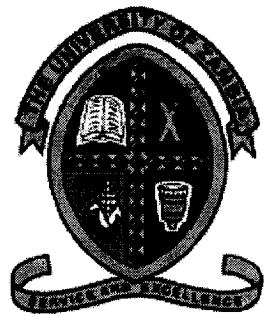

The University of Zambia

School of Humanities and Social Sciences

Department of Psychology

DEVELOPMENTAL DIFFERENCES OF CHILDREN RAISED IN ORPHANAGES, ADOPTIVE FAMILIES AND BIOLOGICAL FAMILIES IN LUSAKA, ZAMBIA.

By

TAMARA CHANSA

A dissertation submitted to the University of Zambia in fulfillment of the requirement for the award of Master of Arts degree- child and adolescent psychology programme

THE UNIVERSITY OF ZAMBIA

LUSAKA

2009

DECLARATION

I hereby solemnly declare that this thesis represents my own work and that it has not previously been submitted for a degree or any other purpose to this or any other university. I declare that this dissertation is submitted to the University of Zambia in partial fulfillment of the requirement for the award of Master of Arts in Child and Adolescent Psychology. All references borrowed from other sources are acknowledged.

Tamara Chansa

(Candidate)

CERTIFICATE OF APPROVAL

This dissertation by **Tamara Chansa- Kabali** is provided as partial fulfillment for the award of the degree of Master of Arts in Child and Adolescent Psychology of the university of Zambia.

EXAMINERS SIGNATURE

1. _____ **Date** 28th July 2009

2. _____ **Date** 28th July 2009

3. _____ **Date** 28th July 2009

ABSTRACT

Background: The aim of this study was to investigate the developmental differences that arise from different patterns of child care. The influence of different patterns of care was investigated on the caregiving environment, security of attachment, maternal sensitivity, cognitive development and physical growth.

Sample: The sample consisted of three groups of children from different types of caring environment with 8 children per group: a family comprising the child's biological parents, an adoptive family and an orphanage. The children were matched for age and gender. The age of the participants ranged from 3 years, 7 months to 5 years, 4 months. The mean age for all participants was 4 years, 9 months. All the families and the orphanage were from the medium density residential areas.

Method: The child's home was assessed using the HOME and the HEPA scales. The strange situation procedure was used for determining security of attachment. For Sensitivity, the Emotional Availability Scale was used by having the caregiver- child dyad play and interact without any toys. For cognitive development, two subtests from the SON-R were used; the categories for reasoning and patterns for performance. For physical growth, the weight, height and head circumference indices of physical development were measured.

Results: There was an organized distribution of secure and insecure attachment styles in the sample. Only the orphanage group showed disorganized attachment. The orphanage caregivers showed lower levels of sensitivity compared to their counterparts. Home environment scale showed significant differences between the orphanage group and both

the family reared groups but no significant differences between the biological and adoptive family reared groups. On the cognitive tests, differences were found between the orphanage and the family reared children. The orphanage children lagged behind the family reared children in both subtests. For physical growth, the orphanage children lagged behind the family reared groups on the body mass index and head circumference. The analysis found no significant effects of age and gender.

Conclusion: Results showed that the orphanage children lagged behind their age matched peers living in a family setup. Based on these findings, it is recommended that orphaned children should be raised in a family setup rather than an orphanage: whenever possible such children should be placed with their extended family and placement in an orphanage should indeed be the last option. The standards and condition of orphanages should be improved to foster near normal developmental trajectory for these children.

Dedication

To my beloved husband Joseph Mulenga Kabali and my wonderful, sweet daughter Joan Mwansa Kabali. You are irreplaceable people in my life. Joseph, you have encouraged me all the way through, you inspired and motivated me and therefore I dedicate this work to you and our beloved daughter. To my lovely niece Gift, you died before you could see me graduate, may you always be our guardian angel. I thank God for you and the depth of the relationship we shared. I will always love you. To my family, the Chansas, you have all worked hard to see me to this level and your wish is to see me beyond this level. I pray this work will motivate you to even achieve higher heights.

Acknowledgements

First and foremost I would like to thank Professor Van IJzendoorn and the Lolle Nauta Foundation for according me the chance to further my studies. I thank the Leiden team in the child and family studies department for all the understanding and help they offered without reservations. I would like to acknowledge my supervisor Professor Robert Serpell for his incredible support and patience to walk me through this work. Your valuable contributions will always be treasured. To my three research assistants: Mr. Gabriel Walubita, Mr. Kapembwa Simwinga and Miss Noma Zewelanji Kabuba you were faithful in helping with the data collection, your contribution and participation was prudent. You have seen this work develop, thank you and continue with the same hard work. Tribute goes to the members of staff in the psychology department at the University of Zambia for your contributions to see this work as a success. Particular acknowledgement goes to my two colleagues; Mr. Haatembo Mooya and Mr. Given Hapunda, you tirelessly walked with me throughout this work. From the beginning of the program, you both encouraged and instilled confidence in me. Thank you so much. I also want to thank my family, Joseph and my wonderful gift from God, Joan Mwansa, I thank you for your encouragement and understanding throughout this work.

Contents

Table of contents

CHAPTER TWO: LITERATURE REVIEW

CHAPTER THREE: METHODOLOGY

CHAPTER FOUR: FINDINGS

CHAPTER FIVE: DISCUSSION

CHAPTER SIX: CONCLUSION AND RECOMMENDATIONS

ACRONYMS

AIDS	Acquired Immune Deficiency Syndrome
BMI	Body Mass Index
EAS	Emotional Availability Scale
HEPA	Home Environment Potential Assessment
HOME	Home Observation for Measurement of the Environment
HIV	Human Immunodeficiency Virus
OVC	Orphans and Vulnerable Children
SSP	Strange Situation Procedure
NGO	Non Governmental Organization
UNAIDS	Joint United Nations Program on AIDS
UNICEF	United Nations Children's Fund
WHO	World Health Organization

List of Tables **page**

CHAPTER ONE

1.0 INTRODUCTION

This study aimed at investigating the developmental differences that may exist from children receiving different patterns of care. The different environmental contexts are: children in orphanages, adoptive and biological families. This chapter contextualizes the problem statement and the background information pertaining to the social issues of raising children in orphanages and adoptive families in Zambia and worldwide. The escalating prevalence of orphanages is discussed in terms of response by various stakeholders such as non-governmental organizations. The chapter also presents the aim and objectives of the study. In this paper, the term institutionalization is used to refer to the pattern of care resulting from placement of a child in an orphanage. In different parts of this paper, other terms that have been taken to mean the same are attachment quality, attachment style and attachment status. All these terms refer to attachment classification.

1.1 BACKGROUND

Research on the development of institutionalized infants and toddlers has a long history. For many decades the main concern in the institutions was the survival of the infants as many of them in the foundling homes died before their second birthday (Gunnar et al, 2000). It was observed that with improvements in sanitation and medical care, the rate at which the children died in the institutions declined and therefore concerns shifted to the issue of developmental delays which were attributed to both environmental stimulus and maternal deprivation (Dennis, 1938; Lowry, 1940; Skeels, 1940; Skeels & dye, 1939; Skeels, Updegraff, Wellman & Williams, 1938; Spitz, 1945). Gunnar (2000) recognized levels of hardships that exist in institutions which differ from institution to institution

and from country to country. The conditions that the children experience in the institutions are multifaceted, varying and changing over time. These experiences differ across institutions and are almost certainly not the same even within an institution. For instance, some children may receive better care than others do. Most people would attribute the varying experiences in the institutions to lack of maternal figure for the children, but as Rutter (1981) noted, it is inaccurate to construe maternal deprivation as the major cause of all the detrimental effects of early institutionalization. To understand these conditions experienced by children in the institutions, Gunnar et al. (2000) identified three levels that could be helpful in considering the privation encountered at the institutional settings. "At the most basic levels there are needs for adequate nutrition, hygiene and medical care. The extent to which these basic needs are met may vary and fluctuate with political and economic conditions of the country. At the next level, it is important to consider the need for stimulation and opportunity to act upon the environment in ways that support motor, cognitive, language and social emotional development. Finally, there is the need for stable interpersonal relationships and opportunity to develop an attachment relationship with a consistent caregiver" (Gunnar et al, 2000 p 678). While these levels of privation have been identified, they do not operate in isolation or independently from each other. For example, institutions that are not flourishing in meeting the children's basic needs of nutrition, hygiene and medical care would normally fail to provide sufficient stimulation or reliable caregiver-child interpersonal relations. In addition, fulfilling the need for stimulation and an opportunity to interact with the environment naturally requires everyday contact with adults. Probably, the most challenging necessity to satisfy in an institution could be the children's need for stability and consistency in the interpersonal relationships that

develop between children and caregivers. For instance, in a number of studies, it has been demonstrated that it is possible to provide a highly stimulating, enriching institutional environment without creating conditions that support a child's need for consistent relationships (Tizard & Joseph, 1970).

Institutional rearing of infants and young children in baby homes or orphanages often fails to support normal behavioral and physical development (Ames, 1990). Studies exploring the developmental effects of institutionalization on young children have indicated numerous delays and disturbances in development. Institutional rearing often, but not always, means high exposure to pathogens, low stimulation, lack of opportunity to form attachments to adults as well as poor nutrition (Johnson, 2000). Studies have shown that children in deprived and unstimulating environments suffer substantial and widespread developmental delays, including physical and motor delay, cognitive impairment and depressed language development (Dennis, 1973; Provence & Lipton, 1962). Early attachments have been proved to be important not only as an indicator of the parent-child relationship but also for their significant effects on other aspects of the child's functioning. In their study, Shonkoff and Phillips (2000) noted that when children are placed in orphanages that have adequate physical care with no particular attention to social or cognitive stimulation as well as few opportunities to establish relationship with a consistent caregiver, these children end up showing remarkable delays in motor and cognitive growth during and even beyond the period of institutionalization.

Physical growth is also well-known to be affected by institutionalization. Physical measures are indicators of pre-existing states of nutrition (height and weight) and psychosocial stimulation (head circumference) and are associated with developmental outcomes. In particular, head circumference and height to age ratio are measures of brain growth while the chronic state of nutrition is related to mental and psychomotor development in children (Miller et al., 2005; Miller & Hendrie, 2000; Pomerieau et al., 1995). Children who spend the first few years of their life in institutional care often show retarded physical growth. Central parameters of physical growth such as height, weight and head circumference lag behind those of their same-aged peers who were more fortunate and grew up in families. In a meta-analysis, Van IJzendoorn & Juffer (2006) found that adopted children largely outperformed their peers who were left in orphanages in physical growth.

Worldwide, thousands of young children are being raised in orphanages. War and distressed economies increase the number of orphaned and abandoned children and this has affected the resources available for their care. Of particular relevance to Zambia is a crisis of massive proportions due to AIDS, poverty and dwindling economic strength. Nearly three-fourths of the Zambian people live in poverty (OVC situation analysis, 1999). Poverty has resulted in many families eating one meal per day or even less, decreasing school enrolments, inability to access health care, stunting in young children, increased maternal mortality and a host of other negative effects throughout the country. Over and above these consequences of poverty, the HIV/AIDS epidemic is drastically impacting these indicators. In its 2004 report on global AIDS epidemic, UNAIDS estimated that one in six Zambian adults was living with the AIDS virus and that there

were over half a million AIDS orphans aged 0-14 years (UNAIDS,2004). Children are a particularly vulnerable group among those affected by the AIDS crisis and increasing poverty. Further, many children are losing one or both parents from AIDS. Some children, orphans or vulnerable are not attending school, receiving proper nutrition or accessing health care. The condition of HIV/AIDS and poverty has made the situation even worse for orphanage- raised children.

The plight of orphans has not only been felt by the government but by non governmental organizations, community based organizations and religious institutions. These organizations have tried to supplement and fill the gaps left by the government. Most of these organizations recognize that orphaned and vulnerable children should be cared for by the community rather than institutions, which is a thoughtful approach because research has shown that children who are cared for in orphanages exhibit more psychological problems compared to those exposed to a foster care system (Ahmed et al., 1996; Ahmed et al., 2005). If bringing up children in orphanages still remains or becomes a necessity as it is because alternatives are lacking, the crucial question is, which conditions might relieve or decrease the negative impact of institutional care? Depending on the type of explanation for the developmental delay, one may have different ideas about more or less favorable conditions in the children's homes. The maternal deprivation concept according to Bowlby (1951) refers to a stable and continuous attachment relationship with a sensitive caregiver. The stimulus deprivation theory (Casler, 1961) suggests that the lack of physical and social stimuli of any kind may be the most important cause of intellectual delays and enriching the orphanage environment would result in better intellectual development. Of course, these theories

are not incompatible, and they both may point to important components of a more constructive children's home environment.

This study compared three groups of children raised in different settings: orphanage, adopted and parent- raised children. If orphanage- raised children score lower on the various dependent variables to be measured than the parent-raised children, this could be attributed to two broad factors; firstly, loss of normal parental care and secondly abnormal restrictions of experience characterized in the orphanages. Since these issues are both essential to investigate, a third group of adopted children was introduced to participate in the study. If the adopted children resembled the parent-raised group more than the orphanage- raised group, this would be evidence that abnormal environmental factors are more significant than parental loss and that adoption and/or fostering successfully protects children against the negative developmental consequences of parental loss. The groups were compared with respect to their environments, security of attachment, cognitive development and physical development.

1.2. STATEMENT OF THE PROBLEM

The suffering of the orphan and vulnerable child is contained within the confines of the family and the community. Daily, children suffer from malnutrition and childhood illnesses. The impact of their suffering is seldom seen outside their immediate surrounding; although people estimate how much these orphans could be suffering but those who live with them in their environment know exactly what they are going through. On the contrary, those who are not affected continue without knowledge of the growing crisis and the pending impact the crisis will have on the country as a whole.

In Africa the number of children's homes is currently increasing because of the many HIV/AIDS orphans who cannot be cared for anymore by members of the extended family (Kodero, 2001; Madhavan, 2004; Nyambedha, Windibba & Aaghrd-Hansen, 2003). The orphanhood rate in Zambia also increases daily as a result of the HIV/AIDS pandemic. Estimated number of orphans in Zambia varies from one source to another. One estimate by OVC situation analysis, (1999) is that 1.656 million children, or more than one-third of those under the age of 15, are orphans who have lost one or both parents. Less than one quarter of the orphans have lost their parent or parents to other forms of sickness or accidents, while more than three-quarters are orphans because of AIDS. Instead of getting smaller, or at least not increasing, the problem of orphanhood is increasing rapidly. Between 1996 and 1998, there was a national increase of over fifteen percent in the number of orphans (OVC situation analysis, 1999).

This rapid growth in the number of orphans has led non- governmental organizations, churches and concerned individuals to come up with centers and institutions where these children are cared for and have basic necessities of life like food and shelter among others. The number of orphanages in Zambia has mushroomed and it has become a business and source of income for some of the Zambian caregivers. This may compromise both the quality of care the children receive and the emotional involvement of caregivers with the children.

In spite of serious social, behavioral, emotional and psychological effects of orphanage life on children, there is need to conduct more research in Zambia on developmental trajectories of these children.

1.3 JUSTIFICATION OF THE STUDY

The choice of the research topic emerged from an observation from previous studies that orphanage life has presented many challenges of emotional, social, behavioral and psychological nature. Since Zambia has orphanages, it is not an exception and children raised in the orphanages could have similar challenges. The study involved three groups of children living in different environmental contexts. The three groups were chosen because this comparison may shed more light on the different developmental pathways that children in these settings experience. The aggravating impact of orphanage life does not only bring about behavioral problems but also psycho-social implications for orphanage raised children later in life. The nature of caregiver- child interactions poses a challenge to the attachment security of the child. For instance, unhealthy interactions and orphanage life in general may bring about behavioral problems, cognition problems, social problems, and insecure attachment patterns, particularly extreme attachment patterns. Orphanage children may be exposed to less consistent caregivers unlike the children in families.

The data from the analysis of orphans in Zambia demonstrate that 56% of orphan children and 49% of non-orphan children are stunted (OVC situation analysis, 1999). In this analysis, it was reported that the stunting of orphan children could perhaps be linked to lack of proper care by the foster caregivers and the withholding of food from orphan

children. However, there are additional factors which may contribute to the larger percentage of stunted orphan children. For instance if the mother suffered a prolonged illness or was looking after ill family members, it is possible that she would be unable to provide the normal care and attention to her children. Stunting amongst Zambian children under the age of five is serious and merits immediate and serious attention. The fact that orphan children tend to be stunted at a higher rate may signal the need for preventive measures in children after they become orphans and are admitted to orphanages. It is therefore imperative to find out why orphanage children are stunted and whether this has some impact on developmental processes such as cognitive development.

This study compared three groups; an orphanage-raised group, orphaned group living in adopted families and the parent- raised children. This design affords an opportunity to examine the developmental differences of the children with the same status "not living with parents" but raised in different settings and with different patterns of care. This study would provide evidence about the way in which the orphanage raised children may be delayed. Many studies have been conducted on orphanage children in comparison to their counterparts who left the orphanage to enter adoptive families on developmental pathways like cognition, attachment and physical growth and the findings are that those who leave the orphanages perform better in these areas (Ames, 1990). This study investigated how delayed the orphanage- raised children would be relative to the family reared groups and whether the adopted children would be different from the parent-raised children on these developmental pathways.

1.4 Aim

- The main aim of the proposed study was to investigate intellectual development, caregiver-child attachment, and physical growth of children raised in orphanages as well as investigating whether the development of children in orphanages was delayed relative to that of children raised by their biological parents or adoptive families.

1.5 Objectives

- To provide knowledge about the different lifestyles of children in different settings
- To explore the range of physical, socio-emotional and psychological factors that differs among the three groups of children.
- To find out the effects of orphanage life and /or adoption on development
- Identify various physical, socio-emotional and psychological symptoms associated with orphanage life.

1.6. Hypotheses of the study

In the study the following hypotheses were tested, all regarding children reared in Zambian child care orphanage in comparison to children in adoptive families as well as children reared by their biological parents.

1. The comparison family- reared children: adoptive and biological families would present a normal distribution of organized and disorganized attachment, whereas children raised in orphanages would show a deviating distribution of patterns of

attachment. In particular, the orphanage children were expected to show higher rates of insecure and disorganized attachment.

2. Security of attachment organization would be associated with higher caregivers' sensitivity.
3. Security of attachment in orphanage children would be associated with better outcomes in the domains of physical development and cognition.

The following research questions were also addressed:

1. Do the orphanage and family's home environments differ?
2. Is there a significant difference in cognitive competence across the groups?
3. Do orphanage children exhibit more physical growth delay relative to the family reared groups?

