more information of why this was done.

Table 4.8: Means and standard deviations for items of the ITERS-R subscale 'Activities'

		Combined		Small		Large
Items in subscale	**n[a]**	**Score Mean (SD)**	**n**	**Score Mean (SD)**	**n**	**Score Mean (SD)**
Active physical play	18	1.94 (1.06)	9	2.22 (1.09)	9	1.67 (1.00)
Art	2	1.50 (0.71)	1	2.00 (n/a[b])	1	1.00 (n/a)
Block Play	10	1.50 (0.97)	5	2.00 (1.22)	5	1.00 (0.00)
Dramatic play	18	2.39 (1.38)	9	3.11 (1.54)	9	1.67 (0.71)
Fine motor	18	2.61 (1.54)	9	3.33 (1.66)	9	1.89 (1.05)
Music and movement	18	1.83 (0.92)	9	2.00 (1.00)	9	1.67 (0.87)
Nature/Science	18	1.78 (1.11)	9	2.00 (1.22)	9	1.56 (1.01)
Use of TV,video, and/or computer	8	1.75 (1.16)	3	2.33 (1.53)	5	1.40 (0.89)

a: n = number of residential child care facilities where the item was administered
b: insufficient data points to calculate standard deviation

The subscale score for 'Activities' was 2.0 (± 1.2). This score measured low/inadequate (<3) according to the child care standards. (2) The subscale score for the small facilities averaged higher (2.5 ± 1.3) than that recorded for the large facilities (1.6 ± 0.8).The highest scores for both the small and large facilities were found in the 'Fine motor activities' item. The lowest item score for the small facilities was 2.0 and found for items including 'Art', 'Block play', 'Music and movement' and 'Nature/ science'. The large facilities' lowest score was 1.0 and was found for the items 'Art' and 'Block play'. The item scores for the large facilities in this subscale did not exceed 1.89 and for the small facilities ranged between higher scores of 2.00 – 3.33 showing a difference in scores between the facilities. When statistical analysis was conducted for this subscale, a statistically significant effect of facility size on the quality score for the subscale 'Activities' was found (F = 5.61, p = 0.03*).

4.3.2.6 Parents and staff

This subscale of the ITERS-R includes items that mostly refer to how the needs of the caregiving staff are being met. These items include: Provisions for personal needs of staff, Staff interaction and cooperation, Staff continuity, Supervision and evaluation of staff, Opportunities for professional growth, Provisions for parents and Provisions for professional needs of staff. The last two items mentioned here was not included in this study. Please see methodology chapter section 3.9 for detail.

Table 4.9 displays the means and standard deviations for the different items in the 'Parents and staff' subscale of the ITERS-R. The score for this subscale was 3.3 (± 1.2). According to the ITERS-R standards this score fell just within the moderate quality rating (moderate: ≥3 and < 5). (2) The subscale scores for the small and large facilities were similar, with the small facilities scoring slightly higher (3.5± 1.1) than the large facilities (3.1 ± 1.4). The highest item scores for both the small and large facilities were recorded for 'Staff interaction

and cooperation' and 'Provisions for personal needs of staff'. The lowest item score was 'Staff continuity' for both small and large facilities.

Table 4.9: Means and standard deviations for items of the ITERS-R subscale 'Parents and staff'

Items in subscale	Combined (n=18) Mean (SD)	Small (n=9) Mean (SD)	Large (n=9) Mean (SD)
Opportunities for professional growth	2.83 (1.10)	2.89 (0.60)	2.78 (1.48)
Provisions for personal needs of staff	4.06 (1.06)	4.33 (1.00)	3.78 (1.09)
Staff continuity	2.22 (1.11)	2.67 (1.32)	1.78 (0.67)
Staff interaction and cooperation	4.17 (1.58)	4.44 (1.01)	3.89 (2.03)
Supervision and evaluation of staff	3.06 (0.64)	3.11 (0.33)	3.00 (0.87)

When statistical analysis was conducted, the Kruskal-Wallis ANOVA identified no statistically significant effect of facility size on the subscale quality score for 'Parents and staff' (X^2 = 1.44, p = 0.23).

4.3.3 Social environment

4.3.3.1 Listening and Talking

This subscale of the ITERS-R includes items that mostly refer to language stimulation and opportunities for communication. These items include: Helping children understand language, Helping children use language and Using books.

Table 4.10 displays the means and standard deviations for items of the subscale 'Listening and talking'. The subscale score for 'Listening and talking' was 2.8 (± 1.8), which is classified as low/inadequate (<3) when measured to the child care standards. (2)

The subscale score for the small and large facilities were similar (2.9 ± 1.6 and 2.6 ± 2.0, respectively), with the score for the small facilities slightly higher than that of the large facilities. The highest item score for both the small and large facilities were 'Helping children understand language', and the lowest for both were 'Using books'.

The Kruskal-Wallis ANOVA identified no statistically significant effect of facility size on the quality score for the subscale 'Listening and talking' (X^2 = 0.64, p = 0.42).

Table 4.10: Means and standard deviations for items of the ITERS-R subscale 'Listening and talking'

Items in subscale	Combined (n=18) Mean (SD)	Small (n=9) Mean (SD)	Large (n=9) Mean (SD)
Helping children understand language	3.44 (2.12)	3.78 (1.86)	3.11 (2.42)
Helping children use language	3.22 (1.96)	3.67 (1.66)	2.78 (2.22)
Using books	1.72 (1.13)	1.44 (0.53)	2.0 (1.50)

4.3.3.2 Interaction

This subscale of the ITERS-R includes items that mostly refer to how resident children interact with each other and with their caregivers. These items include: Discipline, Peer interaction, Staff-child interaction and Supervision of play and learning.

Table 4.11 represent the results for the items of the ITERS-R subscale 'Interaction'. The subscale score for 'Interaction' was 3.3 (± 1.7). According to the ITERS-R standards this score fell just above the minimum quality rating (low: < 3; moderate: ≥3 and < 5; high: ≥ 5). (2) The subscale score for the small facilities (3.6 ± 1.3) was higher than that of the large facilities (2.9 ±1.9).

Table 4.11: Means and standard deviations for items of the ITERS-R subscale 'Interaction'

Items in subscale	Combined (n=18) Mean (SD)	Small (n=9) Mean (SD)	Large (n=9) Mean (SD)
Discipline	3.00 (1.46)	3.89 (0.78)	2.11 (1.45)
Peer interaction	2.67 (1.75)	2.78 (1.78)	2.56 (1.81)
Staff-child interaction	3.67 (2.14)	3.78 (1.48)	3.56 (2.74)
Supervision of play and learning	3.72 (1.45)	3.89 (1.36)	3.56 (1.59)

The highest scores within the small facilities included items for 'Discipline' and 'Supervision of play and learning'. The large facilities scored highest on 'Staff - child interaction' and 'Supervision of play and learning' items. The lowest scores achieved for the small facilities were found in the 'Peer interaction' item and for the large facilities in the 'Discipline' item.

The parametric ANOVA identified no statistically significant effect of facility size on the quality score for ''Interaction''. ($F= 0.88$, $p = 0.36$).

4.4 The relationship of structural aspects of the different environments to the ITERS-R overall quality score

The results of the correlations made between three structural features of the environment (child to caregiver ratios, level of caregiver education and level of caregiver training) and the ITERS-R overall quality score (across all seven subscales) will be presented in this section.

The correlations are each represented on a separate graph. Take note that the ITERS-R overall quality score in the figures (Y-axis) are only labelled to 6 and not the maximum 7 as none of the quality scores exceeded 6.

4.4.1 Child to caregiver ratio versus the ITERS-R overall quality score

The child to caregiver ratio was found to have a small negative correlation with the ITERS-R overall quality score (r = -0.24) (Figure 4.1). Thus, it seemed that when the child to caregiver ratios decreased the ITERS-R overall quality score increased. However, the correlation was not found to be statistically significant (p = 0.34).

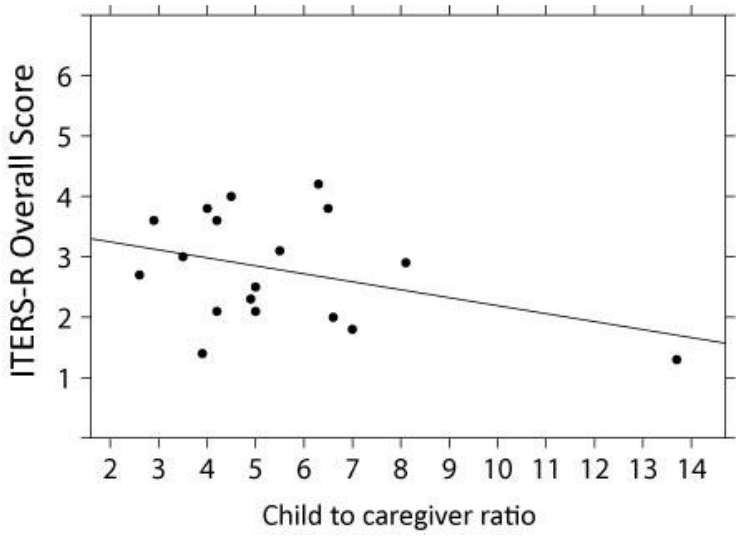

Figure 4.1: Association of the Child to caregiver ratios against the ITERS-R overall quality score.

These findings could have been influenced by the small sample size that was available for this research. (149) Alternatively, it may reflect the fact that none of the facilities investigated

scored high in the quality of care (only some moderate), even when they were characterised by low child to caregiver ratios.

4.4.1.1 Caregiver education versus the ITERS-R overall quality score

The level of caregiver education was correlated against the ITERS-R overall quality score but no statistical significant result was found (r = -0.08; p= 0.77), showing that caregiver education had no effect on the ITERS-R overall quality score. (Figure 4.2).

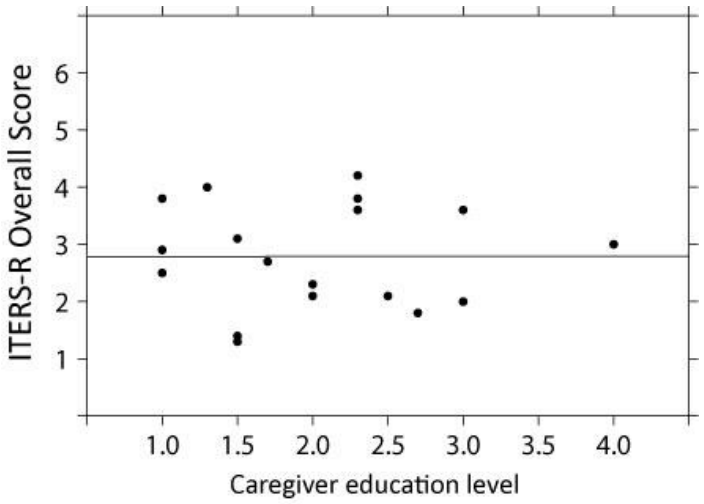

Figure 4.2: Association of Caregiver education against the ITERS-R overall quality score.

4.4.1.2 Caregiver child care training versus the ITERS-R overall quality score

When the level of caregiver training was correlated to the ITERS-R overall quality score the results indicated no statistically significant correlation (r = 0.04 ; p = 0.86) Figure 4.3)..

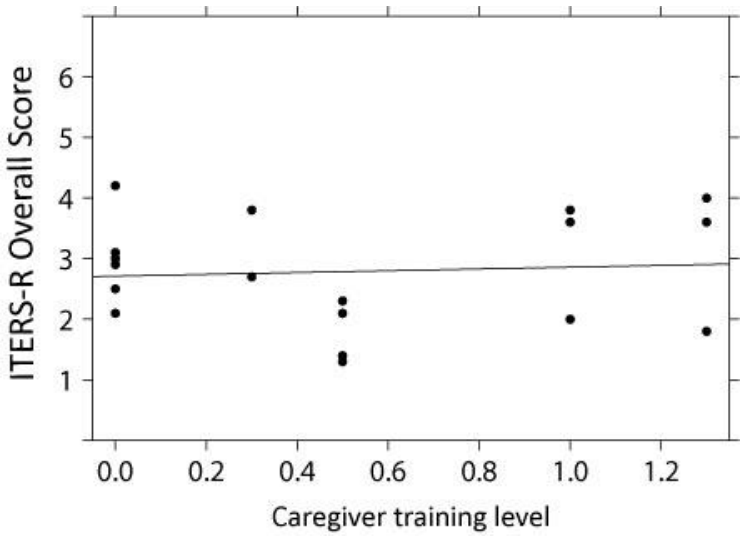

Figure 4.3: Association of caregiver training against the ITERS-R overall quality score

4.5 Summary

The results of this study support what is frequently reported in the available literature with regards to residential child care facilities: the overall environments provided to resident children are of low/inadequate quality (2.77 ± 1.64), mostly established in the last two decades and staffed by untrained (62.2%), female caregivers (95.6%) with a basic level of education (secondary school) (60%).

The results indicated that both physical and social aspects of the environment were inadequate, with the physical environment of slightly better quality than the social environment. Furthermore, a consistent pattern was observed whereby smaller facilities scores higher than larger facilities with regards to ITERS-R quality scores (overall and subscale scores). This was also found to be true for child to caregiver ratios whereby the large facilities had higher child to caregiver ratios (6.4 ±3.8) compared to the small facilities (4.6 ± 2.2). In addition to this, frequent changes were noted in the number of individuals (caregivers and/or children) present in the environment during the three hour observation period in both small and large facilities (Appendix L). However, statistical analysis indicated no significant effect of facility size on quality scores (overall and subscale scores), with the exception of the quality of the 'Activities' subscale ($F = 5.61$, $p = 0.03$*).

Correlations made between the ITERS-R overall quality scores and three structural features of the environment (child to caregiver ratios, level of caregiver education and level of caregiver training) yielded no statistically significant results.

Chapter 5 DISCUSSION

The findings of the study are discussed by first describing the demographic information with regards to the residential child care facilities, resident children and the caregiver population found within the facility environments. Secondly, the nature of the environment as a whole and then specifically the physical and social environments are discussed. Lastly, the relationship between structural features of the environments and the overall quality scores measured are explored (correlations).

Throughout this chapter specific reference is made to childhood occupations as defined in the operational definitions as well as how the residential child care environments in the study influenced the children's participation in executing them. Occupation forms an integral part of occupational therapy practice and the results of the study indicated that children's engagement in their occupations were limited by the environment, highlighting the importance of intervention by occupational therapists in residential child care environments.

5.1 Demographic Information

The majority of residential child care facilities in the current study were established within the last two decades (72.2%, 13/18 facilities) with only 27.8% established between 1900 and 1984. This agrees with data from a previous South African study, which indicated that 77% of facilities were established between 1995 and 2006. (19) From the current study it was also found that the majority of the small facilities were established far more recently than the large facilities. This could be as a result of a potential shift in beliefs of what constitutes to a good residential caregiving environment to a smaller more 'home' like structure rather than large, dormitory style environments. (143)(85) However, the majority of national (South African) and international policy and legislation does not stipulate a conscious shift towards smaller homes. (19)

Factors influencing the increase in the number of residential child care facilities are complex. It might be that the results of this study reporting on the increased number of residential care facilities in Johannesburg could have been due to the increased number of children requiring alternative care in South Africa. The results showed specific increase within the last two decades and it is possible that these children could have been affected by numerous sources leading to their need of care, for example the HIV/AIDS pandemic and poverty. The HIV/AIDS pandemic within the last two decades has had a major impact on the South

African population and these increases could very well be linked to that. However, as medication has become more accessible the nature of how this will impact the residential child care sector is unclear. This together with the continued economic crisis in South Africa and widespread poverty could have influenced family's and community structures' ability to care for children in need, thus leading to the establishment of more residential child care facilities. Although there is controversy around whether these numbers of vulnerable children will continue to rise, it is clear that residential child care facilities will remain important in South Africa in the foreseeable future.

Within the residential child care facilities in the current study's sample, a total of 551 children were accommodated, with 102 in small facilities and 449 in large facilities. Within the sample of resident children it was found that the majority of small facilities (facilities with 20 children or less) focussed their efforts on younger children (83.3% were <30 months old) and had a narrower range of ages (0-6 years). Within the larger facilities (more than 20 resident children) the opposite was found to be true, with a broad age range being accommodated (0-20 years) and the majority of children being above 30 months (59.5%). When compared to the literature, variability in age distribution was evident and no clear pattern could be established between size of facility and age distribution found within them. (19)(23)

Not much literature exists on the age demographics of South African residential child care facilities. However, two studies done in South Africa showed conflicting results. Meiring's results showed that more than 50% of children living in Johannesburg based residential child care facilities were less than 6 years old, while Meintjes et al. found that across South Africa more than 60% were older than 6 years. (18,19) It is difficult to compare the current study's findings to these results as it was biased towards facilities catering for a specific age group which could have influenced the age distribution in the current study's results. These conflicting results could be due to sampling (the study across South Africa only sampled a few residential child care facilities), or a local characteristic of the age demographic of resident children in Johannesburg. Whatever the case, it is clear that young children, who are most vulnerable to environmental influences, are found in residential child care facilities across the country.

5.2 The caregiver population

Because primary caregivers are the prime creators and managers of the environments influencing children, the characteristics of this sample is considered in some depth.

The caregiver sample in this study was predominantly female (95.6%), aged 35.7 (± 9.9) years (ranging between 16 – 56 years), with limited caregiving training (62,2%) and secondary education (high school grade 12) or below level of education (60%). These results are supported by previous studies reporting the level of caregiver education and training, as well as age and gender distribution in Johannesburg based residential child care facilities. (19,128) Similar results have been reported in other regions of South Africa outside of Gauteng, including Kwazulu-Natal and the Western-Cape as well as internationally. (19,51,133,164)

This age range and level of education was not unexpected as national statistics indicate that most working South Africans are between the ages of 15 and 65 years with an educational background on a high school level or below. (165) The political climate in South Africa, history of Apartheid and the resultant barriers to accessing education might have had an influence on this Furthermore, levels of poverty can influence access to education directly as education is unaffordable or indirectly as individuals need to obtain incomes to support families and do not have the resources to support learning. The gender distribution could be as a result of generally accepted gender roles in South Africa and internationally, where females take the role of the caregiver more often than males. This might lead to females being attracted to apply to caregiving jobs in residential child care facilities more often than males. (166)

The consequence of an all-female caregiving sample is that resident children are not exposed to positive male role models, and this lack of exposure is known to have negative effects on development. (167)

During this study the majority of caregivers reported that only a small number of opportunities for on-going feedback with regards to their work performance were available to them throughout a year (2.83 ± 1.10). This was similar for training opportunities. Some of the bigger facilities from the current study reported weekly meetings that were more focussed on administrative tasks than providing an environment for training, learning or professional growth opportunities.

It was also reported that in most cases the day to day supervision of caregivers was done by fellow caregiving staff with the higher managerial structures only consulted in cases where problems cannot be resolved by the caregiving staff themselves. In general when feedback was provided to caregivers it was mostly to address a problem and not to praise good input. In addition, there was little assistance in building the caregivers understanding of the importance of development and stimulation of infants and toddlers in their care. The content

of the training was usually informal in nature with more emphasis on health and physical care of the children (all ages) and less on socio-emotional needs, behavioural challenges and interaction. Training was usually given informally by fellow caregiving staff or managerial staff on duty.

The literature stresses the need for increased training opportunities for caregiving staff as training has shown to significantly benefit the development of resident children as well as the well-being of caregiving staff. (131)(85)(129) Yet both nationally and internationally training as well as supervision/support appears to be a problem. (62)(18)

Lack of proper supervision and adequate training could have very negative consequences within residential child care facilities as it could lead to ineffective care. Although the results from this study supported the notion that training opportunities are limited for caregiving staff in South Africa, a previous study reported the opposite. Meiring also investigated residential child care facilities in the greater Johannesburg area and found that the majority of facilities in her study (83%; n=20/24) provided the caregivers some type of regular (weekly/monthly/quarterly) informal training programme. (18) Even when caregivers were provided training, the content and quality seems to be variable between different residential child care facilities and in most cases did not equip them for the day-to-day challenges that they face. (19)

Furthermore, a large number of international studies have indicated that caregiver training within residential child care settings often occurs without following a specific standardised method. (32,61) This leaves the content and quality open to modifications that are not always conducive to the optimum care of the resident children as these modifications often only focus on the child's physical needs, neglecting the socio-emotional development of the child. (32,61) (83)

Furthermore, in reported literature, caregivers themselves have often indicated that as a result of the lack of appropriate training, supportive supervision and communication structures they did not feel equipped to do their jobs. (164) This can result in the kind of environment reported in the literature: cold, sterile and with little interaction with children. (140) It is important to note that training should be accessible and relevant to increase skills and equip staff to do their job. The quality of different residential child care environments is often extremely variable and thus training should be directed towards 'on the job' skills that adhere to at least a general minimum standard training guideline, but also be relevant to the unique environment accommodating the specific challenges faced by the caregiving staff. (164)

Results from the current study further highlighted the importance of “on the job” training, as majority of caregivers (91.1%) reported that they did not have any work experience that related to infants and toddlers before they started their current employment. This suggests that the majority enter into a caregiving job with no specialised training or work experience related to very young children and therefore rely on additional training to effectively conduct their work duties.

5.3 Overall quality of residential child care environments

The quality of early child care environments, such as child day care centres (including crèche environments and early educational settings), is well documented in the literature. (9) (8,18,40–43) However, only a few international studies have focussed specifically on residential child care environments, and even fewer have looked at residential child care environments in the South African context. (21) Most of the literature focusses on the developmental outcomes for children and only a few have measured the quality of the residential child care environments themselves. (27,32,36,44,72–77) Thus, it was identified in the literature that more research was needed in the quality of the residential child care environments. (18,19)

The overall quality score of the facilities investigated during this study was categorised as low/inadequate (*M* = 2.77; ±1.64). This was in accordance with what is frequently reported in international literature. (23,82–85) These low scores were not unexpected as it is often reported that residential child care settings do not provide resident children with adequate environments. (31,32) Although the combined overall quality score for all 18 facilities fell within the low/inadequate category, the overall quality score of the smaller facilities (*M* = 3.07 (low-moderate); ±1.55) was consistently higher than that of the large facilities (*M* = 2.48 (low/inadequate); ±1.67). This difference was driven by substantial differences in the subscale scores between the large and small facilities specifically for the subscales ‘Activities’ (0.87 points difference), ‘Personal care routines’ (0.82 points difference), ‘Space and furnishings’ (0.51 points difference) and ‘Interaction’ (0.32 points difference) (Table 4.3).

Thus, it might be speculated that smaller facilities provide better overall environmental quality than large facilities, implying that facility size had an impact on the quality of the environment experienced. However no statistically significant effect of facility size on the quality scores for the ITERS-R overall quality scores was found. Thus, although size appeared to influence the quality of the environments, the significance of this effect was

inconclusive and additional data may be required to increase the confidence around these findings.

The suboptimal quality of the Johannesburg based residential child care environments assessed in this study has serious implications for the development of the resident children. Various disciplines, including sociology, psychology, occupational therapy, medicine and education show considerable interest in child development and acknowledge the importance of how the environment impacts on the process of child development. (168) Occupational therapy in particular bases its core understanding of human beings on the constant interaction between three important aspects: the person (adult or child), the environment and 'occupation'. (169) When one or more of these interacting elements are influenced, it is thought to affect the rest, as they are in constant interaction with one another. Thus, when the environment is of sub-optimal quality, it may have the potential to negatively influence the person and/or their occupations. From the results it was evident that this was the case for children in residential care, and that the inadequate quality of environment could impact negatively on the children by restricting their opportunities for optimal occupational engagement. These restrictions were external to the resident children and outside of their control, which indicated that they were subject to a concept known in occupational therapy as 'occupational deprivation'. Occupational deprivation occurs when an individual or individuals are prevented from engaging in meaningful occupations due to influences outside of their control. (7) The lack of meaningful time spent engaging in occupation has been shown to be detrimental to an individual's health. The results indicated a negative impact on all areas of childhood occupations relevant to infants and toddlers. These included occupational performance areas such as activities of daily living (ADL) (self-care: dressing, feeding, toileting), rest and sleep, education (opportunities for learning), play, leisure (games, sports, hobbies) and social participation.

The deprivation in all areas of occupation is highly relevant for occupational therapists as the foundation of the profession is based on the belief that children develop through active participation in childhood occupations. The fact that children based in residential child care facilities are unable to participate in childhood occupations compromises their opportunities to development into functional human beings.

5.4 Physical Environment

For the purpose of this study the physical environment included physical as well as structural elements of the environment. These included: child to caregiver ratios, caregiver level of

training and education, years of caregiving experience, ‘Space and furnishings’, ‘Program structure’, ‘Personal care routines’, and activities available to the resident children (Section 2.3.1)

Children living within residential child care facilities are, to some degree, more dependent on their immediate environment for stimulation, as frequent exposure to new stimulating environments can be limited. (170) Consequently, it is important for residential child care facilities to create adequate stimulating environments as they are often linked to improved developmental outcomes. (38,97) However, the results of this study indicated that the majority of the observed environments were more restrictive than stimulating, creating an overall inadequate environment.

Most environments in this study were found to be structurally well-kept and clean with enough toys and furniture, as well as adequate safety. However, the way the environments were presented to the children, in terms of daily routines, use of equipment and toys and the variety of activities offered was found to be inadequate. The overall impression was that the environment was founded on cleanliness, and together with personal care routines (feeding, dressing, sleeping/napping, and bathing) cleanliness took preference over play and other educational activities. Results from international literature support this finding, and suggest this trend leads to the development of cold, sterile, routinized child care environments. (140)

The focus on cleanliness and structured routines may reflect the fact that these aspects of the environment are easily visible and as a result easily measured by the public and relevant government structures providing support to the residential child care facilities. In other words it serves as a first impression of how children’s basics needs (food, safety and health) are fulfilled by the facility. This could result in managers and caregivers prioritising household and physical care duties above scheduled play and stimulation activities in order to prevent creating negative impressions or to prevent losing support.

In the literature, the physical environment has generally been described as adequate. (31,32) This contrasts the results from this study which found the physical environment in residential child care facilities to be poor or inadequate. However, when scrutinising the data, certain reasons for these low scores emerged.

5.4.1 Physical structure and objects in the environment

Cleanliness and the structure of the environment may have been prioritised, but this did not necessarily translate into adequate standards. Furthermore, even though some of the

aspects of the structural environment scored in the adequate category (indoor space, furniture for routine care and play, and safety) they did not necessarily translate into direct benefits for the children in reality. A good example was the displays which included pictures and/or painted murals, available to the children in the indoor environment. The fact that they were available and age-appropriate made the indoor environment score higher, but because they were mostly inaccessible to the children they provided no real benefits. In addition, most of the displays were infrequently changed only every one to three years, out of the children's eye level, and mostly static in nature. Where mobiles were provided for children there were too few available with only every second or third cot receiving a mobile. Furthermore the caregivers reported that they very seldom made the children aware of the displayed material and even less often talked about the content of the displayed pictures. The displays within the residential child care facilities gave the general impression of being decorative for the facility staff and outside visitors rather than being implemented in a way that would benefit the children optimally.

On the whole, facilities were well equipped with books and toys. However, they were mostly kept on high shelves or in boxes with secured lids that children could not reach or open independently. In most instances caregivers were observed not to give children toys for extended periods of time (>60 minutes), especially when they were preoccupied with other duties such as cleaning and laundry. Resident children were observed to be placed in their cots directly after their morning feeding sessions (mostly without toys) to keep them safe while the caregivers continued with other expected household duties. Similarly, even though toys were available in the environment, they were often disorganised with matching items not stored together (for example blocks with blocks and dolls with dolls), while only a limited variety would be made available to the children by the caregivers. Thus, having toys in the environment was a positive, but not having access to them regularly meant that children were not benefitting to the full extent in reality.

Children aged between 0-30 months learn through playing and exploring. (111) The lack of access to available toys and books by resident children is commonly observed in residential child care facilities, in South African and internationally. (53,61) The implications of this for resident children are that it limits their time to engage with objects and create their own stimulating environments, as they have to rely on caregivers to provide access to toys and/or books. Thus, valuable development time is lost, where children could learn through independently exploring different toys/books.

This lack of support for resident children to engage in their play and educational occupations is relevant to occupational therapists. From an occupational therapy perspective,

‘occupation’ is seen as a crucial aspect of human life. (171) It is seen as a means by which adults and children can fulfil basic needs, provide opportunities to develop in social, physical and cultural spheres and to learn how to adapt to environmental changes and develop towards becoming functional human beings. Thus, children should be supported in their engagement in different occupations, and by denying them this opportunity their journey to becoming functional adults is negatively affected. (111,168,171)

The lowest scoring item for the physical environment was ‘Provision for relaxation and comfort’ (*M*=2.00; ±0, 69). Children were often made to sit on the floor or a thin carpet/blanket with no cushions or soft child-sized furniture or toys. The general impression was that children must be safe and healthy, but not necessarily comfortable, adopting a business-like set-up rather than a nurturing home environment. This has potential implications for resident children as an inability to regulate stress effectively, combined with exposure to an environment with inadequate quality, can negatively affect physical growth of young children. (172) Inadequate environments, such as those found in residential child care facilities, are known to increase stress levels in children. (172) (135) Thus, one would expect that efforts would have been made to counteract the negative effects of stress for resident children by providing some opportunity for relaxation and comfort. However, the results of this study imply that was not the case.