CHAPTER TWO

2.0. LITERATURE

This chapter reviews relevant literature on the effect of institutionalization. The review starts with what is known about early institutionalization and child development, followed by attachment theory and institutionalization as well as sensitivity. Thereafter, the review considers research evidence pertaining to;

1. Risk and protective factors in institutional upbringing.
2. Quality of caregiving as an intervention target.

2.1. Developmental consequences of early institutionalization

The adverse effect of institutionalization on the development of children has been described in a number of studies beginning from the 1940s (Bowlby, 1951; Dennis, 1973; Freud & Burlingham, 1973; Goldfarb, 1944; Goldfarb, 1945; Provence & Lipton, 1962; Spitz, 1945). The results of this and subsequent research were rather consistent in reaching the same general conclusion: deprivation in early life tends to be associated with major impairments in various areas of development. These impairments include a range of physical abnormalities, such as brain growth deficiencies, sensory integration difficulties, stereotypes, speech and language delays (e.g., Cermak & Daunhauer, 1997; Judge, 2003; Mason & Narad, 2005; Miller, Kiernan, Mathers & Klein-Gitelman, 1995); and psychological and behavioral problems, such as inattention/hyperactivity (Kreppner, O'Connor, Rutter, Beckett, Castle, & Croft, 2001; O'Connor et.al., 1999; Roy, Rutter & Pickels, 2004), various emotional difficulties (Sloutsky, 1997; Wismer Fries & Pollak, 2004), autistic and quasi-autistic features (Rutter, Andersen-Wood, Beckett, Bredenkamp, Castle, Groothues, Kreppner, Keaveney, Lord, O'Connor, 1999), cognitive

impairments (Castle, Groothues, Bredenkamp, Becket, O'Connor, Rutter, & the ERA Study Team, 1999; Kaler & Freeman, 1994; Morrison & Ellwood, 2000; Rutter et al., 2001). Children in orphanages are at risk with regard to intellectual development and this has been attributed to among other factors care in large groups and poor environments. Due to such factors, brain development may become delayed during the formative period after birth (Chungani et al., 2001) and the lack of challenging stimuli and stable attachments may impair development of institutionalized children (Gunnar, Bruce & Grotevant, 2000; Johnson, 2000; miller, 2005; Van IJzendoorn & Juffer, 2006). Orphanage life according to research is said to present difficulties in relations with peers (Hodges & Tizard, 1989a, 1989b; Roy et al., 2004), conduct problems (Groza, Ryan, Cash, 2003; Fisher, Ames, Chisholm, & Savoie, 1997) and physical growth delay.

In their report of a longitudinal study of physical growth and health of post institutionalized Romanian adoptees, Mare & Audet (2006, p.4) noted that, "one of the most immediately apparent deficits of institutionalized children is their profound growth delay. Previous research on post institutionalized children has consistently indicated that at the time of adoption, they are very small for their age, often below the fifth percentile for height and weight between 3rd and 9th percentiles". In this report, it was also noted that orphanage children experience growth deficiency not only due to malnutrition but also because of "poor quality of interaction and stimulation offered by the low caretaker-to-child ratio in these institutions" (Mare & Audet, 2006, p, 5). This type of growth deficiency has been referred to as psychosocial dwarfism. Although children were found with this growth deficiency, it has been observed that upon removal from stressful or neglectful conditions, children suffering from this growth deficiency make remarkable

improvement in both height and weight. For example, Rutter et al (1998) reported that although at the time of adoption 51% and 34% of his sample of Romanian adoptees fell below the third percentile for weight and height, respectively, approximately two years later only 2% and 1% of the sample remained that low in weight and height, respectively. Similarly, Johnson and Dole (2000) reported that the majority of 252 children adopted from Eastern European institutions showed rapid growth catch-up once they were adopted. Nevertheless, at three years post adoption, length of institutionalization was correlated with physical size, and of those children who had spent eight months or more in an orphanage, 31% remained below the 10th percentile in height.

Although researchers have not recognized a single pattern that may characterize children with early institutional experience, Rutter, Kreppner, O'Connor, and ERA study team (2001) made an attempt to delineate the features that are specifically associated with institutional deprivation. Analysis of the various features of the functioning of children with early institutional experience, such as attachment problems, inattention/overactivity, emotional difficulties, autistic features, cognitive impairment, peer difficulties and conduct problems reported to be associated with institutional rearing by previous studies, revealed that four features were much more common in the Romanian sample (n = 165), and all four of them were significantly associated with the age at entry into adoption; these are: (1) attachment disturbances with disinhibited behaviors; (2) inattention/overactivity; (3) quasi-autistic features; (4) cognitive impairment. Rutter and colleagues (2001) suggested that as these features frequently co-

occurred and were related to the early deprivation, presumably, a common etiological factor, they may constitute an *institutional deprivation pattern.* This finding requires further validation. The present study examined whether the institutional deprivation pattern that compromises attachment relations, cognitive development and physical growth found in Romanian adoptees would also be found in orphanage children reared in Zambia.

2.2. Attachment and institutionalization

In recent years, there has been much discussion concerning a sensitive period for the development of attachment (Shonkoff & Phillips, 2000; Thompson, 2001). Much of this inquiry has been guided by the formulations of attachment theory, which describes how infants develop their attachments to caregivers (Ainsworth, 1973; Ainsworth, Blehar, Waters & Wall, 1978; Bowlby, 1969/1982, 1973; Thompson, 1998). Attachment theory postulates that during the first years of life the child develops attachment relationships with specific individuals, such as parents or caregivers, who interact with the child on a regular basis (Bowlby, 1982). This interaction, according to Bowlby (1998), when nurturing, predictable, and attuned to the infant's or child's attachment needs, facilitates healthy development of the child within the "environment of evolutionary adaptiveness" or related developmental niches.

In infancy, formation of secure relationships is a major developmental milestone. From an organizational perspective on human development, Sroufe, Egeland, Carlson and Collins (2005, p.42) describe attachment as "a salient issue given its clear centrality to infant functioning and subsequent development." Secure infants derive comfort from

their parent(s) and feel free to explore the environment. In every population, some infants develop insecure attachment. Van IJzendoorn et al (2007, p. 1249) reported that, "in normative situations, about one-third of the infants develop an insecure organized relationship. In stressful situations they avoid to seek comfort from the parent (insecure-avoidant), or they stay extremely focused on their parent (insecure-ambivalent), in either way resulting into a competent exploration of the environment." Insecure attachment also predicts children's less optimal social development in childhood and adolescence (Sroufe et al., 2005; Stams, Juffer & Van IJzendoorn, 2002).

Parental sensitivity has been found to be associated with a child's security of attachment. Many studies have found that a caregiver high in sensitivity would foster a more secure attachment relationship compared with a caregiver who is not high in sensitivity. According to meta-analytic evidence, parental sensitivity defined as the ability to attune and react to children's signals adequately stimulates the development of an organized secure attachment relationship (De Wolff & Van IJzendoorn, 1997). Disorganized attachment is characterised as the absence or breakdown of an attachment strategy. Faced with stress, disorganized infants may react with undirected or misdirected movements, freezing or stilling behaviors and expressions of fear (Main & Solomon, 1990). Disorganized attachment in early childhood predicts emotional dysregulation, externalizing problems, lower cognitive functioning in middle childhood (Moss, Cyr, & Dubois-Comotois, 2004; Stams et al., 2002; Van IJzendoorn, Schuengel & Bakermans-Kranenburg, 1999) and dissociative behavior in adolescence (Carson, 1998). Disorganized attachment is presumed to be the result of frightening parental behaviours (Hesse & Main, 2006; Main & Hesse, 1990). The frightening nature of insensitivity and

enduring unresponsiveness in orphanages may trigger children's attachment disorganization (Lyons-Ruth & Jacobvitz, 1999; Solomon & George, 1999). Vorria et al. (2003) indeed found that 66% of institutionalized Greek infants at the age of 13 months had a breakdown in their attachment strategy; they experienced an extreme overrepresentation compared with the 15% disorganized attachment found in normative groups (Van IJzendoorn et al., 1999). These findings were replicated in a study by Zeanah, Smyke, Koga, Carlson, and the Bucharest group (2005), examining institutionalized Romanian children's attachment at the age of 24 months, reported a remarkably similar rate of disorganized attachment at 65%.

Institutional care in developing countries is usually characterized by nonoptimal caregiver-child ratios, lack of educated staff and high staff turnover which confronts the children with discontinuous and highly limited contacts with different caregivers who are not always sensitive to the individual needs of the child (Kaler & Freeman, 1994; The St. Petersburg – USA Orphanage research Team, 2005). Apparently, rearing in such circumstances may violate the conditions formulated by Bowlby and others to be necessary for a balanced attachment development, and therefore cannot provide the environmental input that will promote species-specific organization of attachment behaviors and attachment relationships.

Indeed, several studies found that children adopted from orphanages into family settings show atypical attachment behavior: 'unattached' behavior, indiscriminate friendliness towards strangers, or other atypical behaviors that are difficult to classify within the

usual attachment behavior coding systems (Chisholm, 1998; O'Connor, Marvin, Rutter, Olrick, Britner, & the English and Romanian Adoptees Study Team, 2003; Vorria et al., 2003; Zeanah, Smyke, & Dumitrescu, 2002; Zeanah, Smyke, Koga, & Carlson, 2005). O'Connor et al. (2003) found that ordinary forms of insecure attachment in a sample of children adopted from Romanian orphanages were associated with their experiences in the institutions, but there was a positive association between duration of institutionalization and insecure attachment. Hence, attachment organization in children exposed to early institutional care may manifest itself in a different way (e.g., in atypical or disorganized attachment) than the attachment organization of normally developing children with a history of differential, specific and continuous attachments. Therefore, in the present study, the focus was on the attachment organization of the three groups of children and the study examined whether and how the attachment organization differed from the attachment organization of orphaned children reared in regular but adoptive families and children living with birth parents.

2.3. Risk and protective factors in institutional upbringing.

Although institutional deprivation has significant impact on the development of the child, empirical studies demonstrate that it is not deterministic. For instance, in the study of Rutter et al. (2001), the proportion of children who had left Romanian orphanages before the age of 6 months with normal functioning was nearly 70%. In a study of child-parent attachment following early institutional deprivation, O'Connor et al. (2003) found that, despite even prolonged exposure to very extreme and global social deprivation of the examined children in early life, attachment relationship within the normal range was observed in almost 50% of the children. Vorria et al. (2003) found in their study on

attachments of infants in the Metera orphanage that about 30% of the children had developed organized patterns of attachments, some of them even secure attachments. In a recent study by Zeanah et al. (2005) it was found that 18.9 % of children in Romanian institutions who spent on average 90% of their life in institutions were classified as secure. Similarly, Ames (1997) found that on each of the measures she administered, there was substantial within-group variation. She then concluded that not all of the orphanage children were experiencing all of the identified problems. This raises a risk and resiliency question. Why do some children recover from such extreme deprivation seemingly unscathed, whereas other children carry scars into their futures?

These findings suggest the presence of certain protective and/or risk factors which may buffer or exacerbate the influence of institutional care on children's development. However, the role of these factors remains understudied. They may be related to the way and extent in which institutional environment responds to the children's physical, cognitive and emotional needs, that may vary from global neglect of physical, nutritional, stimulation and relational needs to specific deprivation of emotional or cognitive needs (Gunnar, 2001; Gunnar, Bruce, & Grotevant, 2000; Johnson, 2000; Miller, 2005).

In addition, individual characteristics and circumstances of the child may play an important role in the differential susceptibility to the institutional deprivation. Indeed, some studies point out that gender may play a role, with girls demonstrating more resilience and positive outcomes than boys (e.g., Roy et al., 2004; Vorria et al., 1998). Being a favorite of the caregivers in an orphanage was also found to have a positive

influence on the child's development (Morison, Ames, & Chisholm, 1995). Furthermore, presence of siblings seems to have a mitigating effect on the developmental risks of orphanage children (Roy et al., 2004). Studies with non-institutionalized children point out that along with genetic background and temperament, prenatal history, e.g., substance exposure (see Zhang et al., 2005 for a review) may influence the course of the child's development (Rutter, 2006).

Another important factor is the child's health condition. During the last decade, the number of children abandoned because of their HIV status has been constantly growing. This health condition emerges as a potent risk factor due to the high level of stigma and discrimination among caregivers towards HIV positive children (Tarasova, 2006). Due to this problem the quality of care these children receive in orphanages may decrease and their developmental needs may be compromised even further. Also, naturally, children with HIV status are the least preferred candidates for potential adoptive parents. The HIV/AIDS pandemic has caused a breakdown in the usual family and neighborhood networks that in the past provided much of the alternative care for children who lost their parents. This not only leads to a growing number of street children but also to a rapid extension of residential care settings in various African countries (e.g., SOS villages). In sum, it is still not clear how different aspects of the orphanage environment interplay with different individual characteristics of the child, and which environmental or individual factors may act as risk or protective factors in the course of the orphanage child's development.

In the present study the focus was on individual characteristics of orphanage children and direct observations of different features of the orphanage environment in order to explore how they interplay with each other and to what extent they lead to developmental outcomes in the domains of physical growth, attachment and cognition. Understanding the interplay of possible risk and protective factors in the development of children subjected to orphanage care is of critical importance for the identification of the targets for intervention programs directed at the child care in orphanages.

2.4. Quality of caregiving as an intervention target.

Evidence from intervention studies conducted in institutions and orphanages suggests that even modest improvement of concrete, specific aspects of caregiving may lead to better physical, mental and socio-emotional outcomes in the children. Extra interaction between an experimenter and a child in 5 minutes daily sessions in an Iranian orphanage produced improvement in mental and psychomotor development of children (Hakimi-Manesh, Mojdehi, & Tashakkori, 1984). A 15 minutes auditory, tactile and visual stimulation program twice a day, 5 days a week during a month, led to significant gains in height, weight and head circumference in the experimental group of newborn children reared in a Korean orphanage (Kim, Shin, & White-Traut, 2003). Short daily play sessions in an Indian orphanage also led to significant improvement of children's development (Tneja, Sriram, Beri, Aggrawal, Kaur, & Puliel, 2001). An intervention study in one of the Russian orphanages which involved both training of the caregivers to promote responsive caregiving and staffing and structural alterations to increase the consistency of caregivers also proved successful: institutionalized children involved in this intervention program showed improvements in physical growth, cognition,

language, motor development, personal-social adjustment, and affect, with children having severe disabilities improving the most (Groak, Muhamedrahimov, Palmov, Nikiforova, & McCall, 2005). The intervention studies, however, did not always control for various contaminating factors, for example through randomization. The institutional setting severely restricts opportunities for random experimentation, and careful evaluation of intervention effects.

One common feature of the intervention studies is the focus on the improvement of the quality of the child caregiver-relationships, which triggers improvement in different domains of the child's development. This is in line with findings in attachment intervention studies which pointed out that sensitive caregiving in early childhood is causally related to the security of attachment mediating children's development in different domains. Intervention studies with family reared children suggest that a key determinant in the prevention of insecure infant attachment is sensitivity of the caregiver (e.g., Van IJzendoorn, Juffer, & Duyvesteyn, 1995). In a study on adopted children, an intervention aimed at promoting adoptive parents' sensitivity was successful and resulted in an increased number of secure infant-parent attachment relationships (Juffer, Hoksbergen, Riksen- Walraven, & Kohnstamm, 1997), and a lowered number of insecure, disorganized attachments (Juffer, Bakermans-Kranenburg, & Van IJzendoorn, 2005). Meta-analytically, preventive interventions that were more successful in enhancing parental sensitivity were also more successful in promoting secure attachments in children (Bakermans-Kranenburg, Van IJzendoorn, & Juffer, 2003). Moreover, preventive interventions that aimed at promoting parental sensitivity were

also successful in lowering disorganized attachment in children (Bakermans-Kranenburg, Van IJzendoorn, & Juffer, 2005).

A number of intervention studies have found that improvement of the quality of caregiving through the enhancement of the caregiver's sensitivity may improve the quality of attachment organization in children and produce better outcomes in other developmental domains in orphanage reared children. The present study examined the emotional availability of the caregiver through parental dimensions such as sensitivity, structuring, non intrusiveness and hostility while assessments are also made of the child's response to caregiver and involvement with the caregiver.

CHAPTER THREE

METHODOLOGY

3.0. Research design

The study utilized a quasi-experimental method to compare effects of three different patterns of care on children and these are: orphanage, adopted and birth families. If the expected differences in socio-emotional (i.e., attachment), cognitive and physical development of the orphanage- raised children, children living with adoptive families and parent- raised children are confirmed by the study, it may lead to sounder research and more-convincing causal links between orphanage care and children's developmental delays in various domains.

3.1 Ethical consideration

Before data collection for the main study, the proposal of this research was reviewed and approved by the University of Zambia Research Ethics Committee. Full explanations about the purpose of the study were made to participants and informed consent was obtained from those who agreed to participate in the study. Therefore, all necessary ethical guidelines were considered in this research.

3.2 Pilot Study

The pilot study was carried out between March 2008 and April 2008. The aims of the pilot study were as follows:

- To gain familiarity with regard to the assessment tools.
- To finalize some of the assessment tools.

- To finalize the number of sessions required for each participating dyad.

A total of four cases were included in the pilot study. Out of these one was included in the main study. Following the pilot study, a few changes were made as necessary in the study.

3.3. Main Study

Data collection for the main study was done between September 2008 and November 2008, for a period of three months. During this period, participants were contacted from different families and one orphanage in Lusaka, Zambia. For each dyad that was contacted, the details of the nature and purpose of the study was explained to both parents and/or significant others, wherever necessary. Participants, who fitted the specified criteria, following an intake interview, were allotted sequentially to either of the groups. Informed consent to participate in the study was obtained.

3.4 Nature of sample

The focus of this study was to find out how different orphanage children develop from other children, the study population consisted of 8 healthy orphanage children and their caregivers; the first comparison group was a group of 8 never-institutionalized, non-adopted Zambian children living with their birth parents. This group was used to help answer the question of how similar or different the orphanage children are from family reared children.

The second comparison group consisted of 8 children who are adopted by their deceased parents' relatives. Orphanage children and their caregivers were recruited from a Children's home in Lusaka, Zambia. The biological and adopted children were a convenience sample recruited as follows;

1. The principal investigator contacted eligible parents through a personal network of primary schools and friends as well as friends of research assistants.
2. The age of the children were checked and obtained their consent to participate. Considering that this sample size was small, it was carefully selected and controlled for differences and similarities. All the children were matched for age and gender.

The following inclusion and exclusion criteria were used in recruiting the sample.

Orphanage group

Inclusion criteria:

1. Permanent residence in a childcare institution.
2. The children who were in the age range of 2 to 5 years old.
3. The children who have been in the orphanage for at least eight (8) months.