5.4.2 Daily routines

Most facilities were found to have rigid, structured daily routines. Personal management routines have the potential to provide many learning opportunities for resident children as caregivers inevitable spend those times with children. However, children’s active engagement in these routines was particularly inadequate. This inadequate standard was found for feeding, sleeping and diapering/toileting practices (all in the low/inadequate category). There appeared to be no emphasis on the children’s individual needs within these personal care routines. For example, most scheduled activities in the daily programme were compulsory to resident children with no alternative options provided for children who were not willing or able to participate in the activities being presented. In addition, most resident children had to wait for the scheduled feeding times if they were hungry, while others had to eat when they were not ready. Diapering and toileting times for the majority of facilities were scheduled at specific intervals for all children and those times were kept, whether a nappy change was needed before or after that designated time or not. Finally, children were often sent to bed at specific scheduled nap/sleeping times when not sleepy and all woken up at the same time, again illustrating the ‘group approach’.

Even though most facilities were found to provide meals with adequate nutritional value, feeding practices were focussed on the group as a whole and for the majority of residential child care facilities were inadequate. Babies were often left on their own to drink bottles of formula milk propped up with pillows whilst lying on their backs. In some instances young infants were left on their own with the teat of the bottle in their mouths even though they did not have the hand function to support the bottle yet, resulting in the bottle rolling out of reach or the milk running down their necks or faces while trying to suck. This feeding practice is known to be dangerous to infants as prop-feeding can increase the risk of developing otitis media (middle ear infection) which could lead to conductive hearing loss. (173) It is also associated with collecting of fluids in the middle ear (otitis media) which can lead to secondary reflux down the Eustachian tubes into the lungs and the infant's stomach which can then cause gastroenteritis and pneumonia, and even death. (174)

Similar feeding practices have been described in a previous study of Johannesburg based residential child care facilities where it was found that children were often not held during feeding and the use of prop-feeding was extremely common. (18) The study further reported that even when the residential child care facilities were informed about the dangers of this feeding method, its use still continued. (18) It was suggested that this is a result of too many babies needing to be fed simultaneously with too few caregivers to meet the demand. (18) This suggests that residential child care facilities are insufficiently staffed to cope with the expectations and demands of the daily program implemented by higher managerial structures, and the caregivers had to resort to inappropriate approaches such as prop-feeding to handle the work demands. During this study there were two exceptions where facilities focussed on feeding their children individually whilst the caregivers held them in their arms in an upright position making eye contact. In these two instances the caregivers were observed to wind the babies after they were fed and each baby had their individual time with the caregiver while the others waited on cushions. Unfortunately this practice was rare (11 % of the visited facilities) and thus the feeding experience for most children was unsuitable.

The sleeping practices found within the majority of the residential child care facilities were also inadequate (M=2.50 ± 2.01).The sleeping practices were very variable between the different environments, ranging from very rigid to more flexible practices, both of which limited the children's appropriate engagement in napping/sleeping. The larger facilities tended to be more rigid in their approach to sleeping practices, whereas the smaller facilities adopted both practices. Children were frequently observed to be left sleeping where they fell asleep during the day: in car seats, on their tummies, or on the floor if they fell asleep

somewhere in the playroom. This is concerning from a developmental perspective as these inappropriate sleeping positions and noisy areas do not allow sufficient and good quality sleep. Inadequate sleep is known to cause cognitive, behavioural and emotional problems in children. (175,176) Poor sleeping postures can have even more severe implications for children as infants sleeping in prone are subject to an increased risk of Sudden Infant Death Syndrome (SIDS). (177) Thus it is poor practice for infants to be left sleeping in prone as was seen frequently during the study.

Diapering and toileting practices were found to be inadequate for all facilities in the study (M=1.39 ±1.20). Very little hand washing was observed before or after the changing of diapers or children's toileting practices for both the caregivers and the resident children. Often the same surface would be used for diapering without sanitising the surface between different children. This is in agreement with results from a previous study of Johannesburg residential child care facilities. (18) Only one residential child care facility changed diapers with gloves but the same gloves were used for all the children, which gave the impression that the gloves were to protect the caregiver and not necessarily the children. It is known that not washing hands after toileting or diapering (children and caregivers) can have a negative effect on children's health by making them ill and increasing the risk of transmission of faeco-oral pathogens. (18)

A further example of resident children being approached as a group and not as individuals was in the standard practice that most items like toys, clothing, furniture and cutlery in the environment were shared between all children. In addition, none of the facilities provided places were children could keep individual property as no individual property was owned or given to the children and thus no individual space was deemed necessary. Studies indicate that an individual toy/blanket that a child can specifically attach to lead to a feeling of comfort in times of stress. Research investigating infant and child mental health refer to these as 'transitional objects' or the 'transitional phenomenon', and they act as a safe link between the external world and the mother (or caregiver they are attached to). (178) This opportunity to develop a specific and strong bond with an object based on individual preference has found to help children with the development of specific attachments with individual people. (179) Thus the lack of individual property has the potential to impact negatively on the psychological well-being of children, and it should be prioritised to give children individual possessions in order to assist in stress relief and to promote forming attachments.

The frequent disregard of the individual needs of resident children can impact the psychological development of those children. The literature provides evidence that children need the opportunity for individual choice in order to develop optimally. (171) Logically it is

impossible to expect all children to share the same interests as people are known to differ. Thus creating an environment that does not support this appears illogical. Even siblings that share the same home environment are expected to differ and caring parents make adjustments accordingly. Creating the opportunity for children to exert choice has been thought by many researchers to be crucial part of emotional and cognitive development. Erikson (1950) believed that children as young as one year begin a stage of their psychosocial developmental whereby they start developing autonomy whilst trying to resolve conflicting feelings of shame and doubt. (180) It has been shown that if children are unable to develop autonomy they are left with these unresolved, conflicting feelings of shame and doubt which leaves them overly dependent on adults and peers. (181) It also contributes to the children not being willing to take risks that promote higher levels of learning because they doubt their own abilities. (182) International studies provide evidence that when residential child care facility environments are restructures to allow for individuality, developmental outcomes and caregiver job satisfaction improves, further indicating the importance of this aspect on the quality of the environment experienced. (140)

Interestingly, a general pattern was noted between the quality of ‘‘Personal care routines’’ and ‘Activities’ when comparing small and large facilities with each other: It was noticed that smaller facilities scored consistently higher than the larger facilities for these subscales. On statistical analysis a significant effect of facility size on ‘Activities’ was found ($F = 5.61$, $p=0.03$*), but not for ‘Personal care routines’ ($F= 2.41$, $p=0.14$). This could reflect a positive effect of a smaller group size of children, compared to large groups of children, on the quality of the physical environment, which could have clinical relevance.

5.4.3 Activities

Within the daily program the results of this study indicated that the type and use of the activities offered to the children were inadequate. Furthermore, as mentioned above , a relationship was found between the size of the facility and the quality of the activities. In other words, larger facilities were associated with poorer quality scores for ‘Activities’ than the smaller facilities, although both were inadequate. ‘Activities’ included all activities that were currently offered to the resident children within the different facilities. This included activities as outlined in the ITERS-R test such as fine motor, active physical play, art, music and movement, block play, dramatic/fantasy play, nature/science, and the use of tv/video/computers (see Appendix H an example of the ITERS-R score sheet). (2) The low quality scores were somewhat to be expected as the majority of literature indicate that residential child care facilities are known to be deficit in producing stimulating and

educational activities for resident children. (31) Stimulating activities, such as those considered in the ITERS-R test, are necessary for children to develop cognitively, physically and emotionally.(38,97) It gives them the opportunity to learn new skills and practice already learnt skills which contribute to learning and thus promote brain development and the development of occupation. (171) Research provides evidence that a lack of activities and opportunities in residential child care facility environments contribute to the increased risk of developmental delays (cognitive, physical, and socio-emotional) in resident children as well as not completing school when compared to their community raised peers. (56) (35,51,76,89) It is thus of important that suitable activities are provided to resident children. Unfortunately, this study shows that it was not the case within the facilities visited in Johannesburg.

Generally, activities would be less structured in the mornings and planned stimulation activities would include free play where children were left to play on their own with supervision to keep them from harm, but not to facilitate learning. In a few instances volunteers would run structured activity groups (music, reading or art) once or twice a week either in the mornings or afternoons, but the input was generally more focussed on unstructured play. Other activities available to the resident children included the use of televisions and radios in the environment.

It was found that 44.4% of the residential child care facilities in the study made daily use of televisions and radios, with smaller facilities using them less (three out of nine) than the larger facilities (five out of nine). The general impression was that television programs were used for both the children and caregivers' entertainment, and the radio mostly for caregivers' benefit as background noise. The nature of the television programs were mostly appropriate when applied for the purpose of entertaining the children, but inappropriate in the duration of use and when put on channels such as the general news in the background (which was observed in one facility to be violent) for the purpose of caregivers' entertainment while doing their feeding and dressing routines with the children. This also has implications for caregivers' interactions with the children during these routines, which is discussed in the next section. This was observed in many facilities and the television left on for the duration of the observation period (three to four hours). It has been reported that television and other media viewing should not be used at all with children under 24 months as it hinders the development of attention, cognition and language acquisition. (53,183,184) These restrictions are clearly not currently being carried out in most Johannesburg based residential child care facilities.

Furthermore, the use of televisions and radios greatly contributed to consistent background noise and did not serve any particular purpose such as calming children before they were to sleep or encouraging activity participation. This noise, when added to the noise of children crying and adults talking, creates an environment is not conducive to promoting learning and development and can have a negative effect on language acquisition and implications for later education.

Literature shows that the choice of different activities is often influenced by culture and caregiver's childrearing beliefs. (62) It appeared that caregivers mostly preferred activities such as singing and/or dancing with the resident children. The fact that most caregivers taking part in the study were from African cultures, as where the resident children, which place value activities such as singing and dancing, could explain why this activity appeared to be one of the few initiated spontaneously by the caregivers with resident children.

The data collection phase of this study took place during winter, and this may have impacted the results of from this study, due to fewer opportunities for active physical play. From the interviews with the caregivers, a general belief was found that if children go outside in the winter they get sick. In many cases this resulted in children being kept indoors consistently for anything from a month to up to three months at a time. The indoor environment was often not equipped for active physical play as the children were not allowed to run indoors, jump or swing on objects. In addition, the younger babies were mostly kept in their cots to keep warm and caregivers were reluctant to place them on the floor. Similar results have been found from other studies, suggesting that this restriction placed on resident children results from caregivers who feel that sick children would increase their already heavy workload and keeping them indoors to prevent this. This is somewhat illogical as in countries that are much colder than South Africa children are able to go outside in the winter months when appropriately dressed. Current literature highlights the importance of changing environments to stimulate children and improve cognitive, social, behavioural and physical outcomes. (140) Thus, the indoor environments of the facilities from this study did not provide enough opportunities for the children to be stimulated optimally during the winter months.

5.4.4 Summary

In general the analysis of the structural environment suggested that, despite literature reporting "good" physical environments, the children in residential child care facilities in Johannesburg are exposed to an inappropriate and inadequate environment. Reasons for this could include undertrained and overloaded caregivers with high workloads involving many tasks (i.e. doing household chores) together with too many children to manage (high

child to caregiver ratios), which leaves little time and energy for the play and stimulation aspects of a daily program. (51,53)(84) This has been previously reported in international literature as well as a possible contributing factor to inadequate residential child care environments. (51,53)(84) This concept is further discussed under 'social environment' in the section to follow.

These results support the concept that has been raised in the literature that residential child care facilities who accommodate smaller groups of children are more beneficial for the development of the children as it lowers the child to caregiver ratio, providing more opportunity for one on one interaction that are necessary for stimulating socio-emotional development. (143)(85) Further research is needed to gain clarity around this concept.

It is clear from the discussion above that even though some aspects of the physical environment were adequate, this does not translate into realised benefits for the resident children. There is a crucial need for the facilities to refocus their attention on enabling the children in their care to engage in expected occupations within the physical environment by acknowledging them as individuals, and not using a 'group approach'.

5.5 Social Environment

The Social Environment refers to the human interactions that occur within certain physical and social structures that are set within a specific cultural context. (13)

The results from the study indicated that the overall quality of the social environment experienced in residential child care facilities within Johannesburg based was inadequate. The majority of interactions between caregivers and children were found to be limited in reciprocity and warmth during the 'Personal care routines', 'Supervision of play and learning', 'Language development' and 'Discipline'. The same suboptimal quality was found for 'Peer interactions' with limited opportunities for interaction due to restrictions from the environment and insufficient facilitation of positive peer interactions by caregiving staff.

Caregiver-child interactions within residential child care facilities are often described as being adult directed, lacking in emotion and warmth and mostly occurring during physical care routines. (62,164) For the most of the facilities in the study similar interactions were noted, however the subscale score for 'Interaction' in the social environment fell just within the adequate category (M=3.3; ±1.68). Even though the subscale score gave the impression that most facilities are generally adequate in the quality of interaction within their social environments, significant quality differences were noted between the different environments.

This was most noticeable in the large quality scores ranges reported in both small facilities and large facilities. In other words, certain facilities (both large and small) were characterised by exceptionally poor social environments.

Children that do not receive adequate interaction with a caregiver are at higher risk to develop attachment disorders compared to non-institutionalised children. (32) These limited interactions between caregivers and children have also been found to influence resident children's acquisition of speech and language skills. (53) Results from the study indicated that the item 'Language development' was predominantly found to be inadequate (M=2.78, ±1.82). 'Helping children understand language' scored higher than 'Helping the children use language', which might also be a reflection of the way the caregivers typically interact with the resident children: adult directed, encouraging children to listen to instructions but not necessarily to understand how to use language themselves. The majority of the caregivers spoke to the children in English, which was for most of the caregivers' their second or third language. Even though talking was observed it was very basic in nature: very short, one to three word sentences, usually accompanied with a command such as 'fetch your pants' 'come here', 'eat' or greetings such as 'hello' or 'bye'. Very often the caregivers would only respond with sounds and not words, and descriptive sentences were rarely observed such as 'look at the yellow flower' or 'put on your blue socks'. It is clear from the literature that early delays in speech and language increases ones risk for other developmental delays over time such as scholastic, cognitive, behavioural, social and emotional difficulties. (53) Thus, the inadequate quality scores reported within the facilities participating in this study are of concern as it may increase the resident children's risk for developing speech and language delays, as well as other negative long term developmental outcomes.

Literature has given different perspectives on what could impact on interaction quality between caregivers and resident children. This includes differences in individual caregiver characteristics, lack of adequate training, cultural perspectives, the child rearing beliefs of caregivers and high child to caregiver ratios. Individual characteristics of caregivers are thought to create a microenvironment within residential child care environments. This microenvironment created by individual differences of caregivers has been thought to be more predictive of children's developmental outcomes than merely being resident in a residential child care facility. (32) This seemed to be true for the environments assessed in this study. For example, the results presented here indicate that most crying infants would be left unattended for at least five minutes, or simply ignored. However, some caregivers showed individual characteristics that were the opposite of this and were observed to engage in reciprocal interactions that were responsive, warm and encouraging (found in both

the large and small facilities). Literature supports this and suggests that individual caregiver differences influence the quality of interaction and degree to which secure attachments form between caregivers and resident children. (32)) Unfortunately, how individual characteristics of caregivers influenced the results of this study can only be speculated as no specific data on the nature of different individual caregiver characteristics were collected and further research should consider this aspect.

Inadequate interactions between caregivers and children in residential child care facilities have also been linked to high child to caregiver ratios. Literature suggests that opportunities for meaningful one on one interaction between children and caregivers in residential child care environments are influenced negatively by high child to caregiver ratios. These high ratios leave the caregivers unable to attend to all children's needs equally. (62,185) Generally a ratio of six children to one caregiver is considered adequate. (113) However, UNICEF found that children have different care needs during different stages of development, and identified that younger children need a lower child to caregiver ratio as they are in crucial developmental stages and thus more at risk. They proposed lower ratios for age groups under the age of 3 years (Day: 1 staff to 3 children, Night: 1 staff to 5 children) and steadily increasing the ratios with age: between the ages of 3 and 6 years (Day: 1 staff to 5 children, Night: 1 staff to 10 children). (65) Thus, the average ratio of 5.5 children to one caregiver reported from the current study should not be seen as adequate according to specific standards for infants and toddlers. (65)

From the results of the study it was found that the child to caregiver ratios was to some degree misleading. The reason for this was that there was a mismatch between the average child to caregiver ratios reported (and acceptable on paper) and how it translated into reality. For example, a ratio of one caregiver to five or six (5.5) children (as reported from the results of the study) can in reality create many different scenarios: it could mean that there is one caregiver caring for five to six children, or three caregivers that are caring for 15 to 18 children, or eight caregivers caring for 44 children. It is clear that the nature of these three environments will differ significantly, for example in terms of noise levels and coping with the demands of the children. Thus, results from this study support literature in terms of the importance of considering the exact nature of the reported ratios as they can be very misleading and thus potential problems or solutions can easily be overlooked. (32)

Even though no statistically significant effect was found between child to caregivers ratios and the ITERS-R overall quality score of the environments, large changes in the number of individuals (caregivers and/or children) were reported across the three hour observation period (see Appendix L for details). This appeared to contribute to instability in the

environment and appeared to influence the social environment negatively by limiting opportunity for interaction. However, further research would be needed to determine to what degree it influences the environment as no clear conclusions can be made from the results of this study.

When the quality of interactions between caregivers and children were specifically considered during play and learning activities, results indicated that children were often expected to conform to group standards. Supervision was for the group as a whole and did not facilitate individual play and learning experiences. This is commonly reported for other residential child care settings. (61) Even though children are able to learn from each other, adult interactions are considered more valuable in a residential child care settings. This is because peers experience the same risk of having or developing developmental delays and thus there is limited opportunity for peers to learn from each other. (53) It is accepted that children learn through interactions with adults, and with limited interactions they are disadvantaged and are at risk from developmental delays in cognitive, social and emotional spheres. (140)

During the study peer interactions were observed to be of inadequate quality. Typically, peer interactions were not managed optimally and positive peer interactions were rarely facilitated. For example, mobile children were forced to sit together in a small designated area, usually a thin carpet, without any toys or a very small number of toys, while the caregivers finished their after mealtime cleaning duties. The children had to remain on the designated place until the caregivers were finished with their duties after which they would be allowed access to the playroom or toys. This had a negative effect on the peer interactions and teasing, fighting and crying were frequently observed during those times. As the caregivers were preoccupied with their duties they could not intervene and facilitating positive peer relationships.

The social environment was characterised by lax discipline with the resident children. Toddlers were left to fight over toys and if a caregiver responded they would split them up or take the toy away without explaining the situation to the children or encouraging positive peer interactions. It has been previously suggested that poor discipline seen in residential child care settings is a result of caregivers being scared of losing their jobs for ‘abusing’ children and thus they would rather leave the children to do as they please. (61) The lack of training and knowledge in the caregiver sample on how to effectively deal with difficult and challenging behaviour would also contribute to the poor discipline observed. It is often reported that the nature of training offered to caregivers in residential child care facilities is limited and usually focussed on health care and fulfilling children’s physical needs,

neglecting the caregivers' need for knowledge on socio-emotional care of resident children. (32,61) As a result children are denied the opportunity to learn socially acceptable behaviour which could impact on their behaviour and social acceptance in the greater community later on in life. Research indicates that children exposed to inconsistent and lax discipline are more prone to develop aggressive behaviour. (186) If these aggressive behaviours persist it could lead to an increased risk of developing psychological disorders such as conduct disorder and antisocial personality disorder in adulthood. (186) Thus, discipline is an important concept to consider for the optimal development of children, especially in residential child care facilities where they face the additional challenge of inconsistent discipline with changing caregivers.

The phenomenon of detached and emotionless caregiving is often reported in residential child care facilities. (31) However few studies have directly assessed the caregivers themselves to try and understand this pattern. From the available evidence it has been suggested that some caregivers are unwilling to form secure attachments with resident children because of perceived fixed professional boundaries (only providing medical and educational care to the children). This makes them unwilling to form secure attachments with the children as they view this as overstepping that professional boundary. (61) (62) It has also been suggested that caregivers experience emotional stress when children that they form attachments with leave the facilities. (61) This results in some of the caregivers refraining from forming deep bonds with the children to protect themselves (61) The importance of secure attachments between children and caregivers has been extensively documented. It is known that if a child fails to form secure attachments it places them at risk to develop psychiatric disturbances, compromising their well-being. (187) Other studies have shown that insecure attachments are associated with long term physical effects across the lifespan including increased blood pressure and disturbances in regulating neuroendocrine stress hormone responses. (188) Thus, the importance of secure attachments cannot be emphasized enough, and steps should be taken by residential child care to prioritise interventions aimed at improving the social environment to promote secure attachments.

Another possible reason why most caregivers in this study refrained from initiating or maintaining reciprocal, sensitive interactions with the resident children could be linked to their prioritising of what they consider their most important work activities during the day. The caregivers were typically observed to be 'distracted' with the list of 'must do' items for the day (such as household chores and daily care routines with the resident children) in order to complete them within the required time. This resulted in the children becoming objects within the environment, rather than children with individual needs. For example, during physical

care routines caregivers would be preoccupied with getting all children bathed, dressed and fed as quickly as possible to enable them to continue their household chores. This resulted in children being 'forgotten' in the background and left in places where they have been fed such as high feeding chairs and car seats for up to two hours. Although these places were physically safe, they were very restrictive with regards to movement, play and peer interactions. It was important to note that the caregivers were busy with other duties when the resident children were 'forgotten' and did not place them there for the purpose of restricting them. It appeared to be a solution for keeping the children safe while they were occupied with other duties that formed part of their morning routine.

In addition, it is possible that caregivers experience their workloads as overwhelming which impacts caregivers' ability to efficiently do their jobs as it increases stress and job dissatisfaction. (164) Data suggest that caregivers working in residential child care facilities have more stress and show more symptoms of depression than caregivers based in community and family settings. (31,164) Work stress associated with caregivers working in residential child care is known to lead to burnout. (31) When caregivers are themselves compromised, they are unable to provide an optimal environment to promote sensitive and responsive interaction which in turn will impact negatively on the children being cared for. (31) This suggests that the workload placed on the caregivers is too great, and that restructuring their job descriptions, and employing additional people to perform the day to day chores may improve the quality of care for the resident children.

Cultural perspectives and child rearing beliefs of the caregivers could also influence the interaction between caregivers and resident children. During the study a comment made by a caregiver brought this possibility to the researcher's attention: 'we do not go down onto a child's level, we are older they must respect us'. This could indicate that there might be an underlying cultural influence on the interactions observed between caregivers and resident children. How cultural aspects influenced the results from this study can only be speculated as specific data on cultural perspectives were not collected. More research would be beneficial in order to investigate if there is a link between these factors and to what extent cultural beliefs influence interactions between caregivers and resident children.

The mechanisms that contribute to a good quality social environment in residential child care facilities are not yet fully understood, however its importance for the well-being of caregivers and resident children cannot be denied. Further research is required in order to gain a better understanding of how the underlying mechanisms of the social environment work, and in turn develop effective intervention models for the promotion of adequate social environments in residential child care facilities in South Africa.

5.6 Relationship between Structural aspects of the Environment and the ITERS-R overall quality score

An objective of this study was to determine if an association existed between three structural aspects of the environment (child to caregiver ratio, caregiver education, caregiver training) and the ITERS-R overall quality score. These structural aspects were specifically chosen as they have been repeatedly mentioned in the literature as important factors which influence the quality of an environment. (8,10,113,117,133)

Although the study did not yield any statistical significant results when the three structural aspects of the environment were correlated to the ITERS-R overall quality score (see section 4.4 for details), these three structural aspects of the environment have been shown to be correlated to the overall quality of the environment in other literature. (139) Reasons for the poor correlation could be as a result of the study's modest sample size in combination with the absence of any facilities that scored high on the ITERS-R overall quality score, and further research including a greater sample across all provinces in South Africa might yield different results.

Data analysis indicated a small positive correlation between child care training and ITERS-R overall quality score. Thus, there was a slight increase in the quality scores on the ITERS-R when the caregivers working in those environments were found to be better trained. This pattern is supportive of what is reported in the literature: a strong link exists between improving the training of caregivers and improved environmental quality. (8) (128) (131) Studies that have yielded statistically significant results had access to large sample sizes of 35+ participants. This is significantly more than what was possible in this research report (18 facilities). Thus, including an increased number of participants might yield more statistically significant results.

A negative correlation of medium strength was found between the child to caregiver ratios and the ITERS-R overall quality score. Thus, it seemed that when the child to caregiver ratios decreased the ITERS-R overall quality score increased. The results of this study support what the bulk of the literature has found: lower ratios lead to improved quality environments and in turn positive developmental outcomes for children. This may be because more time is available to the caregiver to interact with children on an individual level. Smaller number of children allocated to each caregiver may also allow each caregiver to know the individual children better, which allows for more individualized care.(38) (159)

No correlation was found between caregiver education and ITERS-R overall quality score. This could be due to the same restrictions in sample size as mentioned for caregiver training and child to caregiver ratios. However these results could also be because of the specific age group that the researcher was investigating. Literature provides evidence that the positive effect of improved caregiver education on quality of the environment varies between different aged child groups. (131) The literature consistently provide evidence that caregiver education does not significantly correlate with overall quality environments for infants, but differ in their findings for toddlers and pre-school child groups. (131) For example, one study indicated that caregivers' level of education has a significant influence on the environment for toddlers and pre-school aged children, where another found that not to be the case. (131) Thus, the results from this study could be supportive of what is reported in the literate for this age group child. This could be that encouraging behaviours that are necessary for the care of infants and toddlers are behaviours associated with motherhood rather than with specialist knowledge. However, no conclusions can be made and more research would be needed to investigate this in the South African population.

5.7 Limitations of the Study

During the study, the researcher included the available population of residential child care facilities in Johannesburg that could be contacted and met the inclusion criteria which amounted to a modest sample of 18 facilities. Even though the sample size was small it is likely that the results reflect the true characteristics of the residential child care facilities in Johannesburg. However, the results are restricted to Johannesburg which means that it might not reflect the nature of residential child care facilities in other regions of South Africa. Equally Johannesburg is a large metropolitan area and the results of the study will likely not be representative of residential child care facilities found in small towns or rural areas in other parts of South Africa.

It is likely that the cross sectional design of this study could have influenced the caregivers behaviour on the day of the study as they were informed of the scheduled day well in advance. Thus it might be expected that when facilities are not informed in advance of the specific day they might score worse on quality indicators. With that said, from the results it did not appear as if this influenced the quality scores because even if caregivers changed their behaviour they did not know what behaviour was expected or how items were scored.

5.8 Summary

The results of the study indicated that the overall nature of the residential child care facilities in Johannesburg serving infants and toddlers are inadequate, with the physical environment of a slightly better quality than the social environment. This reflects what is frequently reported in other residential child care facility environments internationally. Interestingly, a consistent pattern was observed between quality scores of small and large facilities whereby the smaller facilities scored higher for all the subscales of the ITERS-R test than the large facilities. However, statistical analysis only indicated a significant effect of facility size on quality scores for the 'Activities' subscale ($F=5.61$, $p=0.03^*$). Even though statistical analysis indicated no significant effect of facility size on the other subscale quality scores, it would be beneficial for future research to gain clarity on this as there appears to be a link.

Environments were found to be safe but health care practices were inadequate. Personal care routines were found to take up most of caregivers' daily routines (bathing, feeding, sleeping, diapering and toileting), but were also of inadequate quality and at times even compromised the children's health (prop-feeding, infants sleeping on stomachs, no hand washing between diapering/toileting). Furthermore, it was generally found that in the winter (during the data collection for this study) a general belief existed amongst caregivers and managerial staff that children should be kept indoors to prevent illness, which restricted the children's movements in some cases for up to three months. This restriction appeared to significantly impact on the children's stimulation opportunities as indoor environments were not equipped for movement and the children were required to be more passive.

Even though some factors of the environment were reportedly of adequate standard, it was misleading as it did not always translate into reality. This was seen specifically for child to caregiver ratios and some aspects of the physical environment such as 'Indoor space' and 'Furniture for routine care and play'. Ratios were on average within excepted standards (5.5:1), however this average was misleading as in reality the ratio in certain facilities was 20 children to four caregivers versus 5 children to one caregiver which create a markedly different environment. Even though 'Indoor space' and 'Furniture for routine care and play' were measured in the adequate category, it did not seem to always translate into direct benefits for the children because access to items were restricted (i.e. toys in inaccessible containers/shelves) and not on their eye-level (i.e. displays).