Exclusion criteria:

1. Genetic syndromes (e.g., Down syndrome), definite signs of fetal alcohol syndrome.
2. HIV positive children

Adopted group

Inclusion criteria:

1. Children who were living with an adoptive family.
2. The children who fell in the age range of 2 to 5 years old and should were adopted into the family for a minimum of eight (8) months.
3. The study did not include adopted children with no biological relations because the participants that were found were those with kinship relations to the child.

Exclusion criteria:

1. History of institutionalization or prolonged hospitalization.
2. Genetic syndromes (e.g., Down syndrome), definite signs of fetal alcohol syndrome.

Biological (control) group

Inclusion criteria

1. Children who were living with both parents.
2. Children who were between 2 to 5 years of age.

Exclusion criteria:

1. History of institutionalization or prolonged hospitalization.
2. Genetic syndromes (e.g., Down syndrome), definite signs of fetal alcohol syndrome

3.5 Procedure

For all the participants enrolled in the study, informed consent was obtained from their biological or adoptive parents/ guardians or from the authorities in charge of Children's Home. Each Control Group child's parent accompanied the child during video recordings. Adopted children were accompanied by their guardians during evaluations.

Orphanage children were accompanied by their "favorite" caregivers or the person who spent most time with the child was involved. The favorite caregiver was determined through informal interviews with children and caregivers and/or observations.

3.6 Data collection techniques

Quantitative and qualitative research methods were used to collect the data. In this study, the emphasis was on the quantitative data collection through standardized tests, questionnaires, interviews and video recordings. These are detailed in the section 3.8 below.

3.7. Assessment measures

The measures that were as follows:

3.7.1. Caregiving environment

Structure and functioning of the institutions were assessed through observations and semi-structured interviews with the director and caregivers of the Children's home in Lusaka, Zambia

Early Childhood HOME Inventory

The HOME was designed to measure the quality and quantity of stimulation and support available to a child in the (home) environment (Bradley, 1993). The focus was on the child in the environment, the child as a recipient of inputs from objects, events, and transactions occurring in connection with the surroundings. The information needed to score the HOME was obtained during a 45- to 90-min visit to the place where the child lived, during a time when the child and the child's primary caregiver were present and awake. The procedure was a low-key

semi-structured observation and interview done so as to minimize obtrusiveness and allow observed participants to act normally (Bradley, 1993; Bradley & Caldwell, 1988; Caldwell & Bradley, 1984).

Home Environment Potential Assessment (HEPA).

The HEPA was designed to measure the degree to which a child's home environment caters for the child's psychological needs as they are understood within the Zambian culture and society (Serpell, 1987). It explores ways of measuring the degree to which the developmental needs are being satisfied for a given individual. It makes explicit ways in which psychological health is conceptualized and how to organize them into a manageable set of dimensions. HEPA also focuses on how the environment impinges on a child's development towards each of these goals. HEPA is a schedule of observations and enquiries to be made by a visitor to a child's home in order to assess its potential for promoting healthy psychological development. The schedule has been field-tested for inter-rater reliability and face validity across a purposively sampled range of home environment in Zambia including variables in urbanization, maternal education, language / culture groups, family size and type of primary care giver.

The choice of using the HEPA in this study was due to an observation that a recurrent pattern in cross-cultural psychology has been the adoption for research in a third world country of an imported package of theoretical constructs and empirical methods which define the problem under investigation so tightly that locally distinctive phenomena and issues become marginalized or distorted

(Serpell, 1987). The HEPA version that was used in this study comprises 167 items, `71 based on direct observation by the visitor and 96 based on an informant's report (53 of the items were adapted from Caldwell and Bradley's (1984) Home observation for measurement (HOME) inventory). The items are arranged in 7 sections entitled physical support, emotional support, framing, individualization, training in social responsibility, demonstration and explanation of ideals and intellectual stimulation and capacitation. Certain sub-sets of the items apply only to the three age ranges sampled (under 2 years, 2-6 years, 7-12 years an) and a few apply only to boys or to girls.

The schedule was designed to be filled out immediately following a visit to a home during which the rater conducts a semi- structured interview with the key-person in the target child's regular environment. Each item is phrased in the form of a Yes/No question.104 of the items are keyed as indicators of a potential strength in the child's regular effective environment, while 63 are keyed as indicators of potential risk.

3.7.2. Caregivers

Parental characteristics

The case records of the Institutionalized Children were studied and Control Group parents were interviewed in order to collect information about the biological parents with respect to criminality, psychiatric disorder and social malfunctioning.

Sensitivity

Sensitivity during free play was observed and videotaped. This was conducted in accordance with the Emotional Availability Scales' guide (EAS; Biringen et al., 1993; Stams et al., 2002). The EAS not only contains scales for parental behavior, but also scales for child behavior (e.g., child responsiveness). The coders were blind for the background of the children's status (orphanage or home reared). Also, different coders coded parental and child behavior.

3.7.3. Children

Social background

Case records of the institutionalized children were assessed in order to study the child's individual history of institutionalization such as age at first admission, reason for admission, history concerning previous residence and number of transfers between institutions, change of caregivers since admission, and duration of institutionalization as well as the presence of siblings in the same institutions and presence and amount of contacts with biological parents or relatives.

Physical characteristics

Standard physical assessments of height, weight and head circumference were conducted. Data on physical growth through the course of the child's development were collected on the basis of the child's medical record. Head circumference was taken as an index for brain growth (Van IJzendoorn, Bakermans-Kranenburg, & Juffer, in press; Van IJzendoorn & Juffer, 2006).

Cognitive tests

SON-R: The SON-R 2.5-7 (Tellegen, Winkel, Wijnberg-Williams, & J.A. Laros, 1998) is an individual intelligence test for general application which does not require the use of spoken or written language. The test consists of 7 subtests mainly focused on visual-spatial abilities and abstract and concrete reasoning. Research indicates that the nonverbal SON-R tests are well suited for use with children of ethnic minorities in the Netherlands (Tellegen, & Laros, 1993) and in other countries (e.g., Zhang, Gong, Sun, & Tian, 1997). Two subtests from the SON-R 2.5-7 were used as a proxy of IQ (Tellegen et al., 1998), spatial subtest *Patterns*, and abstract reasoning subtest *categories*. Based on the standardisation research, the reliability of the subtests of the SON-R is .76 on the average with the Patterns and Categories subtests listed as two of three most reliable subtests of the SON-R (Tellegen & Laros, 1993).

Attachment

Attachment to the caregiver was observed in the Strange Situation Procedure (SSP; Ainsworth et al., 1978). The procedure involved a series of videotaped episodes in which the infant was exposed to mildly stressful events: the entrance of a stranger and two separations from the caregiver, followed by a reunion. In infancy, children who are insecure-avoidant shift their attention away from their distress and from the caregiver, and seem to remain focused on exploration. Insecure-resistant children display attachment behavior and seek proximity, but at the same time resist contact, and do little exploring. Secure children strike the balance between exploration and attachment behavior: they seek contact with the

caregiver when distressed, but are readily reassured and resume exploration. For older children, patterns of attachment are based on communication, gaze, affect, body positioning, play, and control. Insecure-avoidant children keep a comfortable distance from the parent and show minimal responses. Insecure-resistant children are preoccupied with the relationship with the mother, and show immature and/or angry behavior. Secure children have calm and comfortable interaction with the mother and give an update to the mother when she returns (Stevenson-Hinde & Verschueren, 2002). Insecure/Controlling-Disorganized children either show contradictory or misdirected and other disorganized behaviors, or show that they have taken control of the interaction and of the relaionship as a strategy to reduce uncertainty when the caregiver cannot be counted upon. Next to the attachment classifications, ratings for security, avoidance, and disorganized/controlling behavior are assigned (Cassidy & Marvin with the MacArthur working group, 1992).

Moreover, the attachment relationship was rated using the Attachment Formation Rating (Carlson, 2002), that had been developed in particular for observation of children in institutionalized care or with a history of fragmented care (see Zeanah, Smyke, Koga, & Carlson, 2005). The Attachment Formation Rating indexes to what extent the child can be considered attached to the caregiver, ranging from 1 (*child demonstrates no attachment behavior and no differentiation between familiar and unfamiliar adults, and exhibits flat or minimal change in affect and little behavioral interaction with adults*) to 5 (*child exhibits behavior consistent with one of four traditional attachment classification*

patterns, demonstrating a clearly recognizable pattern of attachment and exploratory behavior in relation to the caregiver). There are reliable coders in the research group, who were blind to the background of the children (orphanage or family reared).

3.8 Data analysis

The quantitative data were analyzed using the SPSS statistical package. Frequencies cross tabulations and percentages were used to describe distributions of single and summated variables. Measures of central tendency were used to analyze the data. ANOVA was used to assess the statistical significance of differences and interactions among variables. It is worth noting that the analysis of the videotapes for attachment classification and emotional availability of the parent- child interactions were rated based on high level of consensus with two other researchers. Therefore, the videotapes will be re-coded by an expert coder for standardized ratings.

CHAPTER FOUR

RESULTS

This chapter presents the findings of the study. The findings obtained for each of the key variables that were investigated are presented separately.

4.1 Description of sample

Children were taken from three different groups of child caring patterns in Lusaka. The experimental group was taken from an orphanage in Lusaka's Chilenje area whereas the two control groups were from different parts of Lusaka, namely: Emmasdale, Kabwata, Chilenje, Chelstone and Avondale respectively. The families in the project were all from middle class areas which are medium populated residential areas. The adopted children were taken in by the deceased relatives of the parents. The table 1a shows the relation and the number of months the children had been living with these adoptive families and the orphanage.

Three groups were utilized in the study. These groups were in similar areas but with different patterns of care for the children. The orphanage group had 8 participants with 33.3%, children in adoptive homes were 8 with 33.3% and children living with their biological parents were also 8 with 33.3%. The total number of participants in the study was 24 giving 100%.

In table 1a, the number of months in which the two groups have been staying in the orphanage and adoptive family have been presented.

Table 1. Description of adopted and orphanage children and duration of stay

Child's id	Relationship with caregiver	Duration of stay in months
1	orphanage	15
2	orphanage	13
3	orphanage	14
4	orphanage	17
5	orphanage	22
6	orphanage	12
7	orphanage	16
8	orphanage	18
9	paternal aunt (dad's cousin)	14
10	maternal grandmother	20
11	maternal cousin	18
12	maternal aunt (mom's cousin)	13
13	maternal aunt (mom's cousin)	10
14	paternal niece	16
15	maternal aunt	11
16	maternal grandmother	17

It should be noted that none of the children were adopted by the direct link to their parents but were related to the distant lineage of the parents. These children did not frequently visit at these adoptive families when the parents were alive but they understood and knew that they were related to these families. Some of these children had older siblings from the same parents while others are dispersed because of economic issues. It was however, the wish of these adoptive parents that these children be raised as one family but the current economic circumstances did not allow for this. Hence, other family members to these adopted children lived with other relations but they got to see each other from time to time. Other adoptive parents indicated that when the older siblings are educated and have jobs, they expect them to stay with their young because it is important that these children are raised as one. It was observed that the parents from adoptive families willingly engaged these children into their families because they did not have anywhere to go. However, it was noted that people generally felt reluctant to take on the responsibility of the orphaned and abandoned children because of expenses.

Table 1a: Descriptives: means and standard deviations for duration in months

Variable	Group	Mean	Std. deviation	Std. error	95% confidence interval for Mean Lower bound	Upper bound
Duration	Orphanage	15.88	3.18	1 .13	13.21	18.54
	Adopted	14.88	3.42	1.23	11.96	17.79
	Total	15.38	3.26	.82	13.64	17.11

Table 1a above shows descriptives of the duration that the child has been with the adoptive family and orphanage. The descriptives show that the orphanage children had a mean stay in the orphanage of 15.88 while the adopted ones had a mean of 14.88. Further calculations were performed using ANOVA tests to see if there were statistical differences in their stay in the adoptive homes as well as the orphanage. The Anova test showed that the duration of stay at the adoptive homes and orphanage did not present significance differences, (F (1, 14) = 0.360, p >0.05, p = 0.558).

Table 1b: AGE by GROUP and SEX Cross tabulation

Sex	Age	Group			Total
		Orphanage	Adopted	Biological	
Male	3.07	1		1	2
	3.08	1			1
	3.09			1	1
	4.00		1		1
	4.02			1	1
	4.04		1		1
	4.08		1	1	2
	4.10	1			1
	5.00	1			1
	5.02		1		1
Total		4	4	4	12
Female	3.07		1		1
	3.10		1		1
	3.11			2	2
	4.00	1			1
	5.00	2			2
	5.01		1		1
	5.02	1		1	2
	5.03			1	1
	5.04		1		1
Total		4	4	4	12

The table above shows the distribution of the children's ages by their gender and group. The table shows that the entire population consisted of 24 participants of whom 12 were

boys and 12 girls. Each group had 8 participants. It can be noted that at least each of the groups included one child of the youngest and the oldest ages.

Table 1c: Descriptive: means and standard deviations for age by gender and group. Dependent Variable: Age

Group	Gender	N	Mean	Std. deviation
Orphanage	Boys	4	3.81	.93
	Girls	4	4.76	.50
	Total	8	4.28	.86
Adopted	Boys	4	4.29	.49
	Girls	4	4.06	1.12
	Total	8	4.17	.81
Biological	Boys	4	3.57	.56
	Girls	4	4.07	1.11
	Total	8	3.82	.85
Total	Boys	12	3.89	.70
	Girls	12	4.29	.93
	Total		4.09	.83

When further statistical analysis was performed for particular group means, the following were found: the orphanage group had a total mean age of 4.28, n=8; the children from adoptive homes had a total mean age of 4.17, n= 8 and the biological group, mean age 3.82, n= 8.

After performing a two- way ANOVA of ages by gender and group, non significant difference between gender and the children's ages were found, (F(2, 18) = 1.015, p = .382). This clearly shows that the gender and age was evenly distributed across the three groups.

4.2 Attachment

Attachment styles were coded for the children in different family settings. Table 2 below shows the descriptives for attachment quality. The infants' patterns of attachment behavior were classified as secure, insecure-avoidant, or insecure-resistant or disorganized.

For inter-coder reliability, the author consulted with two research colleagues familiar with the literature on attachment and with management of the Strange Situation Procedure with Caregiver-Infant dyads in Zambia. A high level of consensus was found among the three researchers on how to code the most salient behaviors relevant for classifying the attachment status of a sub-sample of 5 of the dyads videotaped in the SSP in this study, and 5 videotaped in the same experimental setting at the University of Zambia for another concurrent study. However, the coders did not get the required expert training to achieve reliability and therefore, an expert coder will review the videotapes and give ratings based on standardized coding.

Qualitative observations showed that none of the orphanage children cried or showed any concern at separation and were not enthusiastic or annoyed with that caregiver at re-union. On the other hand, the family reared children showed more distress and showed acceptance of the parent at re-union.

Table 2: Group by attachment Cross tabulation

	Attachment Quality				
Group	Secure	Insecure ambivalent	Insecure avoidant	Disorganized	Total
Orphanage	2	0	3	3	8
% of Total	8.3%	0%	12.5%	12.5%	33.3%
Adopted	6	2	0	0	8
% of Total	25%	8.3%	0%	0%	33.3%
Biological	7	1	0	0	8
% of Total	29.2%	4.2%	0%	0%	33.3%
Total	62.5%	12.5%	12.5%	12.5%	100%

Table 2 presents the number of children in each group with their attachment status. Percentages for attachment status have been presented in totals. It can be seen from the table that 62.5% of the children were securely attached, 25% insecurely attached and 12.5 % showed a disorganized strategy of attachment. In all, 87.5% of the children in the population N= 24 presented an organized attachment strategy.

The Chi- squared results showed a relationship between the groups and attachment styles, (6, N= 24) = 16.800, p= 0.004. In the results, the Exact significant test is reported because 9 cells were found to be less than the count of 5. Thus, the type of family setting in which the child belonged to was a factor in yielding significant differences on security of attachment. Since the chi-squared test of group and attachment is significant, further tests were performed to indicate the magnitude of the association. Squaring the Phi value (.837) gives the percentage of how much variation of attachment is accounted for by type of family setting or group. Results showed that 70% of the variation is accounted for by the type of family or group. Thus, the association was of high strength, with p= .01.

4.3. Emotional availability and parental sensitivity

Emotional availability was measured using 6 subscales comprising both parental and child dimensions. Parental dimensions included sensitivity, structuring, non intrusiveness and non hostility while the child dimensions were child's responsiveness to the parent and child's involvement with the parent. Emotional availability was achieved through child-caregiver interaction play without toys. The dyad was asked to play any kind of games freely.

Intercoder reliability was assessed by the same method of consultation with two research colleagues, but was not firmly established because the coders did not undergo specialized expertise for coding videotapes. This is similar to the videotapes for the assessing attachment quality, the ratings for emotional availability may change after either the coders get training to re-code the videotapes or an expert coder re-codes them. It may be worth noting that the coders coded the emotional availability videotapes after having already made assessments of the children's attachment quality, although the assessments of attachment quality and emotional availability were not coded concurrently.

Attachment classification was changed from a categorical measure to an interval scale to enable calculation of Pearson's product-moment correlation coefficient with the emotional availability subscales. To achieve this, attachment quality was mapped onto a 5 point scale to convert it to a continuous parametric measure. Secure attachment was given a score of 5 while disorganized attachment was given a score of 1. Since the

insecure avoidant and insecure ambivalent are equal and one is not better than the other, this classification was given a score of 3. The correlation matrix table below clearly shows that there is a strong positive correlation among emotional availability subscales and attachment.

Table 3: Pearson Correlation matrix for attachment and the emotional availability subscales

Variables	1	2	3	4	5	6	7
Attachment	1						
Parental sensitivity	.682**	1					
Parental structuring	.653**	.782**	1				
Parental non intrusive	.571**	.778**	.801**	1			
Parental non hostility	.409*	.585**	.764**	.813**	1		
Child responsiveness	.642 **	.545**	.577**	.440*	.410*	1	
Child involvement	.470*	.521**	.624**	.517**	.526**	.633**	1

** Correlation is significant at the 0.01 level (2-tailed)

Table 3a: Descriptives for EAS subscales by attachment quality

Variable	Attachment	N	Mean	Std. deviation	Std. error	95% confidence interval For mean Lower bound	Upper bound
Parental Sensitivity	Secure	15	7.67	1.45	.37	6.87	8.47
	Insecure-ambivalent	3	5.00	2.00	1.15	.03	9.97
	Insecure- avoidant	3	4.33	2.31	1.15	-1.40	10.07
	Disorganized	3	1.67	1.54	.67	-1.20	4.54
	Total	24	6.17	2.63	.54	5.06	7.28
Parental Structuring	Secure	15	4.87	.52	.13	4.58	5.15
	Insecure ambivalent	3	3.67	1.15	.20	.80	6.53
	Insecure avoidant	3	3.67	1.15	.67	.80	6.53
	Disorganized	3	1.67	1.15	.67	-1.20	6.53
	Total	24	4.17	1.31	.26	3.21	4.53
Parental Nonintrusive	Secure	15	4.73	.70	.18	4.34	5.12
	Insecure ambivalent	3	3.00	2.00	1.15	-1.97	7.97
	Insecure avoidant	3	3.67	1.54	.67	.80	6.54
	Disorganized	3	3.00	.00	.00	3.00	3.00
	Total	24	4.17	1.17	.24	3.67	4.66
Parental Non hostility	Secure	15	4.47	1.19	.31	3.81	5.12
	Insecure ambivalent	3	4.33	1.15	.67	1.46	7.20
	Insecure avoidant	3	3.67	1.54	.67	.80	6.54
	Disorganized	3	1.67	1.15	.67	-1.20	6.53
	Total	24	4.00	1.44	.29	3.39	4.61
Child Responsiveness	Secure	15	6.47	.92	.23	5.96	6.97
	Insecure-ambivalent	3	4.33	1.15	.67	1.46	7.20
	Insecure-avoidant	3	5.00	2.00	1.15	.03	9.97
	Disorganized	3	1.67	1.15	.67	-1.20	6.53
	Total	24	5.42	1.95	.40	4.59	6.24
Child Involvement	Secure	15	6.73	.70	.18	6.34	7.12
	Insecure ambivalent	3	6.33	1.15	.67	3.46	9.20
	Insecure avoidant	3	5.67	2.30	1.33	-.07	11.40
	Disorganized	3	3.00	.00	.00	3.00	3.00
	Total	24	6.08	1.55	.31	5.43	6.74

In table 3a above, the means, standard deviations as well as confidence intervals for each of the subscales on the basis of attachment quality have been presented.

In table 3b below, tests for one way analysis of variance across the attachment styles for emotional availability subscales have been presented. The results indicate that the quality of attachment was a factor for obtaining significant difference on all the subscales.

Table 3b: ANOVA for differences of EAS subscales by attachment quality

EAS subscales	ANOVA	DF	*F*	*P*
Parental sensitivity	Between Groups	3	14.298	.001
	Within Groups	20		
	Total	23		
Parental structuring	Between Groups	3	15.682	.001
	Within Groups	20		
	Total	23		
Parental non intrusive	Between Groups	3	5.202	.008
	Within Groups	20		
	Total	23		
Parental non hostility	Between Groups	3	4.872	.011
	Within Groups	20		
	Total	23		
Child responsiveness	Between Groups	3	16.693	.001
	Within Groups	20		
	Total	23		
Child involvement	Between Groups	3	11.700	.001
	Within Groups	20		
	Total	23		

Further post hoc tests showed that securely attached children presented significant differences with insecure avoidant and disorganized on all the subscales, while the insecure avoidant and the disorganized did not present significant differences in the subscales. Significant differences were also noted between the insecure- avoidant and insecure ambivalent.

Table 3c: Descriptives for EAS subscales by Group

Variable	Group	N	Mean	Std. deviation	Std. error	95% confidence interval For mean Lower bound	Upper bound
Parental Sensitivity	Orphanage	8	3.50	2.07	.73	1.77	5.23
	Adopted	8	8.25	1.03	.37	7.38	9.12
	Biological	8	6.75	1.98	.70	5.09	8.41
	Total	24	6.17	2.63	.54	5.06	7.28
Parental Structuring	Orphanage	8	2.75	1.28	.45	1.68	3.82
	Adopted	8	5.00	.00	.00	5.00	5.00
	Biological	8	4.75	.71	.27	4.16	5.34
	Total	24	4.17	1.31	.27	3.16	4.72
Parental Non intrusive	Orphanage	8	2.75	.71	.25	2.16	3.34
	Adopted	8	5.00	.00	.00	5.00	5.00
	Biological	8	4.75	.71	.27	4.16	5.34
	Total	24	4.17	1.17	.23	3.67	4.66
Parental Non hostility	Orphanage	8	2.25	1.03	.37	1.38	3.11
	Adopted	8	4.75	.71	.27	4.16	5.34
	Biological	8	5.00	.00	.00	5.00	5.00
	Total	24	4.00	1.44	.29	3.39	4.61
Child Responsiveness	Orphanage	8	4.25	2.60	.92	2.07	6.43
	Adopted	8	6.26	1.04	.37	5.38	7.12
	Biological	8	5.75	1.49	.53	4.51	6.99
	Total	24	5.42	1.95	.40	4.59	6.24
Child Involvement	Orphanage	8	4.75	1.98	.70	3.09	6.41
	Adopted	8	6.75	.71	.25	6.16	7.34
	Biological	8	6.75	.71	.25	6.16	7.34
	Total	24	6.08	1.56	.37	5.23	6.74

Table 3c above gives the means, standard deviations as well as confidence intervals for each of the subscales on the basis of group.

The anova tests in table 3d below illustrate the significant difference found across the groups. It is clear that the F statistic is significant giving the p values for all less than

.001 except child responsiveness and child involvement with parent with significant values at p= .001 and p=.006 respectively.

Table 3d: ANOVA for differences of EAS subscales by group

EAS subscales	ANOVA	DF	*F*	*P*
Parental sensitivity	Between Groups	2	15.238	.001
	Within Groups	21		
	Total	23		
Parental structuring	Between Groups	2	17.033	.001
	Within Groups	21		
	Total	23		
Parental non intrusive	Between Groups	2	36.500	.005
	Within Groups	21		
	Total	23		
Parental non hostility	Between Groups	2	35.318	.001
	Within Groups	21		
	Total	23		
Child responsiveness	Between Groups	2	6.619	.006
	Within Groups	21		
	Total	23		
Child involvement	Between Groups	2	6.493	.006
	Within Groups	21		
	Total	23		

The multiple comparisons showed that the differences between the two family reared children were not significant. However, there are differences on the subscales between the orphanage and the both family reared groups on all the subscales.

4.4. Child's home environment.

Pearson correlation for the HEPA and HOME inventory total score.

The HEPA and HOME measures were based on similar subscales. The HEPA included physical support, emotional support, framing, individualizing, training in social responsibility, demonstration and explanation of ideas and intellectual capacitation. The HOME subscales were as follows; learning materials, language stimulation, physical environment, responsivity, academic stimulation, modeling, variety and acceptance. The Pearson correlation coefficient was calculated to determine the proportion of variance in the scores of the two scales that was shared and extent to which the variation in the scales was explained by the scores. There was a significant positive correlation between the HEPA and HOME scores (r =.785, N =24, $p < 0.01$, 2-tailed). The child's home environment may influence the parent's sensitivity and to find out about this association, correlations were performed for the emotional availability scale and the HEPA and the HOME inventory scales. Results show that there was a strong positive correlation for both the scales (r =.717, N =24, $p < 0.01$, 2-tailed) and (r =.775, N =24, $p < 0.01$, 2-tailed) respectively.

Table 4: Group by HEPA score Cross tabulation

Group	HEPA Scores														
	36	37	38	43	48	49	55	56	58	59	60	62	63	64	65
Orphanage	3	2	3	0	0	0	0	0	0	0	0	0	0	0	0
Adopted	0	0	0	0	0	0	2	2	1	0	0	1	1	0	1
Biological	0	0	0	1	1	1	0	1	0	1	1	1	0	1	0

N for all the groups = 8.

The total HEPA scores for all the subscales are presented in table 4. This clearly shows that the orphanage group got the lowest scores on their totals across all the subscales.

Table 4a: Group by HOME Inventory score Cross tabulation

Group	HOME Scores												
	23	29	30	31	32	39	40	41	44	46	47	49	51
Orphanage	0	3	1	2	2	0	0	0	0	0	0	0	0
Adopted	0	0	0	0	0	1	1	2	2	1	0	1	0
Biological	1	0	0	0	0	0	1	1	1	0	1	1	2

N for all the groups = 8.

In table 4a, the totals of the HOME inventory scores have been presented. Similar to the results in the HEPA scores, the orphanage group scored the lowest.

Table 4b: Descriptives: means and standard deviations for HEPA and HOME inventory scores

	Group	N	Mean	Std. deviation	Std. error	95% confidence interval for Mean Lower bound	Upper bound
HEPA							
	Orphanage	8	37.00	.93	.33	36.22	37.77
	Adopted	8	58.75	3.99	1.41	55.41	62.09
	Biological	8	55.13	7.57	2.68	48.80	61.45
	Total	24	50.29	10.81	2.21	45.72	54.86
HOME							
	Orphanage	8	30.38	1.30	.46	29.29	31.46
	Adopted	8	43.00	3.38	1.20	40.17	45.83
	Biological	8	44.25	9.36	3.31	36.42	52.08
	Total	24	39.21	8.46	1.73	35.63	42.78

The table above indicates the means and standard deviations for the different groups and their scores on the HEPA and HOME inventory. As illustrated in the table, the orphanage group scored the lowest points on both the scales.

Table 4c: ANOVA statistics for HEPA and HOME inventory by group

	ANOVA	DF	*F*	*P*
Hepa	Between Groups	2	44.007	.001
	Within Groups	21		
	Total	23		
Home	Between Groups	2	14.031	.001
	Within Groups	21		
	Total	23		

The main effect of the groups was significant (F (2, 21) = 44.007, $p < 0.001$) for the HEPA scores. The HOME scores presented a statistically significant effect (F (2, 21) = 14.031, $p < 0.001$). Since the ANOVA does not tell which group performed better than the other, further post hoc tests were performed to determine how the groups differed in the performance on both the HEPA and the HOME, the post hoc results showed that there was a significant difference between the orphanage and the adopted children's scores with 95% confidence interval of -28.2122 to -15.2878 and $p < 0.001$. Similarly, a significant difference was found on the scores orphanage and biological children giving a strong negative to negative 95% confidence interval of -24.5872 to -11.6628, $p < 0.001$. The difference between the adopted and biological children's scores was not statistically significant. The 95% confidence interval of -10.0872 to 2.8372 gives high probability of the difference being zero. This is also echoed by the non significant value of $p = 0.478$.

For the HOME measures there was a significant difference between the orphanage group and the adopted group with $p < 0.001$ and 95% confidence interval of -20.1632 to -5.0868, similarly a significant difference was found between the orphanage group and the biological group $p < 0.001$. Between the adoptive and biological families, there was no significant difference found $p > 0.05$ at $p = 1.00$ and 95% confidence interval of -8.7882 to 6.2882.

Table 4d: Descriptives: means and standard deviations for the HEPA subscales by group

Subscale	Group	N	Mean	Std. deviation	Std. error	95% confidence interval For mean Lower bound	Upper bound
Physical support	Orphanage	8	4.00	.00	.00	4.00	4.00
	Adopted	8	6.25	.71	.25	5.66	6.84
	Biological	8	6.75	.71	.25	6.16	7.34
	Total	24	5.67	1.34	2.74	5.10	6.23
Emotional support	Orphanage	8	3.00	.00	.00	3.00	3.00
	Adopted	8	6.25	.89	.31	5.51	7.00
	Biological	8	6.63	.52	.18	6.20	7.06
	Total	24	5.30	1.76	.36	4.55	6.03
Framing	Orphanage	8	5.00	.00	.00	5.00	5.00
	Adopted	8	6.50	.93	.33	5.73	7.27
	Biological	8	6.00	1.07	.38	10.02	12.98
	Total	24	10.71	2.39	.49	9.70	11.72
Individualizing	Orphanage	8	8.00	.93	.33	7.22	8.77
	Adopted	8	12.63	1.19	.42	11.63	13.62
	Biological	8	11.50	1.77	.63	10.01	12.98
	Total	24	10.71	2.39	.49	9.70	11.72
Training in Social Responsibility	Orphanage	8	4.00	.00	.00	4.00	4.00
	Adopted	8	4.75	.89	.31	4.00	5.49
	Biological	8	5.00	1.93	.68	3.39	6.61
	Total	24	4.58	1.25	.25	4.06	5.11
Demonstration And Explanation of ideas	Orphanage	8	7.00	.00	.00	7.00	7.00
	Adopted	8	6.25	.89	.31	5.51	6.99
	Biological	8	6.38	1.19	.42	5.38	7.37
	Total	24	6.54	.88	.18	6.17	6.91
Intellectual Capacitation	Orphanage	8	6.00	.00	.00	6.00	6.00
	Adopted	8	16.13	2.10	.74	14.37	17.88
	Biological	8	12.75	4.59	1.62	8.91	16.59
	Total	24	11.63	5.12	1.05	9.46	13.79

The means and standard deviations for each subscale on the HEPA scale have been presented. On most of the subscales, the orphanage group has the lowest scores.

Table 4e: ANOVA for differences of HEPA subscales by group

Hepa subscales	ANOVA	DF	*F*	*P*
Physical support	Between Groups	2	51.500	.001
	Within Groups	21		
	Total	23		
Emotional support	Between Groups	2	90.525	.001
	Within Groups	21		
	Total	23		
Framing	Between Groups	2	7.000	.005
	Within Groups	21		
	Total	23		
Individualizing	Between Groups	2	25.805	.001
	Within Groups	21		
	Total	23		
Training in social Responsibility	Between Groups	2	1.444	.258
	Within Groups	21		
	Total	23		
Demonstration of Ideas	Between Groups	2	1.764	.196
	Within Groups	21		
	Total	23		
Intellectual Capacitation	Between Groups	2	25.032	.001
	Within Groups	21		
	Total	23		

Table 4e shows that a few of the subscales of the HEPA did not present significant differences across the groups and these were: Training in social responsibility subscale, (F (2, 21) = 1.444, p>.05, p= 0.258). Demonstration and explanation of ideas (F (2, 21) = 1.764, p>.05, p= 0.196).

Multiple comparisons for the groups show that only the orphanage group lagged behind their family reared peers on most of the subscales. In the Training in social

responsibility and demonstration and explanation of ideas subscales, the multiple comparisons indicate insignificant differences across the groups.

Table 4f: Descriptives: means and standard deviations for the HOME inventory subscales by group

Subscale	Group	N	Mean	Std. deviation	Std. error	95% confidence interval For mean Lower bound	Upper bound
Learning Materials	Orphanage	8	4.00	.00	.00	4 .00	4.00
	Adopted	8	7.00	1.51	.53	5.73	8.26
	Biological	8	7.38	2.77	.98	5.06	9.69
	Total	24	6.13	2.33	.48	5.14	7.11
Language Stimulation	Orphanage	8	4.00	.00	.00	4.00	4.00
	Adopted	8	7.00	1.53	.53	5.74	8.26
	Biological	8	7.38	2.77	.98	5.06	9.69
	Total	24	6.13	2.33	.48	5.14	7.11
Physical environment	Orphanage	8	4.00	.00	.00	4.00	4.00
	Adopted	8	5.25	.88	.31	4.51	5.99
	Biological	8	4.88	2.18	.77	3.06	6.69
	Total	24	4.71	1.40	.29	4.12	5.30
Responsivity	Orphanage	8	3.25	1.28	.45	2.18	4.32
	Adopted	8	4.75	.46	.16	4.36	5.14
	Biological	8	6.63	1.19	.42	5.63	7.62
	Total	24	4.88	1.73	.35	4.15	5.60
Academic stimulation	Orphanage	8	2.00	.00	.00	2.00	2.00
	Adopted	8	4.63	.52	.18	4.19	5.06
	Biological	8	4.63	.74	.26	4.00	5.25
	Total	24	3.75	1.30	.28	3.18	4.32
Modeling	Orphanage	8	5.13	.35	.13	4.83	5.42
	Adopted	8	5.38	1.51	.53	4.12	6.63
	Biological	8	4.50	1.69	.60	3.09	5.91
	Total	24	5.00	1.32	.27	4.44	5.56
Variety	Orphanage	8	3.00	.00	.00	3.00	3.00
	Adopted	8	6.00	1.07	.38	5.11	6.89
	Biological	8	6.38	2.45	.86	4.33	8.42
	Total	24	5.13	2.13	.44	4.22	6.03
Acceptance	Orphanage	8	4.00	.00	.00	4.00	4.00
	Adopted	8	3.63	.52	.18	3.19	4.06
	Biological	8	3.63	.74	.26	3.00	4.25
	Total	24	3.75	.53	.11	3.53	3.97

The means and standard deviations for each subscale on the HEPA scale have been presented in table 4f. On most of the subscales, the orphanage group has the lowest score.

Table 4g: ANOVA for differences of HOME Inventory subscales by group

HOME subscales	ANOVA	DF	*F*	*P*
Learning materials	Between Groups	2	8.227	.002
	Within Groups	21		
	Total	23		
Language stimulation	Between Groups	2	8.227	.002
	Within Groups	21		
	Total	23		
Physical environment	Between groups	2	1.801	.190
	Within groups	21		
	Total	23		
Responsivity	Between groups	2	21.000	.001
	Within groups	21		
	Total	23		
Academic stimulation	Between groups	2	67.109	.001
	Within groups	21		
	Total	23		
Modeling	Between groups	2	.929	.411
	Within groups	21		
	Total	23		
Variety	Between groups	2	11.526	.001
	Within groups	21		
	Total	23		
Acceptance	Between groups	2	1.370	.276
	Within groups	21		
	Total	23		

Table 4g shows that a few subscales that did not yield statistical differences across the groups for the HOME inventory measures and these were: Physical Environment (F (2, 21) = 1.801, p>.05, p= 0.190), Modeling (F (2, 21) = 0.929, p>.05, p= 0.411) and

Acceptance (F (2, 21) = 1.370, p>.05, p= 0.276). Further multiple comparisons for all the groups were performed to determine the family setting that would have lagged behind on the measures of the subscales. These comparisons indicated that apart from the subscales that did not obtain significant differences, both the family reared groups did significantly differ from the orphanage group. However, no significant differences were seen between the two family reared groups.

4.5. Cognitive development test.

Categories and Patterns are subtests from the SON-R cognitive development test. Patterns are based on performance while the categories are based on reasoning. After computing the Pearson correlation coefficient, a significant positive correlation was found between the Categories and Patterns scores (r =.935, N =24, $p < 0.01$, 2-tailed).

Table 5: Descriptives of son-r performance by gender

						95% confidence interval For mean	
Variable	Gender	N	Mean	Std. deviation	Std. error	Lower bound	Upper bound
Son-r							
	Male	12	15.75	8.12	2.54	10.15	21.35
	Female	12	16.42	7.76	2.24	11.48	21.35
	Total	24	16.08	8.13	1.66	12.65	19.52

Table 5 shows the means and standard deviations for the male and female participants on the son-r test have been presented. When Anova statistic for differences was performed, male and female participants did not present significant differences in performance of the son-r test, (F (1, 22) = 0.039, p>.05, p= 0.846).