The social environment was found to be inadequate. Caregivers and child interactions were limited and mostly not reciprocal or warm in nature. This reflects what is frequently reported

in the literature. (136) Peer interactions were found to be restricted (i.e. children left in high chairs for extended periods) with poor facilitation of positive peer interactions by caregiving staff. From the results it was evident that there were frequent changes in the number of individuals present in the environment across the three hour observation period. This appeared to create a degree of instability that influenced the environment. However, further research is needed to gain clarity and increase confidence surrounding this observation.

Within the facilities it was found that most property was shared between the children (i.e. toys and clothes) and no individual space was allocated for individual children's possessions. In all facilities it appeared that the children's safety was prioritised but that little provision was made for individual needs, relaxation or comfort. Children were expected to conform to the group standard and participate in activities initiated during the daily routine even if they were unable or not interested. It has previously been suggested that managers of residential child care facilities are more concerned with the performance of the residential children as a group, rather than individual child. (22) It is possible that this approach is preferred as it allows a smaller group of caregivers to manage a larger group of resident children, as one on one interaction is not prioritised.

Results indicated that the majority of caregivers did not have sufficient training at the time of the study, or had no previous work experience caring for infants and toddlers before their current employment. Children entering into residential child care are considered vulnerable as they have usually been exposed to some kind of trauma before admission (i.e. losing a parent(s), neglect or abuse). Thus, they will to some degree have special needs when compared to their same-aged peers within nuclear family structures. Thus, the lack of training would limit the caregivers' ability to provide appropriate care and guidance to this special needs population. Even though the study did not focus on individual caregiver characteristics, such as personal opinions, further research should investigate their job satisfaction and motivation, taking into account the fact that the caregivers are employed without the correct training and with very little support.

It appears that caregivers within residential child care facilities are expected to fulfil all the needs of the children (health care, stimulation programmes, personal care routines, love etc.), and when they fail to do this they receive criticism. Under natural conditions, it is rare that a single mother would have to care for five infants or children between 0-30 months at any given point in time, and it is likely that the quality of care provide in this situation would be classified as poor. This leads one to believe that the current situation experienced in residential child care facilities in Johannesburg can be rectified through management interventions that focus on provision of sufficient appropriately trained caregivers and

support staff, together with additional structures to support the emotional wellbeing of the caregiving staff. This can be aided by utilising NGOs with appropriate skills in order to serve the resident child population best.

Overall, this study has shown that much is still desired in terms of knowledge on residential child care environments in South Africa. However, it is felt that the results of this study contribute to filling this knowledge gap and hopefully contribute to a brighter future for children in residential child care facilities in South Africa

Chapter 6 CONCLUSION

In summary the results from the study supports what is frequently reported in international literature: the overall quality of residential child care facility environments is inadequate and most likely not conducive to child development. Both the physical and social environments found within the facility environments were categorised as inadequate, with the physical environment of slightly better quality than the social environment. No statistically significant relationship was found between the structural aspects of the environment (child to caregiver ratio, level of education of caregivers, and child care training) and the overall quality scores. However, the small associations that were present supported what was generally found in the literature: lower child to caregiver ratios and higher levels of training seem to have a positive influence on environmental quality.

The physical environment gave the overall impression of being clean and in good condition, but the expectation that children had to conform to strict group standards was somewhat short-sighted and driven by the insufficient functional capacity within facilities rather than current and accepted concepts that promote development in young children. The social environment was found to be inadequate with caregivers mostly employing a business-like, rather than warm and responsive, approach to caring for the children. Caregivers were found to be pre-occupied with personal care routines and other duties, which resulted in poor stimulation opportunities (long periods of waiting for toys) and poor facilitation of play, peer interactions and learning. It was evident from this study that the caregivers were weighed down by their workloads. They received little support with regards to training opportunities and lacked in work experience with this population. Consequently, the caregivers appeared ill-equipped to work with this vulnerable population.

From this study it was clear that this fulfilment of occupation was interrupted for resident children, as their environment placed restrictions on their ability to participate in there occupations. These restrictions were external to the resident children and outside of their control, which indicated that these children were subject to a concept known in occupational therapy as ‘occupational deprivation’. (7) Thus, as occupational therapists, the results from this study are of concern as the lack of meaningful engagement in occupation by resident children can be seen to interfere with their development and well-being. This highlight the important role occupational therapists can play in the lives of children living in residential child care facilities by intervening to create an environment with opportunities, rather than restrictions to support their fulfilment of occupation.

6.1 Implications and Recommendations

6.1.1 Immediate recommendations

As mentioned above, occupational therapists clearly have an important role to play in interventions aimed at residential child care environments. Specifically, occupational therapists have to address the interruptions of engagement in occupation, such as engagement in play, self-care (dressing, feeding, and toileting), rest and sleep, and social participation (peer and child to caregiver interactions). This will enable resident children to fulfil their intrinsic need as human beings to engage in meaningful occupations and lead happy fulfilling lives.

Recommendations for occupational therapists to address the occupational deprivation faced by resident children and to equip caregivers are as follow:

- It is recommended that occupational therapists adopt an 'occupational perspective' when planning engagement with residential child care facility environments. In other words, occupational therapists should approach the environment with a focus on occupation. This will reveal occurrences in the environment, that have been previously viewed from other perspectives (i.e. such as medical, psychological and social), as fundamentally deficits in occupational engagement. (7) By doing this, the therapist can develop interventions that address occupational restrictions, in addition to therapeutic programmes.
- With this focus on occupation, occupational therapists can assist in the training of caregivers and staff in order to create an environment to support engagement in occupation. Training and practical assistance in the implementation of strategies would be necessary. As residential child care facility environments differ significantly from each other, it is necessary that intervention is aimed at the specific needs of each individual facility environment in terms of training and on-going support.
- Furthermore, occupational therapists can help refocus attention on the need for support of caregivers as their chosen profession can often be associated with high stress levels. (31,164) This would be in order to liaise with management and caregivers themselves to identify realistic options for on-going emotional and professional support. The aim of this intervention would be to assist managers in

creating an environment where caregivers are better equipped to fulfil the needs of the children in their care, specifically with regard to socio-emotional needs.

- Occupational therapists should become more involved in the activism of an occupationally fair society, where individual needs and differences are acknowledged and provision is made for these differences within residential child care environments. (7) Thus, efforts should be made to be involved in creating awareness of the importance of meaningful engagement in occupation and in turn to influence policies and their effective implementation.

6.1.2 Recommendations for further research

It is clear that the use of residential child care facilities in the South African context remains relevant for many different reasons. The effects of poverty and HIV/AIDS are expected to increase the number of children needing care outside of traditional child care structures. (20) It is accepted that the number of children needing alternative care has increased over the last couple of years, and that this increase will continue for many years to come. (20) With this influx of children, alternative care structures, such as extended families and community structures, are getting increasingly exhausted, and the continued use of residential child care facilities seems inevitable. (22) As a result researchers suggest that future investigations should consider a combination of the use of residential child care facilities together with community structures in a flexible approach that is tailored to the needs of each individual child instead of merely comparing different types of care options for orphans and vulnerable children to each other. (21,38) Seeing that limited data is available for residential child care in the South African context it is therefore of crucial importance that future research is aimed at filling this knowledge gap.

Based on this, the recommendations resulting from this study are as follows:

- Further investigation is needed to gain clarity of what the nature is of residential child care facilities in the South African context. Even though the results from this study contributed to filling some of the existing knowledge gap, it was limited to Johannesburg and more standardised and consolidated data of South African residential child care facilities is required
- Dedicated research into the caregiver population found within South African residential child care facilities is recommended, as it appears that they are met with challenges for which they are ill equipped to deal with, and this in turn has potential negative effects on the children in their care. Specific focus should be placed on

investigating the detailed nature of the content and frequency of training and ongoing support that these caregivers receive.

- Further investigation should be made into the potential role of residential child care facilities in conjunction with other alternative child care options (i.e. extended family networks, adoption, foster care). As the continued use of residential child care facilities appears to be relevant, it will be useful to acknowledge what role these facilities can play in the current management of orphaned and vulnerable children needing alternative care instead of just dismissing it as a 'last resort' option. Its use might need to be reviewed in terms of being seen as a permanent residence until the age of 18 years to a potentially more short term and temporary placement while alternative arrangements are made for longer term placement in community structures. It is also important to note that residential child care only provides for children until the age of 18 years which makes the focus on the combination between different options even more relevant as at 18 years they will have nowhere to go.
- Individual caregiver differences are thought to create a microenvironment that is considered an important driver of resident children's developmental outcomes. During the data collecting phase of this study it was apparent that individual caregiver characteristics influenced the quality of the social environment. However, during this study no in-depth data was collected on individual characteristics and it is felt that more specific data may have helped understand variations in the quality of the social environment measured. This could improve the understanding of what environmental characteristics, particularly from the social environment, facilitate the development of resident children, as current information on this remains unclear and inconclusive, internationally and in South Africa.
- As South Africa is a country with a large diversity of different cultures, it would be interesting to investigate how culture influences residential child care environments. To what degree specific cultural aspects influenced the results from this study can only be speculated as specific data on cultural perspectives were not collected. However, it is felt that cultural information, specifically on child-rearing and child care perspectives/beliefs and attitudes towards the resident children, would be beneficial for future research in residential child care facility environments. For example, the results from the study indicated a general belief that children should not go outside in the winter months as they would get sick and this resulted in them staying indoors for up to three months in some cases. It is possible that this child care belief could negatively influence the children by restricting their movement and opportunity to engage in external stimulants. Furthermore, some caregivers mentioned that they do

not drop down to a child's level, as they are adults and children should learn to respect them. How and if this influenced the children negatively is unclear and more research would be beneficial in order to investigate if there is a link between these factors and to what extent cultural beliefs influence interactions between caregivers and resident children.

- In addition to this, more information on the influence of culture on the choice of activities presented to the resident children would also be of value. For example, during the current study spontaneous dancing and singing between resident children and caregivers were observed on numerous occasions but reading was very rarely seen. Further research investigating the influence of culture on choice of activities presented to resident children would potentially shed more light on the current nature of residential child care facility environments in South Africa.
- From this study it appeared that caregivers were not adequately supported to work with this special needs population (children in residential child care) as very little specialised training (initial and/or on-going), regular constructive feedback or emotional support were offered to caregivers. From what was reported during the study it appeared that caregivers tended to be trained by other caregivers on duty, usually the ones that had been at the institution for a long time, and they would in such a way set the standard for the new caregivers. This contributed to what seemed to be a very diverse nature of caregiver training in residential child care facilities. It would be beneficial for future research to investigate he specific nature of caregiver training in residential child care facilities in terms of content in order to determine if it is in fact of adequate quality to support caregivers in executing their jobs. Furthermore, research should focus on what content would be beneficial to include in caregiver training especially directed at infants and toddlers in residential child care as this also remains inconclusive.
- Children with specific disabilities or special needs were not included in the current study. However it was found that there was on occasion one or two such children resident at facilities. Generally it appeared that those environments were not adapted to accommodate such children as the facilities' main focus was children without specific physical or mental disabilities. Furthermore, it seemed like the necessary training was not given to caregivers they lacked the required understanding with regards to the needs of these children. Thus it would be beneficial to investigate the quality of care provided to children with disabilities in residential child care facilities, specifically those facilities that do not specifically cater for children with disabilities.

- Although this study's main objectives did not include focussing on childhood occupations, occupational imbalance and/or occupational deprivation, they are very important factors for researcher to consider within residential child care facility environments. It is recommended that future research investigate the "group approach" within residential child care and the linking to occupational imbalance and deprivation within these environments.
- Female caregivers dominate the residential child care sector. It would be interesting for future researchers to investigate what impact this has on resident children as well as to define the roles of female and male caregivers within such a setting.

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Chapter 7 APPENDICES

7.1 Appendix A Information sheet and consent form given to managers of residential child care facilities

INFORMATION SHEET– Managers of residential child care facilities

Good Day,

My name is Ghida Kok and I am currently doing my masters degree in Occupational Therapy at the University of the Witwatersrand. I am planning to do a study to describe what the environment is like for very young children (0-30months) living in child care centres in Johannesburg. I would be most grateful if you would consider my invitation in participating in this study.

Why am I doing this? Research in developing countries (like South Africa) has shown that the environment that children grow up in, especially in the first few years of life, is very important for their development. The better the environment, the better the children grow and develop. We don't know exactly what the environment is like for children living in child care centres in Johannesburg so will be grateful if you will participate in this study to examine this.

What am I expecting from the participants in the study? Information from each participating residential child care facility will be gathered by observing the environment on a typical week day. The method is non-intrusive and will change nothing to the typical daily program. If there is outstanding information that could not be observed regarding the environment, a short interview after the 3 hour observation period will be conducted (15minutes) with the caregivers. All the caregivers directly responsible for looking after the children will be asked to participate and nobody will be excluded or singled out. The observation period will only take place once and will include the environment where the infants and toddlers up to 30 months are spending their typical weekdays in. In other words, the child care centre will be only required to participate in the study on a single day for 3 hours. As the legal guardians of the children the manager will be expected to give permission for the children to participate as they are not capable to do so.

May I withdraw from the study? I want to make it very clear that participation in this study is voluntary and if you choose not to participate there will be no consequences what so ever. If you decide to withdraw out of the study at any time there will also be no consequences.

What about confidentiality? If you are willing to take part in this study, confidentiality of the information given to me will be ensured throughout the study and after the study is completed. No information on individual residential child care facilities or people will be given out. During this study no individual names will be recorded except when signing the informed consent form and once on the individual caregiver information sheet. These names will be written on a list and a code will be used instead of an individual name for the duration of the study. The only person with access to these names will be myself (the researcher) and will be kept locked in my office. After the study is completed I will give feedback to every residential child care facility on what the results of the study were. If there is any questions directly related to the study it will be answered and if a child care centre is interested, appropriate recommendations will be made. If you have any queries, more information may be obtained from me directly at telephone number 0723901944. If you are happy to take part in the study, please read and sign the attached consent from.

Thank you

Ghida Kok

CONSENT FORM – Managers of residential child care facilities

I hereby give permission as the legal official guardian of the infants and toddlers (0-30months) residing in this residential child care facility, to participate in the study as outlined in the information sheet.