Table 5a: Correlations of Son-r and Age

Variables	Correlations	Age	Son-r
Age	Pearson Correlation	1	
	Sig. (2-tailed)		
	N	24	
Son-r	Pearson Correlation	.205	1
	Sig. (2-tailed)	.336	.
	N	24	24

*. Correlation is significant at the 0.05 level (2-tailed).
** Correlation is significant at the 0.01 level (2-tailed)

As illustrated in table 5a above, correlations between central variables of this section have been presented. As can be seen, there was an insignificant correlation between age and performance on the son-r test, r= .21, $p < .01$

Table 5b: Descriptives of son-r performance by attachment

						95% confidence interval For mean	
Variable	Attachment	N	Mean	Std. deviation	Std. error	Lower bound	Upper bound
Son-r							
	Secure	15	20.47	4.19	1.08	18.15	22.79
	Insecure-ambivalent	3	17.00	7.94	4.58	-2.72	36.72
	Insecure-avoidant	3	7.67	1.63	.89	3.87	11.46
	Disorganized	3	1.67	2.89	1.67	-5.50	8.84
	Total	24	16.08	8.13	1.66	12.65	19.52

Table 5b presents the participant's attachment status in relation to their performance on the son-r test. Results indicate that the children who were securely attached to their caregivers scored the highest on the test. The children who had a breakdown in their attachment strategy or those with disorganized attachment scored the lowest.

Results from Anova tests indicated that there was a significant difference on the test on the basis of security of attachment (F (3, 20) = 19.111, p> 0.001).

Table 5c: Multiple Comparisons for son-r performance by attachment

Attachment Style	Atachment Style	Mean difference	Std. error	P	95% confidence interval Lower bound	Upper bound
Secure	insecure-ambivalent	3.67	2.80	1.00	-4.74	11.67
	Insecure-avoidant	12.80	2.80	.001	4.59	21.01
	Disorganized	18.80	2.80	.000	10.59	27.00
Insecure-Ambivalent	insecure-avoidant	9.33	3.62	.108	-1.26	19.93
	Disorganized	15.33	3.62	.002	4.74	25.93
Insecure-Avoidant	disorganized	6.00	3.62	.678	-4.60	16.60

The multiple comparisons from table 5c shows that the secure and insecure ambivalent did not differ in the performance of the test, p=1.000 but differences were detected between the secure and insecure avoidant, p= 0.001 and disorganized, p> 0.001. Between insecure ambivalent and insecure avoidant significant differences were found, p= 0.108. Differences are also seen between the insecure ambivalent and disorganized, p= 0.002 while insecure avoidant and disorganized did not differ, p= 0.678.

Table 5d: Descriptives of son-r performance by group

Variable	Group	N	Mean	Std. deviation	Std. error	95% confidence interval For mean Lower bound	Upper bound
Son-r							
	Orphanage	8	8.38	7.65	2.70	11.98	14.77
	Adopted	8	22.75	4.17	1.47	19.27	26.23
	Biological	8	17.13	4.61	1.63	13.27	20.98
	Total	24	16.08	8.13	1.67	12.65	19.52

In the table above, means, standard deviations, minimum and maximum score are presented. These descriptives indicate that only the orphanage group scored from zero

and their highest score was lower than that of the family reared groups. The statistical analyses showed that there were significant differences across the groups, (F (2, 21) = 12.959, p < 0.001). However, multiple comparisons were performed to determine the groups that differed significantly.

Table 5e: Multiple Comparisons for son-r across groups

					95% confidence interval	
Group	Group	Mean difference	Std. error	P	Lower bound	Upper bound
Orphanage	Adopted	14.38	2.85	.001	21.78	6.97
	Biological	8.75	2.85	.017	16.15	1.35
Adopted	Biological	5.63	2.85	.184	-13.03	1.78

The table above shows significant differences between the orphanage and adopted p = .001 orphanage/ biological p = .017. No significant differences were found between the adopted and biological groups. p = .184.

4.6. Physical growth

Table 6: Body mass index (BMI) distribution by group

Group	Underweight	Normal range	Overweight/Obese	Total
Orphanage	6	2	0	8
Adopted	0	7	1	8
Biological	1	4	3	8
Total	7	13	4	24

In table 6, the number of children in the all the groups and their classification of the Body mass index has been presented. Further, the underweight children were in the 2^{nd} percentile while those of the orphanage group who were in the normal range were 11^{th} and 12^{th} percentile respectively. The adopted group had 17^{th}, 19^{th} , 25^{th} ,28^{th} ,40^{th} ,76^{th} ,81^{st}, 82^{nd} percentiles. The biological children had the following percentiles: 4^{th}, 6^{th} , 33^{rd}, 64^{th} , 73^{rd} , 77^{th} ,89^{th} and 98^{th}. The BMI calculations are based on the World Health Organization (WHO) norms for children.

Table 6a: Descriptives for BMI, head circumference by gender

						95% confidence interval For mean	
Variable	Gender	N	Mean	Std. deviation	Std. error	Lower bound	Upper bound
BMI	male	12	14.80	1.96	.57	13.53	16.05
	Female	12	15.33	2.77	.63	13.95	16.72
	Total	24	15.07	2.04	.42	14.20	15.93
Head circumference	male	12	49.04	2.36	.68	47.54	50.54
	Female	12	48.13	3.96	1.14	45.61	50.64
	Total	24	48.58	3.22	.66	47.22	49.94

The descriptives in table 6a above show the means and standard deviations of the body mass index and head circumference for male and females.

Table 6b.ANOVA for differences on BMI and head circumference by gender

Variable	ANOVA	DF	*F*	*P*
BMI	Between Groups	1	.398	.535
	Within Groups	22		
	Total	23		
Head circumference	Between Groups	1	.475	.498
	Within Groups	22		
	Total	23		

Table 6b is showing that gender of the participant was not a factor for the variables; body mass index, (F (1, 22) = .398, p > 0.05, p = .535) and head circumference, (F (1, 22) = .443, p > 0.05, p = .513).

Table 6c: Correlations between Age, BMI and Head circumference

Variables	Correlations	Age	BMI	Head circumference
Age	Pearson Correlation	1		
	Sig. (2-tailed)			
	N	24		
BMI	Pearson Correlation	-.294	1	
	Sig. (2-tailed)	.164		
	N	24		
Head circumference	Pearson Correlation	-.126	.518	1
	Sig. (2-tailed)	.556	.010	
	N	24		24

As illustrated in the table above, the correlations show that there were no significant association between the child's age and the body mass index and the head circumference, r= -.29 and r= -.13 respectively. However, there was a significant correlation between the child's body mass index and the head circumference, r= .52, p= .01.

Table 6d: Descriptives on BMI by attachment

Variable	Attachment	N	Mean	Std. deviation	Std. error	95% confidence interval For mean Lower bound	Upper bound
Son-r							
	Secure	15	15.73	2.00	.52	14.65	16.86
	Insecure-ambivalent	3	15.03	.72	.42	13.24	16.83
	Insecure-avoidant	3	12.73	2.10	1.21	7.51	17.96
	Disorganized	3	14.00	1.32	.76	10.71	17.29
	Total	24	15.07	2.04	.42	14.20	15.93

Table 6d above shows the body mass index for all the children on the basis of the attachment quality. The means and standard deviations have also been presented for each class of the attachment style. After performing an ANOVA test for differences, no significant differences were detected for the children's BMI on their security of attachment, (F (3, 20) = 2.579, p>.05, p= 0.082).

Table 6e: Descriptives for BMI, head circumference by group

Variable	Group	N	Mean	Std. deviation	Std. error	95% confidence interval For mean Lower bound	Upper bound
BMI							
	Orphanage	8	13.21	1.49	.52	11.97	14.45
	Adopted	8	15.61	1.23	.43	14.58	16.64
	Biological	8	16.38	1.94	.69	14.75	18.00
	Total	24	15.07	2.04	.14	14.20	15.93
Head circumference							
	Orphanage	8	46.75	3.85	1.36	43.54	49.96
	Adopted	8	48.50	1.77	.63	47.02	49.98
	Biological	8	50.50	2.84	1.00	48.12	52.88
	Total	24	48.58	3.22	.66	47.22	49.94

In table 6e, the means, standard deviations and 95% confidence intervals are presented for the children in each group. The measures in the body mass index from the table indicate that the orphanage had the lowest scores for the body mass index. However, for the head circumference, the orphanage group shows that they had the lowest scores at minimum but had the equivalent at maximum with the adopted group.

Table 6f. Anova statistics for BMI and Head circumference by group

Variable	ANOVA	DF	*F*	*P*
BMI	Between Groups	2	8.704	.002
	Within Groups	21		
	Total	23		
Head circumference	Between Groups	2	3.250	.059
	Within Groups	21		
	Total	23		

As depicted from the table above, only the Body mass index (F (2, 21) = 8.704, $p > 0.05$, p = .002) had significant differences when the groups means were compared. The head circumference had a slightly significant difference (F (2, 21) = .3.250, p = 0.059). To find out which groups differed, a post hoc test was performed for these variables.

Table 6g: Multiple Comparisons for BMI and head circumference across groups

						95% confidence interval	
Variable	Group	Group	Mean difference	Std. error	*P*	Lower bound	Upper bound
BMI	Orphanage	Adopted	2.40	.79	.019	4.46	.34
		Biological	3.16	.79	.002	5.22	1.10
	Adopted	Biological	.76	.79	1.000	1.30	2.82
Head circumference							
	Orphanage	Adopted	1.75	1.47	.743	5.58	-2.08
		Biological	3.75	1.47	.056	.58	-.08
	Adopted	Biological	2.00	1.47	.566	1.83	-5.83

The table shows significant differences between the orphanage and adopted for BMI p = .019; orphanage/biological p = .002 for BMI but no significant differences were found between the adopted and biological groups for BMI, p = .566.

CHAPTER FIVE

DISCUSSION

This section discusses the findings presented in the previous chapter. The sequence of how the variables are discussed follows the way the findings have been presented in chapter four.

5.1. Attachment

In this data, a relatively high incidence of secure attachment (62.5%) was found for the sample (n=24). This is almost in line with the normative distribution in the Meta study by Van IJzendoorn and Kroonenberg (1988; n= 1990; 65% secure). In this study, 25% of the children were insecurely attached while 12.5% showed disorganization in the attachment strategy to their caregivers. This percentage was slightly lower than the normative rate (15%) found in a meta-analysis on disorganized attachment (n = 2104; Van IJzendoorn et al., 1999). Although the percentage is lower than the normative rate, it is large for this small sample size, n= 8 for the orphanage group. The results show that there were more children who are insecurely attached to their caregivers in the orphanage at 25% (n= 8) while only 8% was securely attached and another 12.5% showed a disorganized strategy of attachment. From the results, it is evident that the group in which the child belonged was a factor for yielding significant differences. Compared to the family reared groups, the orphanage group was found to be significantly different on attachment classifications. Chi-squared tests did reveal significant relations between background variable (group) and security of attachment. There was a strong association between the group the child was in and security of attachment. Further chi-squared symmetric measures showed that the magnitude of the

explained variance due to the group was 70% which is on high side. The orphanage group was the only group that showed disorganized or breakdown in the attachment strategy probably because the children do not receive similar nurturing conditions that foster security of attachment. The fact that these orphanage children differed significantly from the adopted group shows that it is not only maternal deprivation that influences atypical attachment styles but also the environmental experiences.

The capacity of orphanage children to attach to caregivers has been a key concern and has been widely studied among child welfare experts. Attachment as defined as the enduring emotional bond that exists between a child and a primary caregiver, who could be a biological parent or an unrelated caregiver is of utmost importance in the social emotional development of children. The theoretical background of attachment assumes that most children are securely attached to their caregivers. They look to their caregivers for comfort when distressed and are able to explore their environment because of the security they feel in their relationships. This pattern of findings is evident in the present study, most of the children showed an organized secure attachment strategy and this suffices to say that the children get comfort from their caregivers. On the other hand, due to the uncertainty they feel in their relationships, insecurely attached children may not be adequately consoled by their caregivers or able to explore their environments and this can be supported by the insecurity displayed in this study. Most of the orphanage children were not securely attached probably because the caregivers were found to be inconsistent in their availability to the child, thus the children fail to form lasting and trusting relationships. The caregivers are not readily available to these children partly because of the many tasks and duties they have to take care of. Orphanage children are

often exposed to inconsistent and inadequate parenting and, as a result, experience difficulty in forming healthy attachments. Some studies suggest that upwards of three-quarters of these children have disordered attachments, but that the proportion may diminish with age (Harden & Koblinsky, 1999). The empirical work on attachment in orphanage children suggests that they are more likely than family reared children to have insecure and disorganized attachments due to inconsistent caregiving. The inconsistency in care seen in this study is similar to that reported by many studies in the literature.

This empirical work shows that orphanage children were more disorganized and insecurely attached. This could be because the children in the orphanage are managed as a group and caregivers rarely have time to interact and play with individual children. Therefore, it was difficult for the children to find comfort and a secure haven in these caregivers because they do not have a relationship that could foster secure attachment. On one hand, children from the family setup were more securely attached to their parents and caregivers perhaps because they see them as their protectors or safe haven as they explore the environment. The children from the family reared group have a stronger and lasting relationship with the parents/caregivers and know for sure that the parents are their safe haven in a strange environment. This could be attributed to the fact that when the family reared children call for help or when they are distressed, they get immediate attention. Caregivers or parents may not fail to be available because they do not have many things to do or many children to attend to compared to the orphanage caregivers. On the other hand, the orphanage children may not consider their caregivers as such possibly because these caregivers are not consistent in the way they care for them. They might even take out their home and family frustration on these children and

in turn their formation of strong bonds maybe distorted. The children may not create a trusting relationship with these caregivers. For instance if one child is frightened by a stranger in their environment while another child is crying because she or he has been beaten, the caregiver would place priority to meeting the stranger rather than take care of the second child's emotional wellbeing. Or indeed, if the caregiver wants do anything to their desire, the priority would be to look after their wellbeing and the child's later. With such experiences, it would be generally difficult for any child to trust such caregivers and consider them as a protective factor or safe haven in the child's environment.

Interpersonal, interactive process that results in a child feeling safe, secure, and able to develop healthy, emotionally meaningful relationships comes intuitively to most parents. In other words, parents have a natural disposition for such behaviors. Even if the interest of care is there, these caregivers may not respond to the orphanage children the way they would to their biological children. In addition, some caregivers may not have children: hence, working in an institution or orphanage with children may be compensation. They may not have a sense of the natural disposition that children may need. They may be satisfied with merely having children around them. Caring for children whether in an orphanage or family setting is a process which requires a sensitive, responsive caregiver who is capable of emotional engagement and participation in contingent collaborative communication (responsive communication) at nonverbal and verbal levels.

The caregiver's ability to respond to the child's emotional state is what will prevent attachment sensitivities from becoming problems of a more severe nature. In the present study, from the data collected qualitatively, caregivers are satisfied with the basic needs that the children receive such as shelter and food. Although these caregivers may recognize that caring for children in the orphanages should be all encompassing and that the children's social emotional development is one such significant pathway for healthier interpersonal relationships, they may not engage in a two way interactive system with the children.

These interactive interpersonal relationships can be explained using Bronfenbrenner's ecological paradigm which he explicated in 1979. He envisioned the paradigm as a way of explaining human development as a function of nested systems of interpersonal relationships that occur within physical settings (Bronfenbrenner, 1979). An individual's micro-system level consists of single dyads and triads of face-to-face interactions with, for example, parents, friends, and teachers. The meso-system is comprised of the interconnections among all of these face-to-face settings, such as in the person's home, neighborhood, and school. Beyond the meso-system is an exo-system of settings that have indirect influences, for instance, the parents' friends and job site, community politics, and school administration. The outer macro-system ring consists of the individual's ethnicity and culture: his/her larger social and political organization, belief system and lifestyle. The most important ecologies for children are the "Microsystems", those ecologies that contain the direct relationships children have with caring adults. When the micro system is dysfunctional due to problems at the meso or exo systems, the

micro system that encourages interpersonal relationship with the child may be affected. For instance, if the caregiver has problems in the community or at the place of work, the caregiver maybe preoccupied with the problems and may not engage with the child. The caregiver may just perform their daily routine without engaging with the child. If this takes place from time to time, the child may eventually see this relationship as unreliable. This kind of dysfunction at micro level may cause the child not to have a trusting relationship with the caregiver. All this could be because of the factors arising due to the lifestyle experiences of the caregiver at the exo level. Although this problem may be faced by any parent, the orphanage pressure may be too much because there are expectations to be met as well as duties to be performed. This pressure may come from the administrators. For instance, the administrators of the orphanage would expect the caregivers to perform certain duties on time without understanding that the caregiver has a number of children to take care of; the administrator would want the job done. These are some of the frustrations that the caregivers may go through which may end up distorting the interactive relationship with the child. Since ecological systems at meso and exo levels may directly and indirectly affect the micro system, it is important that the caregivers are given supportive systems that may prevent frustration. In every family or orphanage, the micro system is present, but the extent to which this system fosters reciprocating interactions is what matters. Most of the child-caregiver interactions get distorted perhaps because of some dysfunction not only at this level but also in other systems of the ecological context which may not be operating satisfactorily to cater for the caregivers.

Since the micro system is important, lacking consistency in the interaction with the child may cause break down in children forming attachment with a caregiver. Problems with the caregiver-child relationship in orphanage experience interfere with the normal development of attachment. There are a wide range of attachment problems that result in varying degrees of emotional disturbance in the child. Findings from the current study reveal that the children's needs were not met consistently, in a nurturing way which fosters secure attachment. This can be seen from the number of children who were found to be insecurely attached in the orphanage group compared to the two family reared groups.