Manager of the Facility:

Name of facility: _____

Name: _____

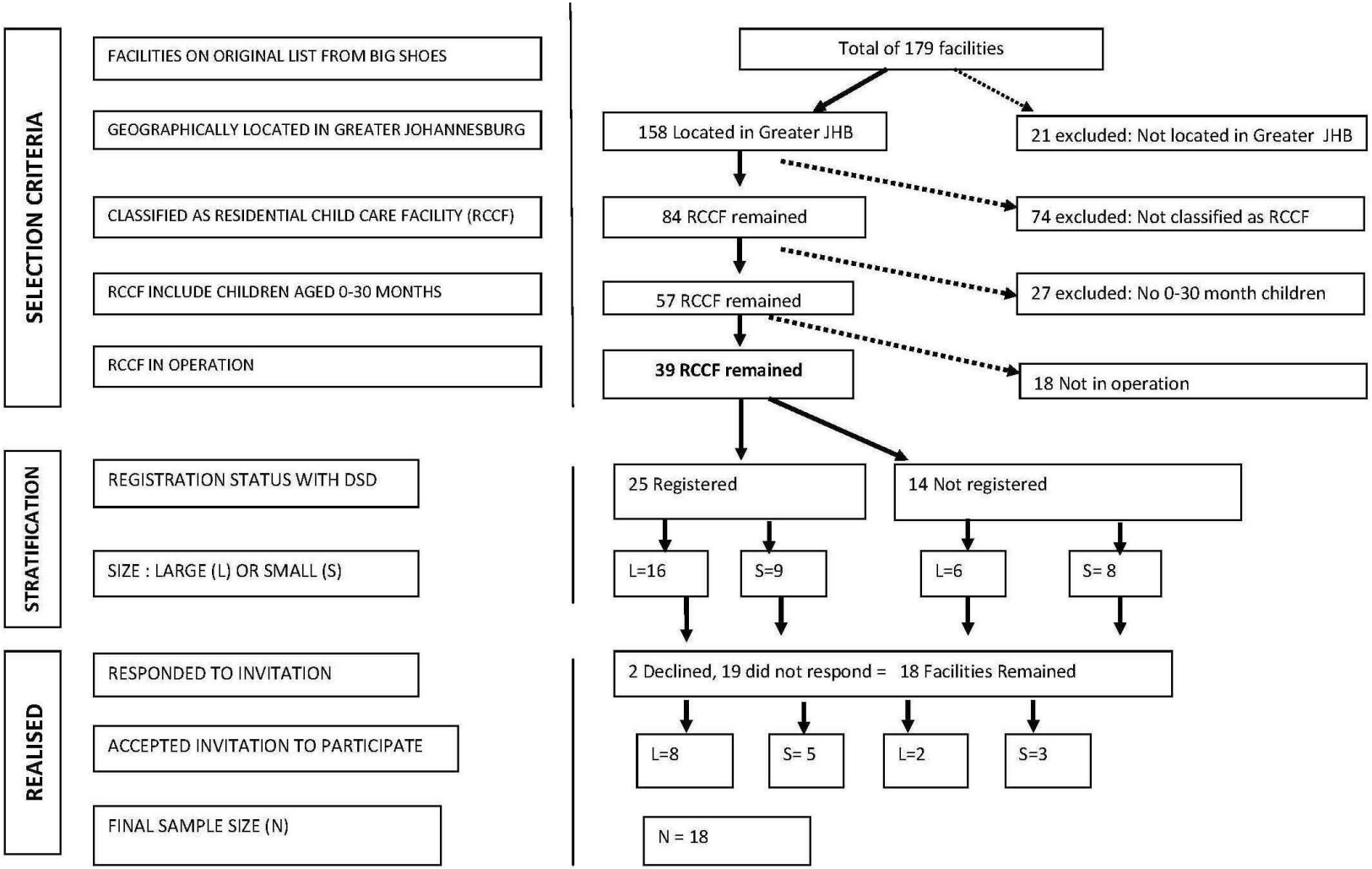
Signature: _____ Date: _____

Witness:

Name: _____

Signature: _____ Date: _____

7.2 Appendix B Flow diagram illustrating the sampling procedure of residential child care facilities



7.3 Appendix C Information sheet and consent form given to caregivers of residential child care facilities

INFORMATION SHEET– Caregivers of residential child care facilities

Good Day,

My name is Ghida Kok and I am currently doing my masters degree in Occupational Therapy at the University of the Witwatersrand. I am planning to do a study to describe what the environment is like for very young children (0-30months) living in residential child care facilities in Johannesburg. I would be most grateful if you would consider my invitation in participating in this study.

Why am I doing this? Research in developing countries (like South Africa) has shown that the environment that children grow up in, especially in the first few years of life, is very important for their development. The better the environment, the better the children grow and develop. We don't know exactly what the environment in residential child care facilities in Johannesburg is like so will be grateful if you will participate in this study to examine this.

What am I expecting from the participants in the study? Information from each participating residential child care facility will be gathered by observing the environment on a typical week day. The method is non-intrusive and will change nothing to the typical daily program. If there is outstanding information that could not be observed regarding the environment, a short interview after the 3 hour observation period will be conducted (15minutes). All the caregivers directly responsible for looking after the children will be asked to participate and nobody will be excluded or singled out. The observation period will only take place once. In other words the participant will be only required to participate in the study on a single day for 3 hours.

May I withdraw from the study? I want to make it very clear that participation in this study is voluntary and if you choose not to participate there will be no consequences what so ever. If you decide to withdraw out of the study at any time there will also be no consequences.

What about confidentiality? If you are willing to take part in this study, confidentiality of the information given to me will be ensured throughout the study and after the study is completed. No information on individual residential child care facilities or people will be given out. During this study no individual names will be recorded except when signing the informed consent form and once on the individual caregiver information sheet. These names will be written on a list and a code will be used instead of an individual name for the duration of the study. The only person with access to these names will be myself (the researcher) and will be kept locked in my office.

After the study is completed I will give feedback to every residential child care facility on what the results of the study were. If there is any questions directly related to the study it will be answered and if a child care facility is interested, appropriate recommendations will be made. If you have any queries, more information may be obtained from me directly at telephone number 0723901944. If you are happy to take part in the study, please read and sign the attached consent from.

Thank you

Ghida Kok

CONSENT FORM – Caregivers of residential child care facilities

I hereby agree to participate in the study as outlined in the information sheet.

Caregiver:

Name: _____

Signature: _____ Date: _____

Witness:

Name: _____

Signature: _____ Date: _____

7.4 Appendix D Ethical Clearance Certificate

UNIVERSITY OF THE WITWATERSRAND, JOHANNESBURG
Division of the Deputy Registrar (Research)

HUMAN RESEARCH ETHICS COMMITTEE (MEDICAL)
R14/49 Ms Ghida Kok

CLEARANCE CERTIFICATE	M111138
PROJECT	A Descriptive Study investigating the Quality of the Physical and Social Environment for Infants and Toddlers Living in Residential Care Facilities in Johannesburg, South Africa
INVESTIGATORS	Ms Ghida Kok.
DEPARTMENT	Department of Occupational Therapy
DATE CONSIDERED	25/11/2011
M1111380DECISION OF THE COMMITTEE*	Approved unconditionally

Unless otherwise specified this ethical clearance is valid for 5 years and may be renewed upon application.

DATE 25/11/2011 **CHAIRPERSON** .....
(Professor PE Cleaton-Jones)

*Guidelines for written 'informed consent' attached where applicable
cc: Supervisor : Miss Lyndsay Kock

DECLARATION OF INVESTIGATOR(S)

To be completed in duplicate and **ONE COPY** returned to the Secretary at Room 10004, 10th Floor, Senate House, University.
I/We fully understand the conditions under which I am/we are authorized to carry out the abovementioned research and I/we guarantee to ensure compliance with these conditions. Should any departure to be contemplated from the research procedure as approved I/we undertake to resubmit the protocol to the Committee. **I agree to a completion of a yearly progress report.**

PLEASE QUOTE THE PROTOCOL NUMBER IN ALL ENQUIRIES...

7.5 Appendix E Sheet used to record codes for individual residential child care facilities (kept separate)

NAME OF RESIDENTIAL CHILD CARE FACILITY	**CODE**
1.	
2.	
3.	
4.	
5.	
6.	
7.	
8.	
9.	
10.	
11.	
12.	
13.	

14.	
15.	
16.	
17.	
18.	

7.6 Appendix F Demographic information sheet used to record individual facility information

RESIDENTIAL CHILD CARE FACILITY DEMOGRAPHIC INFORMATION SHEET

Name of the Facility: _____

Name of manager: _____

Physical Address: _____

_____

_____

Funding:

State		NGO		Religious institution		Non- Religious institution	

Setup of facility:

Dormitory style		House mother style		Other: (Specify)

Date facility was established: _____

Mission statement/ Purpose of the facility: _____

_____

_____

_____

Total number of children in the facility:

Infants and Toddlers: (0-30 months)		Other (30 months +)	

Ages of children cared for:

Age of youngest child: _____

Age of oldest child: _____

Number of caregivers employed:

<table>
<tr><td rowspan="2">Overall Total:</td><td rowspan="2"></td><td>Day shift:</td><td></td><td rowspan="2">Total carers allocated primarily to the care of infants and toddlers on day shift:</td><td rowspan="2"></td></tr>
<tr><td>Night shift:</td><td></td></tr>
</table>

7.7 Appendix G Demographic information sheet used to record individual caregiver information

DEMOGRAPHIC DETAILS OF CAREGIVER

1. Age: _____

2. Sex:

M		F	

3. Level of Education:

Secondary:

School – highest grade/standard completed: _____

Where? _____

_____

Tertiary:

Other degree/diploma: _____

_____

_____

If yes, where and what year did you graduate: _____

_____

4. Level of Training:

Details of training received (year completed, formal/informal, content: _____

_____

_____

5. Employment History:

Length of current employment: _____

Previous employment: (type and period of employment): _____

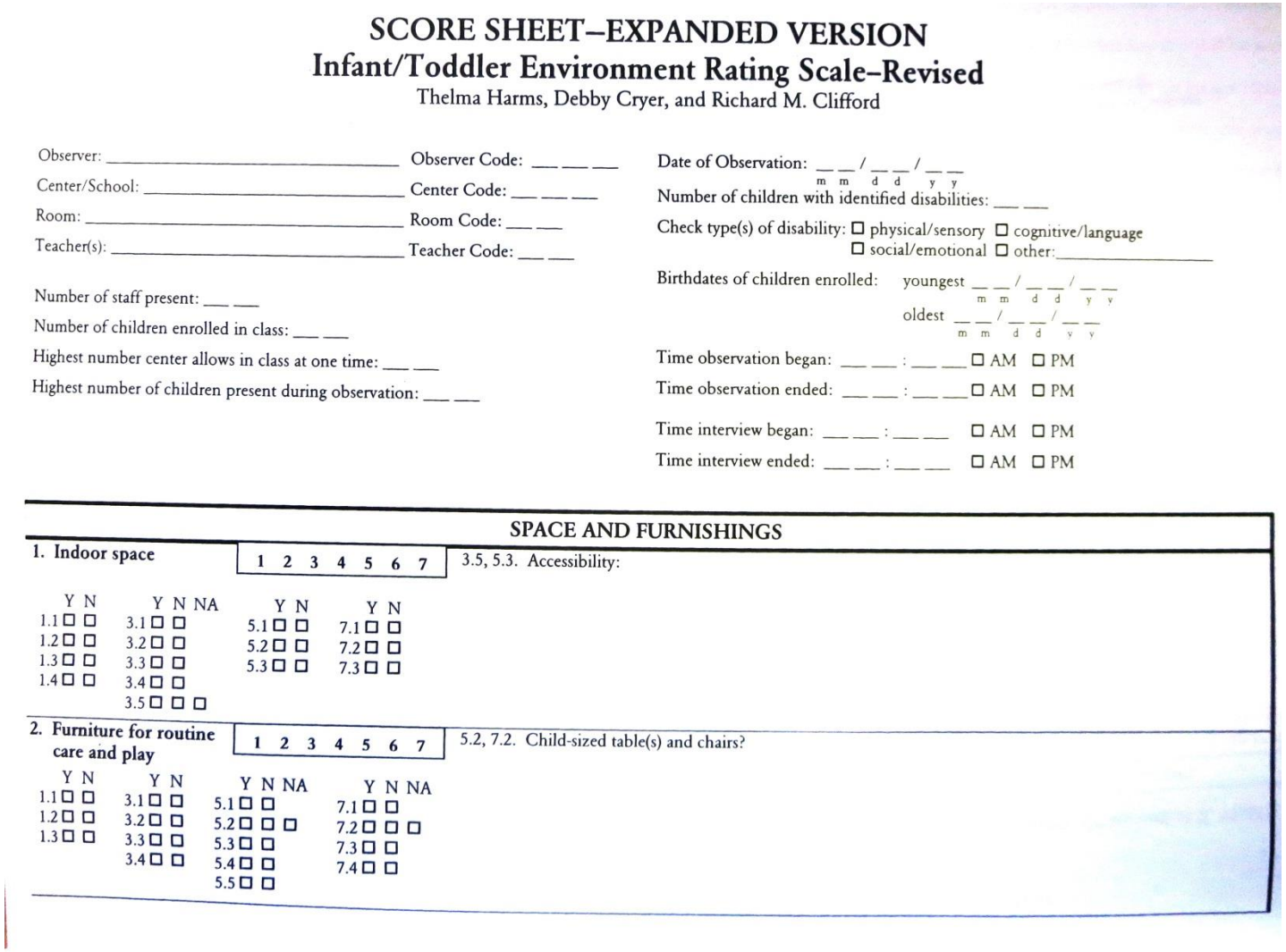
_____

Previous experience with caring for Infants and Toddlers: Y/N

If Yes, where and what year did you obtain this experience? _____

_____

7.8 Appendix H Example of ITERS-R Scoring Sheet used during data collection



SCORE SHEET–EXPANDED VERSION
Infant/Toddler Environment Rating Scale–Revised

Thelma Harms, Debby Cryer, and Richard M. Clifford

Observer: _____ Observer Code: ___ ___ ___

Center/School: _____ Center Code: ___ ___ ___

Room: _____ Room Code: ___ ___

Teacher(s): _____ Teacher Code: ___ ___

Number of staff present: ___ ___

Number of children enrolled in class: ___ ___

Highest number center allows in class at one time: ___ ___

Highest number of children present during observation: ___ ___

Date of Observation: ___ ___ / ___ ___ / ___ ___ (m m d d y y)

Number of children with identified disabilities: ___ ___

Check type(s) of disability: ☐ physical/sensory ☐ cognitive/language ☐ social/emotional ☐ other: _____

Birthdates of children enrolled: youngest ___ ___ / ___ ___ / ___ ___ (m m d d y y)

oldest ___ ___ / ___ ___ / ___ ___ (m m d d y y)

Time observation began: ___ ___ : ___ ___ ☐ AM ☐ PM

Time observation ended: ___ ___ : ___ ___ ☐ AM ☐ PM

Time interview began: ___ ___ : ___ ___ ☐ AM ☐ PM

Time interview ended: ___ ___ : ___ ___ ☐ AM ☐ PM

SPACE AND FURNISHINGS

1. Indoor space 1 2 3 4 5 6 7

3.5, 5.3. Accessibility:

Y	N		Y	N	NA		Y	N		Y	N
1.1 ☐	☐		3.1 ☐	☐			5.1 ☐	☐		7.1 ☐	☐
1.2 ☐	☐		3.2 ☐	☐			5.2 ☐	☐		7.2 ☐	☐
1.3 ☐	☐		3.3 ☐	☐			5.3 ☐	☐		7.3 ☐	☐
1.4 ☐	☐		3.4 ☐	☐							
			3.5 ☐	☐	☐						

2. Furniture for routine care and play 1 2 3 4 5 6 7

5.2, 7.2. Child-sized table(s) and chairs?