Children from the family set-up were not at risk as far as infant attachment security is concerned and showed more normative organized attachment than disorganized attachment strategy. The adopted group equally showed more secure children than insecure and had no disorganized children. This could be attributed to that fact that Zambian people generally show more concern for kinship relations. This is especially true because one man's burden in this society is recognized as everyone's burden. The people in this society have family loyalty. They feel that it is the duty of the surviving family members to take care of the children without parents even when they do not have direct biological relationships. It is because of the loyalty they have that they take care of these children just like they care for their own children. It may be no wonder that this could be the reason why most of the adopted children in this study were found to be securely attached to their caregivers. Further, in this society, it is believed that if you as a parent do not exercise this loyalty, they believe that one day they would also die and if they do not take care of these kinship members who have no parents, their own children

would not have any one to take care of them if they died. This society is not only concerned about their obligation to family loyalty, but is also concerned about the prosperity of their lineage or clan. For instance, people believe that if the adopted children are kept and treated well they would in turn work to the benefit of the clan through these adopted children. People treasure having their family name or clan lineage in existence no matter what and if this means taking care of the adopted children who are believed to carry on with the family name for instance, such children would be supported with utmost care. Therefore, it is possible that the adopted children were more securely attached not because of the biological relations but because of the obligation their adoptive parents feel for their clan. Data collected qualitatively showed that these parents were not concerned about their biological relations but the obligation they had to their families. Although it was noted that economic challenges were at play, these parents could not afford to keep all the vulnerable family members but would disperse them across their kinship relations. More of the orphanage children were insecure-avoidant and this could be because the children are mostly on their own, doing their things and caregivers only interact with them for specific things for example when giving food or bathing the children. Although the children have play time, this play is not exercised to individual children but is practiced with all the children and those who may not want to join in the play are not forced. It may not be surprising to find that the caregivers play with the same children over and over, without engaging the others in the play.

5.2. Emotional availability and sensitivity.

The results reveal that there were differences in the overall score on the EAS across the groups. The orphanage caregivers were less sensitive compared to the caregivers and parents from the family reared groups. These two groups of family caregivers did not significantly differ from each other on emotional availability. This goes to show that the caregivers in the orphanage were less sensitive and responsive to the needs of the children. On all the subscales of emotional availability, the orphanage caregivers lagged behind. It may suffice to say that the orphanage caregivers did not display accurate perception of the children's signals which made their appropriate and prompt response to these signals inadequate. The caregivers who were less sensitive could not read the children's cues and were not responsive enough to react sufficiently to the children's cues. Parents who were highly sensitive on the other hand had an accurate perception of their children's likes and dislikes and ways of comforting them. For instance, there were children during the play episodes who told their parents and caregivers that they did not like that kind of games and the parent could let the child choose which game they enjoyed and opted to play. These parents and caregivers high in sensitivity also structured the play with the child in a more sensitive and responsive way. For some children, it was evident that they were playing the games because they were instructed to do so. This was an interesting aspect that was noted with the orphanage group. They do as the caregivers say and they seem obedient to please the caregiver. It could be noted in the way they were reacting, without enthusiasm or interest in what they were doing. During the play episodes the children were given chances to suggest the kind of play or games they wanted but these children could not say anything perhaps because they do not get regular opportunities of being given choices on what they want. Another

explanation for the low incidence of sensitivity could be that these children are used to being in groups and playing in groups, they are actually used to playing amongst themselves. It might have been difficult for the caregivers to handle each child on their own because they do not have time or do not interact on individual basis at the orphanage. This could have been stressful for both the caregiver and the child. The researcher observed during the home visits and this was also acknowledged by caregivers in response to the HEPA interviews that children explore a number of games which they perform as children themselves with the caregivers only watching from a distance or performing others duties like washing, cleaning or cooking. It was hard for them to engage in an interactive play with the children because this was not a routine. Further, non verbal cues such as facial expressions, body language, and vocalizations all combine to give information on what it is the children want at the moment. But since the children are cared for in groups, the caregivers do not take the time to note and to respond the child's individual non verbal cues. Since most of the orphanage children do not open up as confirmed by the caregivers, they ought to find other ways to detect the needs of such children. In the study, it was noted that because of the overwhelming work with the number of children they have to take care of they do not pay attention to the non verbal signals and this in turn distorts sensitivity and a caregiver's responsiveness to the emotional needs of the children.

It was observed that the two groups of family reared children did not differ significantly from one another on any of the variables in the parent-child interaction. This could be because of the family setting and the children interact with the parents at a personal level. In Africa, and in particular Zambia, parents generally do not play with children

when they are at this age because the responsibility shifts to the siblings within the family. Although this is the case, parents played with the children in this study partly because the siblings were not there. However, if this may have been the case, some parents tend to play with the children because they do not have older siblings in the home and they have no choice but to play with them. Aside from this, most parents acknowledged that the children would flourish well if they played with them and that this play fostered a way of teaching manners and how to behave.

5.3. Sensitivity and Attachment

Results from the present findings are consistent with the pattern of findings from literature that parents or caregivers who are less sensitive are associated with insecure infant–parent attachment relationships leading to less optimal conditions for the children's socio-emotional development (Main, Kaplan, & Cassidy, 1985). It was observed that the children who were securely attached to the parents and caregiver were higher on the Emotional Availability Subscales. These parents who were high in responsiveness consistently and appropriately responded to the children's expressions of distress, interest and happiness. It can be said that children differ in an array of characteristics, such as in likes and dislikes, and a caregiver who is responsive not only recognizes what a particular child needs or wants but also is effective at providing it. According to meta-analytic evidence, parental sensitivity—the ability to attune and react to children's signals adequately—stimulates the development of an organized secure attachment relationship (De Wolff & Van IJzendoorn, 1997).

This substantiates the findings from the current study that security of attachment is related to higher levels of sensitivity and responsiveness as well as the child's involvement with the parent. Insecure representations of attachment were found to be associated with insensitive responses to the infant's attachment signals and with an insecure infant–parent relationship (Van IJzendoorn, Juffer & Duyvesteyn, 1995). It was noted that generally the orphanage children were not as involved in the play as the other children. They seemed to have had something pending or were preoccupied and not understanding what was going on. This play seemed strange to them and hence they could not have seen the need to be interactive and play with their caregivers. For instance, parents from the family reared groups explained to the children what was going on and what they would be doing. This helped put the children in perspective and showed interest in what was happening. On the contrary, the orphanage caregivers did not explain to the children what was happening, this shows that they did not have an interactive relationship with the children that fosters social emotional development. Similarly, the children did not find out or ask questions as to what was happening. Caregivers of insecure children seemed to run out of ideas during the play; this could have made some children to be uncomfortable because the caregiver seemed not to have direction of the interactions. On the other hand, caregivers and parents of securely attached children exhibited behaviors of reading the children's cues, providing a variety of responses. These sensitive and responsive mothers and caregivers often had more ideas of what might be the best thing to do at any given time. Further, characteristics of the home environment, such as warmth, emotional availability, stimulation, family cohesion, and day-to-day activities, have also been implicated in the notion of family stability, sensitivity and security of attachment. The family reared children experience

family stability and have caregivers who remain constant, consistent, and connected to them over time. Research shows that caregivers who are mentally healthy and engage in appropriate parenting practices create a cohesive, supportive, and flexible family system with a nurturing and stimulating home environment. They tend to be more sensitive and responsive to children and also foster more securely attached relationships with children (Harden & Koblinsky, 1999). Family stability should be considered as an essential goal with orphanages because children are more likely to have trusting relationships with caregivers who are consistent and nurturing, which leads to a number of positive developmental outcomes like cognitive development, sensitivity and security of attachment. Moreover, research suggests that positive and consistent caregiving has the potential to compensate for factors that have a deleterious impact on children, such as poverty and its associated risk factors (Harden & Koblinsky, 1999). In other words, children have much better outcomes if their family lives are stable, despite the overwhelming influences of privation. Research has also documented that stability in the family unit promotes positive outcomes for children within particular developmental periods (Harden & Koblinsky, 1999).

Studies have shown that disorganized attachment is presumed to be the result of frightening parental behavior (Hesse & Main, 2006; Main & Hesse, 1990). The frightening nature of severe insensitivity and enduring unresponsiveness in orphanages may trigger children's attachment disorganization (Lyons-Ruth & Jacobvitz, 1999; Solomon & George, 1999). These behaviors of high insensitivity were displayed by the caregivers in the orphanages with most of the children. It is surprising that the same caregivers who displayed high levels of insensitivity on some children also displayed

high levels of sensitivity and responsiveness to the other children. This is perhaps because they have favorites among the children or may be because some children are easier to take care of than others. Some children in the orphanage for instance were said to be difficult, troublesome and caregivers did not find it easy to penetrate to the lives of these children. In such cases, you may find that caregivers would show more concern to the children who are termed as "easy" than the "difficult" ones. There are situations whereby the child may like a particular caregiver who in turn does not reciprocate the affection. The child would feel that they are not loved. In this study, caregivers reported that children in the orphanages do not easily talk about the problems they are going through or what they are feeling, this may be partly because the children are aware that these caregivers are not their parents or because the caregivers do not accord the kind of environment which can make these children to be free to discuss issues with them.

It is important to understand as caregivers that beyond basic physical skills needed to care for children, such as feeding and changing clothes, parents/caregivers need to be emotionally attuned when relating to children. Parents and caregivers with limited resources (like orphanage caregivers) should know that as long as they provide the emotional nourishment that the children need, these children will flourish. The essence of quality caregiving lies in the emotional bond that is forged between parents/caregiver and their child. Parent or caregiver bonding involves their feelings of tenderness towards the children and a deep investment in their well-being. Research has shown that early parent bonding facilitates children's development of secure attachment. Caregivers need several special skills to help children develop and foster a secure attachment relationship. Caregivers should be attentive and tender to these children. In addition,

they should try to understand and cope with the children's difficult behavior. Planning children's play not only encourages their language development for example but also knowing for sure that they have someone to protect them in the environment, a parental figure who they can rely on when they are distressed and run to as a safe haven. Caregivers should learn a wide variety of teaching techniques to enhance children's development.

5.4. The child's home environment

Children in orphanage care face a challenging journey through childhood. In addition to the troubling family circumstances that bring them into orphanage care, they face additional difficulties within the orphanage system that may further compromise their healthy development. This study examined the importance of safety and stability of the environment for healthy child development and the risks associated with the orphanage care experience. The results presented in chapter four indicate that in a home, family stability which is viewed as a process of caregiving practices can greatly facilitate healthy child development. Due to the instability of the orphanage environment compared to the family groups' environments, this study revealed that the orphanage children face multiple challenges to their healthy development, such as attachment disorders, compromised cognitive functioning and inadequate social skills. Based on these findings, it suffices to say that if these orphanage children were provided with stable, nurturing and an environment that is stimulating, their resilience to the orphanage care experiences may ameliorate the negative effects on their developmental outcomes. As it has been noted in the study, under such experiences, some of the children exhibited resilience and therefore, it is possible that if these children are nurtured in a way that supports the child's needs as a whole, these children would have better developmental outcomes.

Protecting and nurturing the young is a universal goal across human cultures. An abundance of research from multiple fields confirms the importance of the family unit as the provider of safe, stable, and nurturing environments for children. In their report, Harden & Koblinsky (1999) noted that children who are reared in safe and stable

environments have better short- and long-term adjustment than children who are exposed to harmful experiences. The present study confirms this pattern of findings. The HEPA measure used in this study is an instrument for operationalizing broad theoretical concepts such as safely, stability and nurturance. The orphanage group scored lower on most of the subscales. This goes to show that the orphanage environment was not as safe, stable, nurturing as the family reared groups. Safety, stability and nurturance are important and although it could be acknowledged by most people that every child certainly needs these in their environment, it may not be easy for an orphanage to provide because of the nature of the environment as well as the orphanage's custodial goal. Although the orphanage may want to stretch beyond the goal of the basic custodial needs. While it is realized that the orphanage administrators and caregivers want only the best for the children in their care, they have rarely been offered the opportunity to participate in a comprehensive training program that would not only enhance their knowledge and skills for giving children an all encompassing foundation but also learn how they can re-structure the orphanage environments and re-organize their time to provide for the emotional and developmental needs of abandoned and orphaned children. The data collected qualitatively from caregivers show a concern that they do not go through comprehensive training programs. Instead, there are workshops that would take a day or two or sometimes a week. Although these workshops were mentioned, it is rare that the caregivers are sent to attend. It is the administrators who attend and may not disseminate the information down to the intended personnel in an intended manner. Aside from this, the other major hindrance for providing such nurturing environment is the limited funding that the orphanage receives. Most of the orphanages only have enough funds to meet the basic needs of food and nutrition and

these children are rarely taken out of the orphanage to experience life outside this box. This way, it may not be easy for these caregivers and administrators to provide a safe, stable and nurturing environment for these children.

As hypothesised, there were no significant differences between the adopted and biological children. This means that the family reared children have a less risky home environment compared to the orphanage group. From the findings, it was noted that the for the orphanage group any strengths for which they received credit were offset by risks for which they received negative scores. Further, these results indicate that the orphanage group experience more privation especially in physical support, emotional support, individualizing and intellectual capacitation. This could probably be because of the large groups in which children grow up. These children rarely have individual attention and the materials for intellectual motivation for these children are not there. This shows that in a child's environment family safety, stability and nurturance is crucial in the development of children. This means that adopted child's environment is as good as a child with biological parents. These results could have been influenced by the fact that these children were in their extended families' home environments and hence were treated by the caregivers like their own children. From these findings, we may conclude that children should be placed in extended families rather than in orphanages for better developmental outcomes.

Subscales that showed statistical differences in the HEPA were emotional support, framing, individualizing and intellectual capacitation. For all these subscales, the orphanage group was statistically different from both the family reared children while

non significant differences were found between the two family reared groups of children. The reason why the two family reared groups performed better could be that the caregivers are not overwhelmed with a lot of work as is the case in the orphanage. Also, decisions are made at a family level: this would benefit the children because each child is given individual attention. In the orphanage, the administrative officers who do not get more involved with the children at personal level would be the ones to make decisions for the children. These decisions might not focus on the individual children but on the group and this may sometimes be done without consultation with the caregivers who might have the best know-how about the needs of the children. Taking care of a lot of children in the same age group may be tedious to the caregiver: hence each child does not get the deserved amount of time to be with the caregiver.

Certain subscales on HEPA measure did not yield statistical differences across the groups and these are training in social responsibility and demonstration and explanation of ideas. This was perhaps because of the norms of the people. Generally, children do not show indiscipline for example, in front of visitors because this is the way they are taught and are brought up. For example, the children might not even express that they are not pleased with something until the visitors are gone. Also, spanking a child is not viewed as something that is unacceptable but it is seen as discipline to most parents and is culturally accepted. On the demonstration and explanation of ideas, the group of caregivers included in the study had similar qualifications although the orphanage caregivers were low on qualifications; they normally demonstrate and explain ideas in similar ways. Another explanation would be that the questions on the subscale could be answered using common sense and for social desirability. For example, any person

caring for a child, whether they have relations or not would want to bring up that child in the most acceptable way. Lastly, the subscale may not have differed across the groups perhaps because this particular measure was not effectively informative to grasp the intent of what was supposed to be measured because the questions that were asked were the behaviours that are expected in this society. Because these are socially acceptable behaviours, it is rare that one can answer or report to the contrary. For instance, on the subscale of training in social responsibility, most children are taught not to be undisciplined, antisocial or aggressive if visitors come in the home. They are told to be polite to any kind of visitor whether a relative or just someone in the neighbourhood. Moreover, any visitors that come in a home are introduced as "Aunt or uncle". This is done to facilitate the desirable behavior that is expected of the child in front of the visitor. On the other hand this could be because of the closeness the people in this society feel with one another.

Another question asked in the scale was whether parents are overprotective. It was difficult to tell because there is usually more than one child in the families and overprotecting just one child was not grasped by the measure. Also, it may be difficult for a parent to overprotect because children mostly like playing and would rather be in the company of their siblings than the mother. There are cases that are exceptional though. When a has child special needs such as disability or sickness, the parent would protect this child from being hurt; this is not be considered as overprotecting but rather giving special attention to children with special needs. Similarly, children are given time to play with their peers, if limited time is given for play, it may be seen as punishment for doing something unacceptable. For example, a parent would say, "you are staying in

the house without going anywhere this morning." Further, it may suffice to say that the way the questions were asked and the observations to look out for depict the typical way of life of the people in this society.

Similarly, most of the HOME inventory subscales presented a statistically significant effect across the groups. It was found that the orphanage group had less stimulation on the learning materials, language, responsibility, academic stimulation and variety. A desirable quality and quantity of support in the orphanage is not achieved. These children are only given the basic care needed for survival. The other ingredients to better development are not achieved possibly because of the number of children per caregiver or the unavailability of resources for further stimulation on for instance learning materials. Materials are also difficult to share since the children are many and none of them has personal belongings apart from clothes. For the same reasons as above, the HOME inventory subscales on learning materials, language stimulation, responsivity, academic and variety showed significant differences only between the orphanage and the other two groups, while no significant differences were found between the two groups of family reared children.

In the study, it was surprising to find that the child's physical support of the HEPA measure showed significant differences across the groups while the physical environment of the HOME inventory measure showed no significant differences. The explanation for this difference would be that; the items on the HEPA subscale were detailed in finding out the kind of environment the child was living in. For instance, the HEPA subscale did not only look at the general physical surrounding of the child which

was the focus for the HOME inventory subscale, but the HEPA also focused child's physical wellbeing. An example on this subscale was finding out whether the child was clean at time of visit; child's clothes were clean, torn or tattered at the time of visit. In sum, the HEPA's physical support items included the way the child's physical wellbeing was at the time of visit and subsequently. This showed how, on a general note children are kept at these settings. It was found that the orphanage children's state of physical support was not at par with their counterparts. They scored low on the physical support measure, this would be because the children in the orphanage are many compared to the family setting where at times you expect siblings in the family to take care of the younger one's cleanliness, washing clothes and bathing them. Parents would only come in to help in case the older siblings are committed elsewhere. Another reason would be that most of these family settings have extra human resources such as aunties, cousins who help in taking care of the washing of clothes and general cleanliness of the child's physical environment.

Another reason why the physical environment subscale on the HOME inventory measure produced no significant difference would be because the items on this subscale did not express in-depth details on the child's physical environment. For instance on the HOME's physical environment subscale, the concentration was more on the general physical surrounding such as the child's space, the infrastructure, the interior of the buildings. What was observed about this was that the family reared children's homes were not much different from that of the orphanage children especially with regards to the physical state of the buildings since they were all from medium density areas with almost the same infrastructure and buildings. For instance, for the statement where the

observer noted the caregiving home to have 100 square feet space, most of the observations were that the caregiving home did not have such space. Modelling and Acceptance did not show significant differences. Perhaps this was because of the Zambian culture and norms where most parents would spoil their children in getting what they want. For acceptance, most parents and caregivers have the passion for the children and that could be a possible reason for not getting significant statistical differences on the subscales. Just like the training in social responsibility of the HEPA, modelling and acceptance subscales were not informative to effectively measure modelling and acceptance. This is the way of life and parents would want to structure the children's time in a more desirable way. Also, any parent or caregiver with a child would want the whole world to know how they adore the child and would not instil any harm to the child. Thus all the parents and caregivers reported that they accepted the children.

Other studies have demonstrated that children exposed to violent, dangerous, and/or highly unstable environments are more likely to experience developmental difficulties. Children exposed to violence within their homes experience the most deleterious outcomes. For example, children exposed to physical maltreatment often experience impairments in their physical health, cognitive development, academic achievement, interpersonal relationships, and mental health. Erratic, insecure home environments and a lack of continuity and constancy in caregiving are also associated with poor developmental outcomes (Harden, 1998). Children in orphanage care are particularly vulnerable to detrimental outcomes, as they often come into state or organizational care due to their exposure to maltreatment, family instability, parents' death and a number of

other risk factors that compromise their healthy development. Foster children may be witnesses to and victims of family violence, or may not have been supervised or provided for in an appropriate manner. They may have been subjected to the inadequate and impaired caregiving that results from a variety of parental difficulties, such as substance abuse, mental illness, and developmental disabilities. In this study, the groups were not compared on parental characteristics because the orphanage authority did not have information about the children's parents since most of them were abandoned. However, it is likely that these children may be predominantly from impoverished backgrounds, a situation that exacerbates the risk factors they experience.

The literature cited above argues compellingly for continuity, constancy, and nurturance in the caregiving environments of children in orphanage care. Children reared in high-quality caregiving ecology are set on a positive developmental path that has the potential to produce long-term positive outcomes (Harden, 1998). Already vulnerable from the experiences of maltreatment and other environmental risk factors (for example, poverty and its associated stressors), the development of orphanage children is further compromised if they experience more trauma and instability while in care. Thus, substitute families best meet their needs if they are able to nurture and commit to these children over the long term. This is evident in the current study's findings where the adopted children performed at par with the biological children.

This study demonstrates that the orphanage children lagged behind the family reared groups giving recognition that children in orphanage care often have difficulties that could promote the provision of more stimulating home environments. Some studies have examined the quality of the home environments of adoptive families, particularly their

provision of stimulation and emotional responsiveness. One study found considerable variability in the quality of the home environments; higher-quality environments were found with families who had increased economic resources. Another study also found variability in the home environments that foster children experience and reported that unrelated foster parents had higher-quality home environments than kinship foster parents (Harden, 1998). In this same vein, foster children need caregivers who can work with child welfare agencies to ensure that children's individual needs are met.

In conclusion, children in orphanage care traverse a challenging journey through childhood, with many obstacles to their optimal development. Many have experienced compromised prenatal environments, maltreatment prior to orphanage care, or multiple moves while in orphanage care. The impact of these experiences on their development can be devastating over the short and long term. However, as with other children at environmental risk, a stable, nurturing family environment can protect orphanage children against the negative effects of these environmental experiences.

5.5. Cognitive development

The study used two subtests from the SON-R test and these were the Categories and the Patterns. The categories were based on reasoning and required children to categorise the items while the patterns were based on performance and required the children to follow the patterns in the booklet by drawing what was in the booklet. Both subtests presented a series of items arranged in order of increasing difficulty. There was a significant difference among the groups for both the categories and the patterns subtests. These results show that children raised in an orphanage did not perform at the same level as the comparison counterparts. The Bonferroni multiple comparisons showed significant differences between the orphanage and biological children for both subtests. The findings showed no significant differences between the adopted and biological group echoing many studies showing that it is more advantageous for children to be placed in family rearing setting even extended families or kinship if close biological relations are lacking. From the perspective of intellectual development, growing up in a family certainly should be preferred above living in an orphanage, which according to the Convention on the Rights of the Child (CRC 1989) should indeed be the last option for a child in need of care and protection. The orphanage children lagged behind possibly because they do everything in groups and are rarely awarded individual attention.

They do not have individual attention from their caregivers like their counterparts who are in the family settings. In other words, managing children as a group may prove difficult in achieving the child's intellectual needs. Although this may be the case, in a meta-analysis Van IJzendoorn & Juffer (2008) found that the caregiver – child ratio ranging from 1:1 to 1: 20 did not make the child to have smaller or larger delay. Most

people would expect that a caregiver with few children to take care of would have children who would perform better than those cared for in a large group. This Meta study revealed that it did not matter whether caregiver had more or less children assigned to her care. It was also noted in the Meta study that children with the most favorable caregiver- child ratio (maximally three children per caregiver) did not significantly lag behind their peers reared in families. This means that in orphanage care children with favorite caregivers may not lag behind substantially with regards to intellectual development.

It should be noted that from both the HEPA and HOME inventory in this study, the orphanage children could have lagged behind possibly because they do not have a supportive system with materials that can enhance intellectual capacitation compared to their counterparts. For instance, they do not have toys and materials that can foster their reasoning and performance. Caregivers do not have the time to try and interact in ways that would support their intellectual development. Their peers from the family reared groups have older siblings who play with them and teach them how to find logic in the play materials. These older siblings also go to school and when they are at home doing their homework, the younger ones would try and imitate the writing. When the researcher tried to find out why some of the children performed well on the pattern test, they reported and attributed this to fact that they have older siblings who go to school and when its study time at home they get their young ones and they are given crayons, pencils and paper to draw whatever they want.

The findings from the current study did not generate any significant differences if the child was male or female for both subtests. Similarly, age was not a factor for the way children performed on the subtests. In a meta- analysis, Van IJzendoorn & Juffer (2008) found that Gender did not appear to be a significant moderator, whether the studies included only males or only females did not yield different effect sizes. However, Vorria et al. (1998) found that girls suffered less intellectual delay from their stay and experiences in the orphanages. In the current study, no significant differences were found for gender.

5.6.1 Cognitive development and attachment

In this study, findings established that security of attachment was related to the performance on the cognitive test. The securely attached children outperformed the insecurely attached children while the children that displayed disorganization in the attachment strategy got the lowest on the tests. Studies have shown that disorganized attachment in early childhood predicts emotional dysregulation; externalizing problems, lower cognitive functioning in middle childhood (Moss, Cyr, & Dubois-Comtois, 2004; Stams et al., 2002; Van IJzendoorn, Schuengel, & Bakermans- Kranenburg, 1999). Although the current study did not consider duration in the orphanage as a predictor outcome for cognitive development, other studies have shown that the duration in the orphanage affects the children's intellectual ability. Duration of institutional deprivation was the strongest predictor for cognitive outcome (Van IJzendoorn, Schuengel, & Bakermans- Kranenburg, 1999). High stress environments may influence brain development and attachment behaviors and may cause persistent cognitive delay (Rutter et al., 2004). Several studies have shown that children in orphanages are at a risk for

developmental delays (Lin, Cermak, Coster, & Miller, 2005). These findings suggest that attachment and developmental progress in children are interdependent. In the same vein, a study on non adopted children (Van Bakel & Riksen-Walraven, 2002) found comparable concurrent relations between attachment security and mental development assessed with the Bayley Scales. An important premise that is central to the aspects of individual functioning originates in the organization of early primary relationships (Sroufe et al., 2005). If the organization of early relationships fails or is compromised as is the case in orphanages, children's social and cognitive development may be negatively affected.

Disorganized attachment involves higher risks of behavior and cognitive problems. This study revealed that children who displayed disorganized attachment performed the least in the cognitive development test. The securely attached children significantly differed from the insecurely attached children as well as those who were disorganized. Although these differences were noted, there were children who were in the orphanage and performed better than that those in the family reared group. This finding may be seen as indicative of their resilience. The children who performed better in the orphanage were also securely attached to their caregivers. It may be confirmed that there is an association between security of attachment and cognitive development. Other studies have shown that often children are kept in their cribs for long hours are deprived of intellectual exploration (Van IJzendoorn, Schuengel, & Bakermans- Kranenburg, 1999). In this study, it was noted that children were not kept in their cribs but they are kept within the confines of the house and the play area which is less than a 100 square meters. The house is enclosed with a wall fence and a gate and is always locked. This is

done so that the children may be protected from the dangers of the neighborhood and also the fear that the child may run away. Although this is done in the best interest of the child according to the caregivers, the children do not get to interact on their own to explore and exercise their full intellectual potential in the wider environment apart from the enclosed home. Probably, if these children are offered more opportunities for social interaction, play, and practicing a variety of skills could help in recognizing the children's full intellectual growth and potential.

done so that the children may be protected from the dangers of the neighborhood and also the fear that the child may run away. Although this is done in the best interest of the child according to the caregivers, the children do not get to interact on their own to explore and exercise their full intellectual potential in the wider environment apart from the enclosed home. Probably, if these children are offered more opportunities for social interaction, play, and practicing a variety of skills could help in recognizing the children's full intellectual growth and potential.

5.7. Physical growth

One of the most immediately and noticeable deficits of institutionalized children is their profound growth delay. Given the challenge of meeting young children's needs on physical growth in even the best institutions, it is not surprising that children reared in institutions show growth declines around the world. Similar declines in growth have been noted for children reared in institutions in Russia, China, and Romania. It has been estimated that young children lose approximately 1 month of growth for every 2-3 months in institutional care (Johnson, unpublished). Furthermore, it is the growth of the long bones such as height that is suppressed while weight remains fairly proportional to the child's height (Johnson, unpublished). Previous research on post institutionalized children has consistently indicated that at the time of adoption, they are very small for their age, often below the fifth percentile for height and weight between the 3rd and 9th percentiles (Rutter et, al 1999).

In the current study, the growth indices considered were measurements taken at assessment time. The children in the orphanage did not have records for these measures at placement or before placement. The Results show that on growth model indices of physical development *F* values were significant at assessment. However, *F* values were only significant weight, weight to height ratio (body mass index- BMI). Many studies have reported finding significant differences for height and head circumference, for the current study did not follow this pattern of findings. Even though the children's head circumference was slightly significant but their height measures were not significant. Age and gender were not significant factors that would have yielded differences in these physical measures across the groups.

The child's present weight to height ratio indicates the child's past nutritional status. And since most of the children from the orphanage group were abandoned, this raises questions of their past nutrition status which could not have been favourable. Further, these children, spent on average 15 months in the institution, and although they could have had experienced other undesirable prenatal conditions and malnutrition where they were before coming to the institution, the time (M=15 months), spent in the institution is enough to improve on their physical growth. Qualitative data collected from caregivers indicated that some of the children actually improved in their physical growth compared to the way they came. But the question raised could be why is it that these children still lag behind the age- matched peers? This could be probably because the orphanage experience also has its challenges. The recovery for these children could be at a very slow pace compared to other studies. Similarly, it would perhaps be difficult for the children to completely recover from the past nutritional status because the orphanage could also have its challenges. In Eastern European countries, Johnson & Dole (2000) discovered that most of the children who spent 8 months or more in an institution prior to adoption experienced an unknown combination of adverse prenatal conditions, malnutrition and stimulus privation in the institutions. Many of the children reach their adoptive families from the orphanages in poor medical health with stunted physical growth and varying degrees of developmental delay (Hostetter, Iverson, Dole, 1989; Hostetter, Iverson, Thomas, Mckenzie, Dole & Johnson, 1991; Johnson, Miller, Iverson, Thomas, Franchino, Dole, Kierman, Goergieff & Hostetter, 1992). Similarly, malnutrition of institutionalized children contributes to their growth deficiency. Another contributing factor may be the poor quality of interaction and stimulation offered by the

high caretaker-to-child ratio in these institutions. However, upon removal from stressful or neglectful conditions, children who lag in their physical growth tend to make tremendous gains in both height and weight after adoption (Rutter et, al., 1998). Likewise, after a period of time in their adoptive homes, post institutionalized children have been observed to make remarkable gains in both height and weight, Rutter et al (1998). Johnson and Dole (2000) reported a similar catch-up rate once the children were adopted. In the current study, physical growth delays were found in the orphanage children compared to their family reared counterparts. This goes to show that the orphanage, although it may be the best alternative for children who are not fortunate enough to be adopted in the extended family setting, does not have desired stimulation for the children. Thus, adoption even to a foster family would be a better idea because most studies show that the children tend to catch with their comparison groups once put in the family setting.

Although most children in the orphanage lagged behind in weight to height ratio, some of them did well on these indices. This could be attributed to the fact that caregivers tend to have favorites. In one study, Widdowson (1951) observed that the children who were favorites to the caregiver showed massive progress on their physical growth measures. These children could have had not only special personal attention but also special rations of food which could have a higher dietary intake. It may not be surprising to find that the orphanage children have nutritional privation. Accordingly, over the past few decades two main subgroups of children with short stature associated with socioemotional deprivation or adversity in the environment have been identified. It has come to be appreciated that there could be several different ways, involving contrasting

mechanisms, in which early experiences can have enduring effects upon linear growth of the children. At one extreme there is growth failure of very early onset, within the first two years of life, in which the etiology is thought to be undernutrition (Graves, 1976). An interesting finding in the current study was that the orphanage children who were in the normal weight range on these physical measures also performed well in their cognitive test and were securely attached and this may be because these children are resilient to the experiences of orphanage life. Therefore, if the family setting fails, it is a challenge to both the government and stakeholders to upgrade the conditions and standards of these orphanages so that children may have a less adverse developmental trajectory.

5.7.1 Physical growth and attachment

Findings from the present study showed significant differences in the body mass index of the children across the groups. Although a number of studies have shown that security of attachment is related to physical growth, this study did not follow this pattern of findings. The children did not significantly differ in their indices for physical growth on the basis of attachment. The emphasis could be placed on the adversity of the environment and not maternal deprivation because the lack of maternal figure could be buffered by the caregivers. For instance, a study conducted on physical growth in Zambia's Samfya district observed a relation between maternal height and height of the child (Hautvast, et al, 2000). This relation may be a result of genetic and environmental factors. In a previous study in the same district in Zambia findings showed that at 0–3 months of age, 11% of the children were stunted. The retarded linear growth in children

in the described age range may be due in part to genetic influences. However, the increase in the prevalence of stunting (from 11% at 0–3 months of age to 55% at 6–12 months) that was observed during the first year of life was certainly the result of adverse environmental conditions. The prevailing view then, during the 1950s and 1960s, was that socioemotional deprivation could indeed be the cause of some cases of abnormally short stature, and that the most likely etiology was 'deprivation' or the lack of mothering in a broader sense (Elmer, 1960; Patton & Gardner, 1962; Coleman & Provence, 1957). This study however found that there was no relation between attachment style and physical growth. In other words, the securely attached children did not significantly differ in the e measures of physical growth across the groups. This finding was however unexpected.

CHAPTER SIX

CONCLUSIONS

6.1. Attachment

Attachments classifications were successfully determined through the coding of the videotapes of the Ainsworth's strange situation procedure. The current data revealed that the family reared children showed a relatively normal rate of attachment security compared with the orphanage group who had a relatively high percentage of disorganized attachment in the sample. No child in the family reared groups displayed disorganization or breakdown in their attachment strategy.

6.2. Emotional availability and Sensitivity

Sensitivity was assessed using the Emotional Availability Scale. Results showed that caregivers in the orphanage displayed lower levels of sensitivity compared to the other parents and caregivers. Although the orphanage caregivers scored lowest as a group, on those children who were securely attached to them, they scored high on sensitivity. The study showed that security of attachment and emotional availability of caregivers to children was associated to a substantial degree.

6.3. Home potential assessment (HEPA) and HOME Inventory

These scales both measured the child's home environment. The orphanage group scored lower than the family reared groups showing that the orphanage is not as stimulating in various aspects of development as the other home environments.

6.4. Cognitive test

Significant differences on the cognitive test were found only with the orphanage group. There were variations in the performance in the orphanage and some children in the orphanage performed better or at par with their counter parts raising the issue of

resilience that some children possess even when they are exposed to risky environments. In the orphanage, it was noted that the children who performed better on the cognitive test were also securely attached to their caregivers.

6.5. Physical growth

Significant differences were detected on the body mass index of the children. They showed marginal significant differences on the head circumference. Although studies show that security of attachment have better outcomes in physical growth, this study's finding that security of attachment was not found to relate to better outcome in physical growth was not expected.

6.6. Limitations and directions for future research

Although a number of questions were answered in this study, some questions have given rise to new question which are worth noting.

1. The coders of the videotapes of the Strange Situation Procedure and Emotional Availability Scale did not receive required formal expert training to code the videotapes. For reliability and scientific standards, it is recommended that an expert coder reviews the videotapes and gives ratings based on the standardized coding of the videotapes.
2. The study did not include socio economic status as a variable of the participants which is a limitation. There's need to study orphanages in different socio economic status to see whether the same pattern of findings can be obtained.
3. In the study, only one orphanage was used. It would be more revealing if a number of orphanages were used so that it may be more convincing to generalize the findings in Zambia.

4. The study also used an adopted group from the extended family; this may shield the findings because these results may not be generalized to those adopted to families without any relations. Follow-up studies should consider adoptive families that do not have any relations with the children.
5. The sample in the study was small; this study should be replicated in a larger sample. Further, research that compares orphanage and family raised children in a larger sample should be given more attention so that there is wide comparison among the groups of children with different patterns of care and that proper conclusions could be achieved.
6. A cross-sectional design was used with concurrent assessments of attachment and development. Therefore, definite causal inferences about the influence of attachment on developmental functioning cannot be drawn. In future studies, this relation should be examined in longitudinal studies. For further studies, it may interesting and informative to also involve the orphanage caregiver's biological children in future studies and find out how they may be rated on the different aspects of development and see whether their outcome would be different from the children they care for in these institutions.

6.7. Recommendations

Stakeholders should

1. Strengthen the efforts in providing positive support to orphanages especially making sure that the environment is stimulating enough to foster development of children.

2. Put in place comprehensive training programs that are ongoing to enhance capacity building for the caregivers. Caregivers need professional training so that in the end children are the ones to benefit form such programs.
3. Ensure that developmentally sensitive child welfare policies and practices are designed through child experts to promote the child's social emotional, physical, cognitive and other relevant developmental trajectories that would realize a healthy childhood for the children.

REFERENCES

Achenbach, T.M., & Rescorla, L.A. (2000). *Manual for the ASEBA Preschool Forms & Profiles*. Burlington, VT: University of Vermont Department of Psychiatry.

Ahmad, A., & Mohamad, K. (1996). The socioemotional development of orphans in orphanages and traditional foster care in Iraqi Kurdistan. *Child Abuse and Neglect, 20*(12), 1161–1173.

Ahmad, A., Qahar, J., Siddiq, A., Majeed, A., Rasheed, J., Jabar, F., et al. (2005). A 2-year follow-up of orphans' competence, socioemotional problems and posttraumatic stress symptoms in traditional foster care and orphanage

Ames, E. Spitz revisited: (1990) A trip to Romanian "orphanages. *Newsletter of the Canadian Psychological Association: Developmental Psychology Section.* 9:8–11.

Ames, E. (1997). *The development of romanian orphanage children adopted to Canada (Final report to the National Welfare Grants Program: Human Resources Development Canada)* Burnaby, British Columbia: Simon Fraser University.

Ainsworth, M.D.S., Blehar, M.C., Waters, E., Wall, E. (1978) *Patterns of attachment: Assessed in the Strange Situation and at Home*. Hillsdale, NJ: Erlbaum.