Y	N		Y	N		Y	N	NA		Y	N	NA
1.1 ☐	☐		3.1 ☐	☐		5.1 ☐	☐			7.1 ☐	☐	
1.2 ☐	☐		3.2 ☐	☐		5.2 ☐	☐	☐		7.2 ☐	☐	☐
1.3 ☐	☐		3.3 ☐	☐		5.3 ☐	☐			7.3 ☐	☐	
			3.4 ☐	☐		5.4 ☐	☐			7.4 ☐	☐	
						5.5 ☐	☐					

3. *Provision for relaxation and comfort* 1 2 3 4 5 6 7

Y N	Y N	Y N	Y N NA
1.1 ☐ ☐	3.1 ☐ ☐	5.1 ☐ ☐	7.1 ☐ ☐
	3.2 ☐ ☐	5.2 ☐ ☐	7.2 ☐ ☐ ☐
		5.3 ☐ ☐	7.3 ☐ ☐

3.1. Furnishings:
5.1. Cozy area? {y / n}
3.2, 5.3. Number of soft toys:

4. Room arrangement 1 2 3 4 5 6 7

Y N	Y N NA	Y N	Y N
1.1 ☐ ☐	3.1 ☐ ☐	5.1 ☐ ☐	7.1 ☐ ☐
1.2 ☐ ☐	3.2 ☐ ☐	5.2 ☐ ☐	7.2 ☐ ☐
	3.3 ☐ ☐ ☐	5.3 ☐ ☐	7.3 ☐ ☐
		5.4 ☐ ☐	

1.2, 3.2, 5.2. Problems with visual supervision

5. Display for children 1 2 3 4 5 6 7

Y N	Y N	Y N	Y N NA
1.1 ☐ ☐	3.1 ☐ ☐	5.1 ☐ ☐	7.1 ☐ ☐
1.2 ☐ ☐	3.2 ☐ ☐	5.2 ☐ ☐	7.2 ☐ ☐
		5.3 ☐ ☐	7.3 ☐ ☐
		5.4 ☐ ☐	7.4 ☐ ☐ ☐

5.4. Staff talk about display? (Observe 1 example)

A. Subscale (Items 1–5) Score __ __ B. Number of items scored __ __ **SPACE AND FURNISHINGS Average Score (A ÷ B) __.__ __**

PERSONAL CARE ROUTINES

6. Greeting/departing 1 2 3 4 5 6 7

Y N	Y N	Y N NA	Y N NA
1.1 ☐ ☐	3.1 ☐ ☐	5.1 ☐ ☐	7.1 ☐ ☐
1.2 ☐ ☐	3.2 ☐ ☐	5.2 ☐ ☐	7.2 ☐ ☐
1.3 ☐ ☐	3.3 ☐ ☐	5.3 ☐ ☐ ☐	7.3 ☐ ☐ ☐
	3.4 ☐ ☐		

1.1, 3.1, 3.4, 5.1, 7.2. Greetings observed (√ = yes, X = no, W = warm)

	Child	Parent	Info. shared
1.	_____	_____	_____
2.	_____	_____	_____
3.	_____	_____	_____
4.	_____	_____	_____
5.	_____	_____	_____
6.	_____	_____	_____
7.	_____	_____	_____
8.	_____	_____	_____

7. Meals/snacks

1 2 3 4 5 6 7

Y	N	NA		Y	N	NA		Y	N	NA		Y	N
1.1 ☐	☐		3.1	☐	☐		5.1	☐	☐		7.1	☐	☐
1.2 ☐	☐		3.2	☐	☐		5.2	☐	☐		7.2	☐	☐
1.3 ☐	☐		3.3	☐	☐		5.3	☐	☐				
1.4 ☐	☐		3.4	☐	☐		5.4	☐	☐				
1.5 ☐	☐	☐	3.5	☐	☐	☐	5.5	☐	☐	☐			

1.3, 3.3, 5.3. Handwashing: (√ = yes, X = no)

	Children		Adults
Before eating		Before food prep, feeding	
After eating		After feeding	

1.3, 3.3, 5.3. Same sink used? {y / n}

Sink sanitized? {y / n}

Tables/highchair tray washed, sanitized? {y / n}

8. Nap

1 2 3 4 5 6 7 NA

Y	N		Y	N		Y	N	NA		Y	N
1.1 ☐	☐		3.1	☐	☐	5.1	☐	☐		7.1	☐	☐
1.2 ☐	☐		3.2	☐	☐	5.2	☐	☐	☐	7.2	☐	☐
1.3 ☐	☐		3.3	☐	☐	5.3	☐	☐				
			3.4	☐	☐							

1.1. All cots/ mats, cribs > 36" apart or solid barrier? {y / n}

Other issues:

9. Diapering/toileting

1 2 3 4 5 6 7

Y	N		Y	N		Y	N		Y	N	NA
1.1 ☐	☐		3.1	☐	☐	5.1	☐	☐	7.1	☐	☐
1.2 ☐	☐		3.2	☐	☐	5.2	☐	☐	7.2	☐	☐ ☐
1.3 ☐	☐		3.3	☐	☐	5.3	☐	☐	7.3	☐	☐
1.4 ☐	☐		3.4	☐	☐	5.4	☐	☐			

1.1, 3.1. Diapering procedure (every adult observed): (√ = yes, X = no)

Prep										
Proper disposal										
Wipe child's hands										
Wipe adult's hands										
Sanitize diaper area										
Same sink sanitized										

Other issues:

1.1, 3.1. Same sink sanitized? {y / n}

1.3, 3.3. Handwashing

Adult									
Child									

10. Health practices

1 2 3 4 5 6 7

Y	N		Y	N	NA		Y	N	NA		Y	N	NA
1.1 ☐	☐		3.1	☐	☐		5.1	☐	☐		7.1	☐	☐
1.2 ☐	☐		3.2	☐	☐		5.2	☐	☐		7.2	☐	☐ ☐
1.3 ☐	☐		3.3	☐	☐		5.3	☐	☐		7.3	☐	☐
			3.4	☐	☐	☐	5.4	☐	☐	☐			

1.1, 3.2, 5.2. Handwashing observations: (√ = yes, X = no)

	Child	Adult
Upon arrival in class or re-entry from outside		
Before water; after sand, water, messy play		
After dealing with bodily fluids		
After touching pets or contaminated objects		

11. Safety practices

1 2 3 4 5 6 7

Y	N		Y	N		Y	N		Y	N
1.1 ☐	☐		3.1	☐	☐	5.1	☐	☐	7.1	☐	☐
1.2 ☐	☐		3.2	☐	☐	5.2	☐	☐	7.2	☐	☐
1.3 ☐	☐		3.3	☐	☐						

1.1, 1.2, 3.1, 5.1. Safety hazards:

	Major	Minor
Indoor:		
Outdoor:		

A. Subscale (Items 6–11) Score ___ ___ B. Number of items scored ___ ___ **PERSONAL CARE ROUTINES Average Score (A ÷ B)** ___.___ ___

LISTENING AND TALKING

12. Helping children understand language 1 2 3 4 5 6 7

Y N	Y N	Y N	Y N
1.1 ☐ ☐	3.1 ☐ ☐	5.1 ☐ ☐	7.1 ☐ ☐
1.2 ☐ ☐	3.2 ☐ ☐	5.2 ☐ ☐	7.2 ☐ ☐
1.3 ☐ ☐	3.3 ☐ ☐	5.3 ☐ ☐	7.3 ☐ ☐
	3.4 ☐ ☐	5.4 ☐ ☐	

3.1, 5.1. During routines:

During play:

5.4, 7.1. Examples of descriptive words used:

7.2. Examples of observed verbal play:

13. Helping children use language 1 2 3 4 5 6 7

Y N	Y N	Y N	Y N NA
1.1 ☐ ☐	3.1 ☐ ☐	5.1 ☐ ☐	7.1 ☐ ☐
1.2 ☐ ☐	3.2 ☐ ☐	5.2 ☐ ☐	7.2 ☐ ☐ ☐
		5.3 ☐ ☐	7.3 ☐ ☐
			7.4 ☐ ☐

7.2. Staff add words/ideas to what children say (observe 2 examples):

7.3. Staff ask simple questions (observe 2 examples):

14. Using books 1 2 3 4 5 6 7

Y N	Y N	Y N	Y N NA
1.1 ☐ ☐	3.1 ☐ ☐	5.1 ☐ ☐	7.1 ☐ ☐ ☐
1.2 ☐ ☐	3.2 ☐ ☐	5.2 ☐ ☐	7.2 ☐ ☐
1.3 ☐ ☐	3.3 ☐ ☐	5.3 ☐ ☐	7.3 ☐ ☐
	3.4 ☐ ☐	5.4 ☐ ☐	

1.2, 3.2. Number of books in disrepair:

5.1. Any inappropriate books: (y / n)
(violent, frightening)

5.3. Staff read to individuals/small groups: (y / n)
(observed at least 1 example)

5.2. Wide selection of books

Races:

Ages:

Abilities:

Animals :

Familiar routines:

Familiar objects:

Nature science books for Item 22:

A. Subscale (Items 12–14) Score __ __ B. Number of items scored __ __ **LISTENING AND TALKING Average Score (A ÷ B)** __.__ __

ACTIVITIES

15. Fine motor

1 2 3 4 5 6 7

Y N	Y N	Y N	Y N
1.1 ☐ ☐	3.1 ☐ ☐	5.1 ☐ ☐	7.1 ☐ ☐
1.2 ☐ ☐	3.2 ☐ ☐	5.2 ☐ ☐	7.2 ☐ ☐
	3.3 ☐ ☐		

1.1, 3.1, 5.1.
Materials for infants:

Materials for toddlers:

16. Active physical play

1 2 3 4 5 6 7

Y N	Y N	Y N	Y N
1.1 ☐ ☐	3.1 ☐ ☐	5.1 ☐ ☐	7.1 ☐ ☐
1.2 ☐ ☐	3.2 ☐ ☐	5.2 ☐ ☐	7.2 ☐ ☐
1.3 ☐ ☐	3.3 ☐ ☐	5.3 ☐ ☐	7.3 ☐ ☐
		5.4 ☐ ☐	
		5.5 ☐ ☐	

1.1, 1.2, 3.3, 5.5.
Any equipment/materials inappropriate/unsafe?

Appropriate indoor/outdoor space:

17. Art

1 2 3 4 5 6 7 NA

Y N	Y N NA	Y N NA	Y N
1.1 ☐ ☐	3.1 ☐ ☐ ☐	5.1 ☐ ☐ ☐	7.1 ☐ ☐
1.2 ☐ ☐	3.2 ☐ ☐	5.2 ☐ ☐	7.2 ☐ ☐
	3.3 ☐ ☐	5.3 ☐ ☐	

1.2. Toxic/unsafe art materials used? {y / n}

3.2. Appropriate/safe/nontoxic art materials used

18. Music and movement

1 2 3 4 5 6 7

Y N	Y N	Y N	Y N
1.1 ☐ ☐	3.1 ☐ ☐	5.1 ☐ ☐	7.1 ☐ ☐
1.2 ☐ ☐	3.2 ☐ ☐	5.2 ☐ ☐	7.2 ☐ ☐
	3.3 ☐ ☐	5.3 ☐ ☐	7.3 ☐ ☐
		5.4 ☐ ☐	

3.1, 5.1. List number of musical toys/instruments:

5.2. Informal singing observed? {y / n}

19. Blocks

1 2 3 4 5 6 7 NA

Y N	Y N	Y N	Y N
1.1 ☐ ☐	3.1 ☐ ☐	5.1 ☐ ☐	7.1 ☐ ☐
	3.2 ☐ ☐	5.2 ☐ ☐	7.2 ☐ ☐
	3.3 ☐ ☐	5.3 ☐ ☐	7.3 ☐ ☐

3.1, 5.1, 7.1. Sets of blocks:
1)
2)
3)

3.2, 7.2. Accessories:

20. *Dramatic play*

1 2 3 4 5 6 7

	Y	N	NA
1.1	☐	☐	
3.1	☐	☐	
3.2	☐	☐	
5.1	☐	☐	
5.2	☐	☐	
5.3	☐	☐	
5.4	☐	☐	☐
7.1	☐	☐	
7.2	☐	☐	☐
7.3	☐	☐	

5.1 Dramatic play materials:

Infants and toddlers:

Dolls–

Soft animals–

Toy telephones–

Pots & pans–

Toddlers only:

Dress-ups–

Child-sized play furniture–

Play foods–

Dishes/eating utensils–

Doll furniture–

Small play buildings & accessories–

21. Sand and water play

1 2 3 4 5 6 7 NA

	Y	N
1.1	☐	☐
3.1	☐	☐
3.2	☐	☐
3.3	☐	☐
5.1	☐	☐
5.2	☐	☐
5.3	☐	☐
7.1	☐	☐
7.2	☐	☐

22. Nature/science

1 2 3 4 5 6 7

	Y	N
1.1	☐	☐
1.2	☐	☐
3.1	☐	☐
3.2	☐	☐
3.3	☐	☐
5.1	☐	☐
5.2	☐	☐
5.3	☐	☐
7.1	☐	☐
7.2	☐	☐

5.3. Example of science/nature observed in daily events:

23. Use of TV, video, and/or computer

1 2 3 4 5 6 7 NA

	Y	N	NA
1.1	☐	☐	
1.2	☐	☐	
1.3	☐	☐	☐
3.1	☐	☐	
3.2	☐	☐	
3.3	☐	☐	
5.1	☐	☐	
5.2	☐	☐	
5.3	☐	☐	
7.1	☐	☐	
7.2	☐	☐	

24. Promoting acceptance of diversity

1 2 3 4 5 6 7

	Y	N
1.1	☐	☐
1.2	☐	☐
1.3	☐	☐
3.1	☐	☐
3.2	☐	☐
3.3	☐	☐
5.1	☐	☐
5.2	☐	☐
7.1	☐	☐
7.2	☐	☐

5.1. Diversity in materials (10 examples, all types of categories): 5.2. Dolls (3 different skin tones/facial features):

	Books	Pictures	Materials
Races/ Cultures			
Ages			
Abilities			
Gender			

7.1. Non-sexist images:

7.2. Variety of activities:

A. Subscale (Items 15–24) Score __ __ B. Number of items scored __ __ **ACTIVITIES Average Score (A ÷ B)** ___.___

INTERACTION

25. Supervision of play and learning 1 2 3 4 5 6 7

	Y	N
1.1	☐	☐
3.1	☐	☐
3.2	☐	☐
5.1	☐	☐
5.2	☐	☐
5.3	☐	☐
5.4	☐	☐
7.1	☐	☐
7.2	☐	☐
7.3	☐	☐

26. Peer interaction 1 2 3 4 5 6 7

	Y	N
1.1	☐	☐
1.2	☐	☐
3.1	☐	☐
3.2	☐	☐
5.1	☐	☐
5.2	☐	☐
7.1	☐	☐
7.2	☐	☐

7.1. Staff explain actions/intensions/feelings (observe 2 examples):

7.2. Positive social interaction talked about (observe 1 example):

27. Staff-child interaction 1 2 3 4 5 6 7

	Y	N
1.1	☐	☐
1.2	☐	☐
1.3	☐	☐
3.1	☐	☐
3.2	☐	☐
3.3	☐	☐
3.4	☐	☐
5.1	☐	☐
5.2	☐	☐
5.3	☐	☐
7.1	☐	☐
7.2	☐	☐

28. Discipline 1 2 3 4 5 6 7

	Y	N
1.1	☐	☐
1.2	☐	☐
3.1	☐	☐
3.2	☐	☐
3.3	☐	☐
5.1	☐	☐
5.2	☐	☐
5.3	☐	☐
5.4	☐	☐
7.1	☐	☐
7.2	☐	☐
7.3	☐	☐

A. Subscale (Items 25–28) Score __ __ B. Number of items scored __ __ **INTERACTION Average Score (A ÷ B)** __.__ __

PROGRAM STRUCTURE

29. *Schedule* 1 2 3 4 5 6 7

Y N	Y N	Y N	Y N
1.1 ☐ ☐	3.1 ☐ ☐	5.1 ☐ ☐	7.1 ☐ ☐
1.2 ☐ ☐	3.2 ☐ ☐	5.2 ☐ ☐	7.2 ☐ ☐
1.3 ☐ ☐		5.3 ☐ ☐	
		5.4 ☐ ☐	

5.4. Example of more than 3-minute wait, or obvious distress while waiting:

30. Free play 1 2 3 4 5 6 7

Y N	Y N	Y N	Y N
1.1 ☐ ☐	3.1 ☐ ☐	5.1 ☐ ☐	7.1 ☐ ☐
1.2 ☐ ☐	3.2 ☐ ☐	5.2 ☐ ☐	7.2 ☐ ☐
	3.3 ☐ ☐	5.3 ☐ ☐	

7.1. Supervision as educational interaction (observe 2 examples):

31. Group play activities 1 2 3 4 5 6 7 NA

Y N	Y N	Y N	Y N
1.1 ☐ ☐	3.1 ☐ ☐	5.1 ☐ ☐	7.1 ☐ ☐
1.2 ☐ ☐	3.2 ☐ ☐	5.2 ☐ ☐	7.2 ☐ ☐
1.3 ☐ ☐	3.3 ☐ ☐	5.3 ☐ ☐	

32. Provisions for children with disabilities 1 2 3 4 5 6 7 NA

Y N	Y N	Y N	Y N
1.1 ☐ ☐	3.1 ☐ ☐	5.1 ☐ ☐	7.1 ☐ ☐
1.2 ☐ ☐	3.2 ☐ ☐	5.2 ☐ ☐	7.2 ☐ ☐
1.3 ☐ ☐	3.3 ☐ ☐	5.3 ☐ ☐	7.3 ☐ ☐
1.4 ☐ ☐	3.4 ☐ ☐		

A. Subscale (Items 29–32) Score __ __ B. Number of items scored __ __ **PROGRAM STRUCTURE Average Score (A ÷ B)** __.__ __

PARENTS AND STAFF

33. Provisions for parents 1 2 3 4 5 6 7

	Y	N
1.1	☐	☐
1.2	☐	☐
3.1	☐	☐
3.2	☐	☐
3.3	☐	☐
3.4	☐	☐
5.1	☐	☐
5.2	☐	☐
5.3	☐	☐
5.4	☐	☐
7.1	☐	☐
7.2	☐	☐
7.3	☐	☐

34. Provisions for personal needs of staff 1 2 3 4 5 6 7

	Y	N	NA
1.1	☐	☐	
1.2	☐	☐	
3.1	☐	☐	
3.2	☐	☐	
3.3	☐	☐	
3.4	☐	☐	
3.5	☐	☐	☐
5.1	☐	☐	
5.2	☐	☐	
5.3	☐	☐	
5.4	☐	☐	
5.5	☐	☐	
7.1	☐	☐	
7.2	☐	☐	
7.3	☐	☐	

35. Provisions for professional needs of staff 1 2 3 4 5 6 7

	Y	N
1.1	☐	☐
1.2	☐	☐
1.3	☐	☐
3.1	☐	☐
3.2	☐	☐
3.3	☐	☐
5.1	☐	☐
5.2	☐	☐
5.3	☐	☐
7.1	☐	☐
7.2	☐	☐

36. Staff interaction and cooperation 1 2 3 4 5 6 7 NA

	Y	N
1.1	☐	☐
1.2	☐	☐
1.3	☐	☐
3.1	☐	☐
3.2	☐	☐
3.3	☐	☐
5.1	☐	☐
5.2	☐	☐
5.3	☐	☐
7.1	☐	☐
7.2	☐	☐
7.3	☐	☐

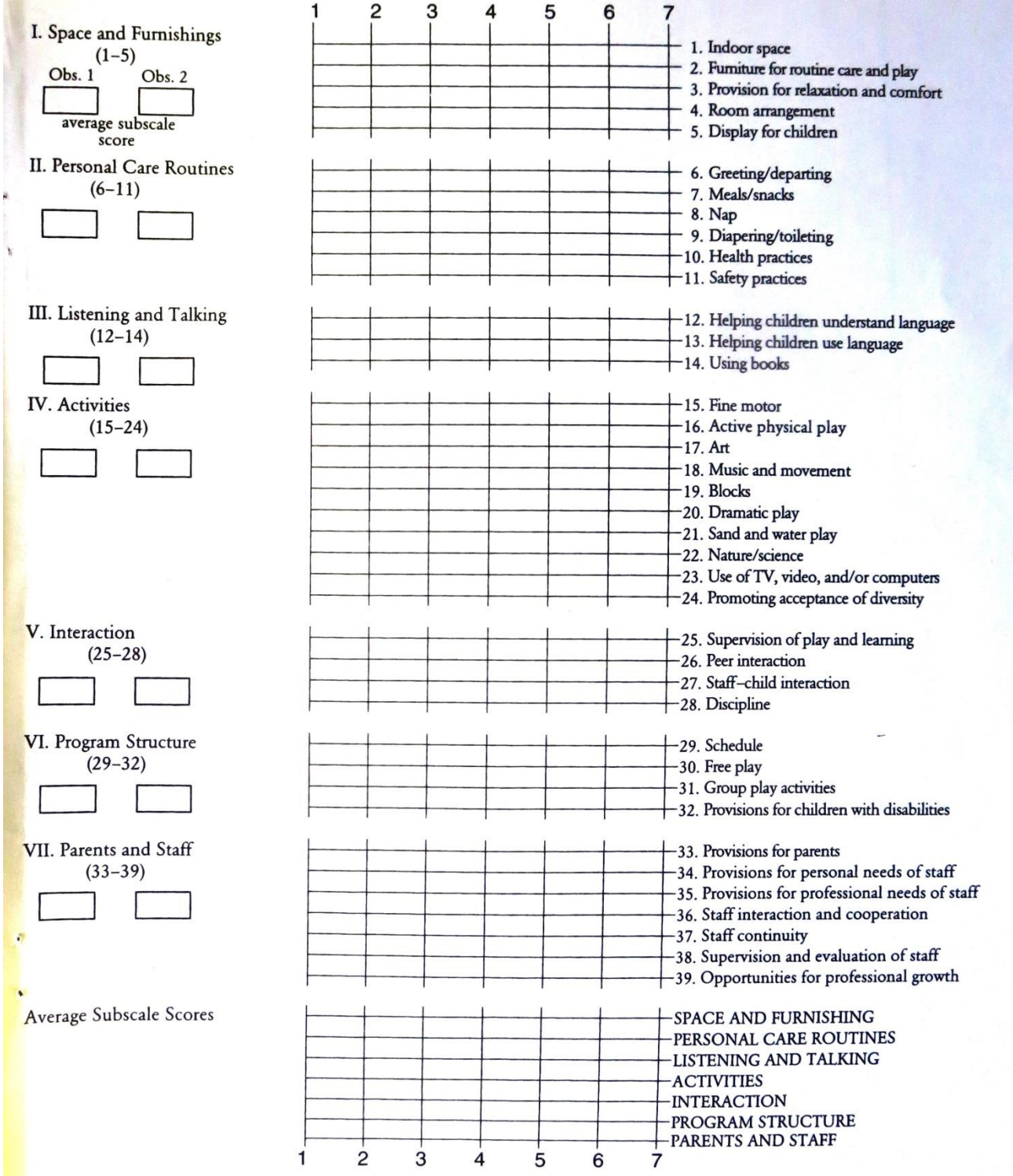
37. Staff continuity 1 2 3 4 5 6 7

	Y	N
1.1	☐	☐
1.2	☐	☐
1.3	☐	☐
1.4	☐	☐
3.1	☐	☐
3.2	☐	☐
3.3	☐	☐
3.4	☐	☐
5.1	☐	☐
5.2	☐	☐
5.3	☐	☐
5.4	☐	☐
7.1	☐	☐
7.2	☐	☐
7.3	☐	☐

ITERS–R Profile

Center/School:_____ Observation 1: __ __ / __ __ / __ __ Observer: _____

Teacher(s)/Classroom:_____ Observation 2: __ __ / __ __ / __ __ Observer: _____



7.9 Appendix I Child to caregiver ratio data collection sheet

RESIDENTIAL CHILD CARE FACILITY (CODE): _____

DATE (dd/mm/yyyy)	TIME (60 minute intervals)	NUMBER OF CAREGIVERS PRESENT	NUMBER OF CHILDREN PRESENT
	Start: _____:_____		
	_____:_____		
	_____:_____		
	Finish: _____:_____		

7.10 Appendix J Summary of changes made to the administration of items of the ITERS-R test

ITERS-R Subscale	Item nr.	Description of item	n
Items not administered			
Personal care routines	nr 6	Greeting and departure	18
Activities	nr 21	Sand and water play	18
	nr 24	Promoting acceptance and diversity	18
Program structure	nr 31	Group play activities	18
	nr 32	Provisions for children with disabilities	18
Parents and Staff	nr 33	Provisions for parents	18
	nr 35	Provisions for professional needs of staff	18
Items partially administered			
Activities	nr 17	Art	2
	nr 18	Block play	10
	nr 23	Use of TV, video, and/or computer	8

7.11 Appendix K Results of tests of normality, homogeneity and ANOVA scores and Spearman's Rank test scores

RESULTS OF TESTS OF NORMALITY, HOMOGENEITY AND ANOVA SCORES:

	Test of normality		Test of Homogeneity		Univariate ANOVA		Kruskal – Wallis ANOVA			
Subtest	**W**	**p**	**F**	**p**	**F**	**Pr**	**F**	**Pr**	**x^2**	**p**
Space and Furnishing	0.93	0.16	2.83	0.11	1.19	> 0.29				
Personal Care Routines	0.94	0.23	0.04	0.85	2.41	0.14				
Activities	0.91	0.08	0.18	> 0.67	5.61	0.03*				
Interaction	0.95	0.46	1.73	> 0.21	0.88	0.36				
Overall	0.95	0.46	1.46	> 0.24	1.92	0.18				
Program structure	0.88	0.03	1.00	> 0.33			0.04	0.84	0.58	0.45
Parents and Staff	0.97	0.77	4.31	0.05			1.56	0.23	1.44	0.23
Listening and Talking	0.90	0.06	1.18	0.29			0.11	0.75	0.64	0.42

*p < 0.05

SPEARMANS RANK CORRELATIONS TEST SCORES:

	Spearmans Rank test scores		
Structural variable	**r (rho)**	**s**	**p**
Caregiver to child ratio	-0,24	1199,09	0,34
Caregiver education level	-0,08	1041,64	0,77
Caregiver training level	-0,04	1011,77	0,86

7.12 Appendix L Detailed brake down of child to caregiver ratios and changes in the number of individuals across the observation period

CHILD TO CAREGIVER RATIOS:

Facility code	0 min	60 min	120 min	180 min
1	12 to 2	12 to 2	8 to 2	12 to 2
2	20 to 6	10 to 5	27 to 2	27 to 3
3	12 to 2	12 to 2	12 to 3	12 to 3
4	12 to 3	12 to 3	12 to 3	12 to 2
5	6 to 1	6 to 2	6 to 3	6 to 2
6	13 to 2	13 to 2	13 to 2	13 to 1
7	8 to 4	9 to 2	9 to 2	9 to 2
8	8 to 2	8 to 1	7 to 1	7 to 1
9	10 to 2	10 t0 1	10 to 2	10 to 2
10	30 to 7	21 to 4	21 to 4	20 to 4
11	13 to 4	13 to 2	8 to 3	13 to 3
12	15 to 3	7 to 3	5 to 3	5 to 4
13	5 to 1	8 to 3	6 to 3	6 to 3
14	25 to 4	25 to 3	12 to 2	12 to 2
15	7 to 1	6 to 2	6 to 2	6 to 2
16	5 to 3	8 to 1	7 to 2	7 to 2
17	10 to 2	10 to 2	10 to 2	10 to 2
18	20 to 1	26 to 2	26 to 2	26 to 3

CHANGES IN THE NUMBER OF INDIVIDUALS:

	Number of changes in individuals (across three hours)		
Facility code	Caregiver	Child	Combined
1	0	8	8
2	5	27	32
3	1	0	1
4	1	0	1
5	3	0	3
6	1	0	1
7	2	1	3
8	1	1	2
9	2	0	2
10	3	10	13
11	3	10	13
12	1	10	11
13	2	5	7
14	2	13	15
15	1	1	2
16	3	4	7
17	0	0	0
18	2	6	8