Aviezer, O., Van IJzendoorn, M.H., Sagi, A., & Schuengel, C. (1994). "Children of the Dream" revisited: 70 years of collective childrearing in Israeli kibbutzim. *Psychological Bulletin, 116*, 99–116.

Bakermans-Kranenburg, M.J., Van IJzendoorn, and M.H., Kroonenberg, P.M. (2004). Differences in attachment security between African-American and white children: Ethnicity or socio-economic status? *Infant Behavior and Development, 27*, 417-433.

Bakermans-Kranenburg, M.J., Van IJzendoorn, M.H., & Juffer, F. (2003). Less is more: Meta-analysis of sensitivity and attachment interventions in early childhood. *Psychological Bulletin, 129,* 195-215.

Bakermans-Kranenburg, M.J. & Van IJzendoorn, M.H. (2006). Gene-environment interaction of the Dopamine D4 receptor (DRD4) and observed maternal insensitivity predicting externalizing behavior in preschoolers. *Developmental Psychobiology.*

Ball, A.M. (1994). *And now my soul is hardened. Abandoned children in Soviet Russia, 1918-1930.* Berkeley: University of California Press.

Baron-Cohen, S. (1995). Mind blindness: *An essay on autism and theory of mind.* Cambridge, MA: MIT Press.

Bates, J. E., Freeland, C. A., & Lounsbury, M. L. (1979). Measurement of infant difficultness. *Child Development, 50,* 794-803.

Biringen, Z., Robinson, J., & Emde, R.N. (1993). *Emotional Availability Scales (2nd ed.).* Department of Human Development and Family Studies, Colorado State University, Ft. Collins.

Bowlby, J. (1951). *Maternal care and mental health.* World Health Organization Monograph No. 2. Geneva: WHO.

Bowlby, J. (1997). *Attachment and Loss: Vol. 1:. Attachmen*t. London: Pimlico.

Bowlby, J. (1998). *Attachment and loss: Vol. 2: Separation.* London: Pimlico.

Bowlby, J. (1998). *Attachment and loss: Vol. 3: Loss, sadness and depression.* London: Pimlico.

Bradley, R.H. (1993) Children home environments health, behavior and intervention efforts: a review using the Home Inventory as a marker measure. *Genetic and Social General Psychology Monograph, 119,* 437-90

Bradley, R. & Caldwell, B. (1988). Using the HOME Inventory to assess the family environment. *Pediatric Nursing, 14,* 97-102.

Bronfenbrenner, U. (1970). *Two worlds of childhood.* New York: Russell Sage Foundation.

Caldwell, B., & Bradley, R. (1984). *Home Observation for Measurement of the Environment.* Little Rock, AR: University of Arkansas at Little Rock.

Carlson, M., & Earls, F. (1997). Psychological and neuroendocrinological sequelae of early social deprivation in institutionalized children in Romania. *Annual New York Academy of Science, 807,* 419–428.

Carlson, S. M.,& Moses, L. J. (2001). Individual differences in inhibitory control and children's theory of mind. *Child Development, 72,* 1032–1053.

Cassidy, J., & Marvin, R. S., with the MacArthur Working Group (1992). *Attachment organization in preschool children: Procedures and coding manual* (4th ed.). Unpublished manuscript, University of Virginia.

Castle, J., Groothues, C., Bredenkamp, D., Becket, C., O'Connor, T., Rutter, M. and the ERA Study Team (1999). Effects of qualities of early institutional care on cognitive attainment. *American Journal of Orthopsychiatry, 40,* 424-437

Cermak, S.A., Daunhauer, L.A. (1997). Sensory Processing in the Post-Institutionalized Child. *The American Journal of Occupational Therapy, 51,* 500-507

Chisholm, K. (1998). A three year follow-up of attachment and indiscriminate friendliness in children adopted from Romanian orphanages. *Child Development, 69,* 1092-106.

Chugani, H.T., Behen, M.E., Muzik, O., Juhasz, C., Nagy, F., Chugani, D.C. (2001). Local brain functional activity following early deprivation: a study of postinstitutionalized Romanian orphans. *Neuroimage, 14,* 1290-301

Coleman R.W. & Provence S (1957): Environmental retardation (hospitalism) in infants living in families. *Pediatrics 19,* 285-292.

De Villiers, J. G., & de Villiers, P. A. (2000). Linguistic determinism and the understanding of false beliefs. In P. Mitchell & K. Riggs (Eds.), *Children's reasoning about the mind* (pp. 267–280). Hove,England: Psychology Press.

Dennis, W. (1973). *Children of the Crèche.* New York: Appleton-Century-Crofts.

DeWolff, M. S., & vanIJzendoorn, M. H. (1997). Sensitivity and attachment: A meta-analysis on parental antecedents of infant attachment. Child Development, 68, 571 – 591.

Dunn, J. (1999). Making sense of the social world: Mindreading, emption, and relationships. In P. D. Zelazo, J.W. Astington, & D. R. Olson (Eds.). *Developing theories of intention: Social understanding and self-control* (pp. 229–242). Mahwah, NJ: Lawrence Erlbaum Associates, Inc.

Dunstan J. (1980). Soviet boarding education: its rise and progress. In Brine J., Perrie M., Sutton A. (Eds.) *Home, School and Leisure in the Soviet Union* (pp.110-141). London: George Allen &Unwin.

Elmer E (1960): Failure to thrive: Role of the mother. *Pediatrics 25,* 717-725.

Emde, R., and Robinson, J. Guiding principles for a theory of early intervention: A developmental-psychoanalytic perspective. In *Handbook of early childhood intervention.* 2nd ed. J.P. Shonkoff and S.J. Meisels, eds. New York: Cambridge University Press.

Fisher, L., Ames, E.W., Chisholm, K.,& Savoie, L. (1997). Problems reported by parents of Romanian orphans adopted to British Columbia. *International Journal of Behavioral Development, 20,* 67–82.

Freud, A., & Burlingham, D. T. (1973). *Infants without families. Reports on the Hampstead nurseries, 1939-1945.* New York: International Universities Press.

Goldfarb, W. (1944). Effects of early institutional care on adolescent personality: Rorschach data. *American Journal of Orthopsychiatry*, 14, 441-447.

Goldfarb, W. (1945). Effects of psychological deprivation in infancy and subsequent stimulation. *American Journal of Psychiatry*, 102, 18-33.

Gorshkova, E.A. (1995). Orphan's Homes in Russian Empire. *Pedagogic, 1*, 117-120.

Graves PL (1976): Nutrition, infant behavior, and maternal characteristics: a pilot study in West Bengal, India. *Am. J. Clinical Nutrition, l*29, 305-319.

Groark, C. J., Muhamedrahimov, R. J., Palmov, O. I., Nikiforova, N. V., & McCall, R. B. (2005). Improvement in early care in Russian orphanages and their relationship to observed behaviors. *Infant Mental Health Journal, 26,* 96-109.

Groza, V., Ryan, S. D., Cash, S. J. (2003). Institutionalization, Behavior and International Adoption: Predictors of Behavior Problems. *Journal of Immigrant Health, 1,* 5 –17.

Gunnar, M.R. & Vasquez, D.M. (2001). Low cortisol and a flattening of expected daytime rhythm: Indices of risk in human development. *Development and Psychopathology, 13*, 515-538.

Gunnar, M.R., Bruce, J., Grotevant, H.D. (2000). International adoption of institutionally reared children: research and policy. *Development and Psychopathology, 12,* 677-693.

Gunnar, M. R. (2000). Early adversity and the development of stress reactivity and regulation. In C. A. Nelson (Ed.), *The effects of adversity on neurobehavioral development: Minnesota symposia on child psychology* (Vol. 31, pp. 163–200). Mahwah, NJ: Erlbaum.

Gunnar, M. R. (2001). Effects of early deprivation: Findings from orphanage-reared infants and children. In C. A. Nelson & M. Luciana (Eds.), *Handbook of developmental cognitive neuroscience* (pp. 617– 629). Cambridge, MA: MIT Press.

Hakimi-Manesh, Y., Mojdehi, H., & Tashakkori, A. (1984). Effects of environmental enrichment on the mental and psychomotor development of orphanage children. *Journal of Child Psychology and Psychiatry, 25,* 643–650.

Hautvast, LA, J., Tolboom,J.J.M., Kafwembe E.M., Musonda,R.M., Mwanakasale,V., Van Staveren,E.A., Van Hof M.A.., Sauerwein, R.W., Willems, J.L., & Leo AH Monnens (2000) Severe linear growth retardation in rural Zambian children: the influence of biological variables. *Am J Clinical Nutrition*;71:550–9.

Hesse, E., & Main, M. (2006). Frightened, threatening, and dissociative parental behavior in low-risk samples: Description, discussion, and interpretations. Development and Psychopathology, 18, 309–343.

Hertsgaard, L., Gunnar, M., Erickson, M.F., Nachmias, M. (1995). Adrenocortical responses to the strange situation in infants with disorganized/disoriented attachment relationships. *Child Development, 66*, 1100-6.

Hodges, J., Tizard, B. (1989a). Social and family relationships of ex-institutional adolescents. *Child Psychology and Psychiatry, 30,* 77-97.

Hodges, J., Tizard, B. (1989b). IQ and behavioral adjustment of ex-institutional adolescents. *Journal of Child Psychology and Psychiatry, 30,* 53-75.

Hostetter, M. K., Iverson, S., Thomas, W., McKenzie, D., (1999). Quasi-Autistic patterns following severe early global privation. *New England Psychiatry, 40,* 537–549. *Journal of Medicine, 325,* 479–485.

Hostetter, M., & Johnson, D. E. (1989). International catch-up, and deficit, following adoption after severe global early privation. *Journal of Child Psychology 143,* 325–332.

Judge, S. (2003). Developmental recovery and deficit in children adopted from Eastern European orphanages. *Child Psychiatry and Human Development, 34*, 49-62.

Johnson, D. (2000). Medical and developmental sequelae of early childhood institutionalization in Eastern European adoptees. In C. A. Nelson (Ed.), *The effects of early adversity on neurobehavioral development. The Minnesota symposia on child psychology, Volume 31* (pp. 113-162). Mahwah, NJ: Lawrence Erlbaum.

Jones Harden, B., and Koblinsky, S.(1999) Double exposure: Children affected by family and community violence. In *Family violence*. R. Hampton, ed. Thousand Oaks, CA: Sage Publications

Jones Harden, B. Congregate care for infants and toddlers: Shedding new light on an old question. *Infant Mental Health Journal* (2002) 23(5):476–95.

Juffer, F., Hoksbergen, R.A.C., Riksen-Walraven, J.M.A. & Kohnstamm, G.A. (1997). Early intervention in adoptive families: Supporting maternal sensitive responsiveness, infant-mother attachment, and infant competence. *Journal of Child Psychology and Psychiatry, 38,* 1039 - 1050

Juffer, F., Bakermans-Kranenburg, M.J., & Van IJzendoorn, M.H (2005). The importance of parenting in the development of disorganized attachment: Evidence from a preventive intervention study in adoptive families. *Journal of Child Psychology and Psychiatry, 46,* 263-274

Juffer, F., & Van IJzendoorn, M.H. (2005). Behavior problems and mental health referrals of international adoptees: A meta-analysis. *JAMA: The Journal of the American Medical Association, 293,* 2501-2515 (May 25).

Kagan, J., Reznick, J. S., & Gibbons, J. (1989). Inhibited and uninhibited types of children. *Child Development, 60,* 838-845.

Kaler, S., Freeman, B. (1994). Analysis of environmental deprivation: Cognitive and social development in Romanian orphans. *Journal of Child Psychology and Psychiatry, 35,* 769-781

Kim, T., Shin, Y., & White-Traut, R. (2003). Multisensory intervention improves physical growth and illness rates in Korean orphaned newborn infants. *Research In Nursing And Health, 26,* 424-33.

Kochanska, G. (1995). Children's Temperament, Mothers' Discipline, and Security of Attachment: Multiple Pathways to Emerging Internalization. *Child Development, 66.* 597- 615.

Kreppner, J.M., O'Connor, T.G., Rutter, M., ERA Study Team. (2001). Can inattention/overactivity be an institutional deprivation syndrome? *Journal of Abnormal Child Psychology, 29,* 513-528.

Laros, J.A. & Tellegen, P.J. (1991). *Construction and validation of the SON-R 5.5-17, the Snijders-Oomen non-verbal intelligence test.* Groningen: Wolters-Noordhoff.

Lyons-Ruth, K., & Jacobvitz, D. (1999). Attachment disorganization: Unresolved loss, relational violence, and lapses in behavioral and attentional strategies. In J. Cassidy, & Ph. R. Shaver (Eds.), Handbook of attachment. Theory, research, and clinical applications (pp. 520–554). New York: The Guilford Press.

Lyons-Ruth, K. (1996) Attachment relationships among children with aggressive behavior problems: The role of disorganized early attachment patterns. *Journal of Consulting and Clinical Psychology* 64:64–73.

Lynch, M., and Cicchetti, D. (1998) An ecological-transactional analysis of children and contexts: The longitudinal interplay among child maltreatment, community violence, and children's symptomatology. *Development and Psychopathology* 10:235–57.

Main, M., & Hesse, E. (1990). Parents' unresolved traumatic experiences are related to infant disorganized attachment status: Is frightened and/or frightening parental behavior the linking mechanism? In M. T. Greenberg, D. Cichetti, & E. Cummings (Eds.), Attachment in the preschool years: Theory, research, and intervention (pp. 161–182). Chicago: University of Chicago Press.

Main, M., & Solomon, J. (1990). Procedures for identifying infants as disorganized/disoriented during the Ainsworth Strange Situation. In M. T. Greenberg, D. Cichetti, & E. Cummings (Eds.), Attachment in the preschool years: Theory, research, and intervention (pp. 161–182). Chicago: University of Chicago Press.

Main, M. (1990).Cross-cultural studies of attachment organization: recent studies, changing methodologies and the concept of conditional strategies. *Human development 33,* 48-61

Main, M., Kaplan, N., & Cassidy, J. (1985). Security in infancy, childhood and adulthood: a move to a level of representation. In I. Bretherton & E. Waters (Eds), growing points of attachment theory and research. *Monographs of society for research in child development, 50* (1-2, serial No.209), 66-104

Mare, L.L., & Audet, K. (2006) A longitudinal study of the physical growth and health of postinstitutionalized Romanian adoptees. *Paediatric Child Health, 11,* 85-91

Marshall, P.J., Fox, N.A., & The BEIP Core Group (2004). A Comparison of the Electroencephalogram between Institutionalized and Community Children in Romania. *Journal of Cognitive Neuroscience,* 16, 1327–1338.

Mason, P., Narad, C. (2005). International adoption: a health and developmental prospective. *Semin Speech Lang, 26,* 1-9.

Marvin, R. S., & Britner, P. A. (1999). Normative development: The ontogeny of attachment. In J. Cassidy & P. Shaver (Eds.), Handbook of attachment (pp. 21 – 43). New
York: Guilford Press.

Miller, L.C. (2005). *The handbook of international adoption medicine. A guide for physicians, parents, and providers.* Oxford: Oxford University Press.

Miller, LC. (2000) Initial assessment of growth, development, and the effects of institutionalization in internationally adopted children. *Pediatr Ann.*; 29:224–32.

Miller, L.C., Kiernan, M.T., Mathers, M.I., Klein-Gitelman, M. (1995). Developmental and Nutritional Status of Internationally Adopted Children. *Archives of Pediatric and Adolescent Medicine, 149*, 40-44.

Moore, C., & Frye, D. (1991). The acquisition and utility of theories of mind. In D. Frye & C. Moore (Eds.), *Children's theories of mind* (pp. 1–14). Hillsdale, NJ: Lawrence Erlbaum Associates, Inc.

Morison, S.J., Ames, E.W., Chisholm, K. (1995). The development of children adopted from Romanian orphanages. *Merrill-Palmer Quarterly, 41*, 411-430.

Morison, S.J., Ellwood, A. (2000). Resiliency in the Aftermath of Deprivation: A Second Look at the Development of Romanian Orphanage Children. *Merrill-Palmer Quarterly, 46,* 717-737.

Moss E, Cyr C, Dubois-Comtois K (2004). Attachment at early school age and developmental risk: Examining family contexts and behavior problems of controlling-caregiving, controlling-punitive, and behaviorally disorganized children. *Developmental Psychology, 40* (4): 519-532.

Moss E, Cyr C, Bureau JF, et al. (2005). Stability of attachment during the preschool period. *Developmental Psychology, 41* (5): 773-783.

Mukhina, V.S. (1991). Psychological help for children, raised in institutions of the internat type. In Hrestomatiya (Ed.), *Lishennie roditelskogo popechitelstva* (pp. 113 – 123). M.: Prosveschenie.

NICHD Early Child Care Research Network (1996). Characteristics of infant child care: Factors contributing to positive caregiving. Early Childhood Research Quarterly, 11, 269 – 306.

NICHD Early Child Care Research Network. (1997). The effects of infant child care on infant-mother attachment security: Results of the NICHD study of early child care. Child Development, 68, 860 – 879.

O'Connor, T.G., Marvin, R.S., Rutter, M., Olrick, J.T., Britner, P.A.; The English and Romanian Adoptees (ERA) Study Team (2003). Child-parent attachment following early institutional deprivation. *Developmental Psychopathology, 15,* 19-38.

O'Connor, T.G., Zeanah, C.H. (2003).Attachment disorders: assessment strategies and treatment approaches. *Attachment and Human Development, 5,* 223-44.
Patton RG & Gardner LI (1962): Influence of family environment on growth: the syndrome of 'maternal deprivation'. *Pediatrics 30*, 957-962.

Prihozhan, A.H., Tolstih, N.N. (1991). Study of the mental development of schoolchildren raised in closed institutions]. In Hrestomatiya (Ed.), *Lishennie roditelskogo popechitelstva* (pp. 77 – 81). M.: Prosveschenie.

Provence, S. A., & Lipton, R. C. (1962). *Infants in institutions*. New York: International Universities Press.

Pullan, B. (1989). *Orphans and foundlings in early Modern Europe*. The Stenton Lecture: University of Reading.

Ransel, D.R. (1988). *Mothers of Misery*. Princeton: Princeton University Press.

Roy, P., Rutter, M., and Pickles, A. (2004). Institutional care: associations between overactivity and lack of selectivity in social relationships. *Journal of Child Psychology and Psychiatry,* 45, 866 - 873

Roy, P., Rutter, M., Pickles, A. (2000). Institutional care: risk from family background or pattern of rearing? *Child Psychology and Psychiatry*, 41,139-49.

Rutter, M., Andersen-Wood, L., Beckett, C., Bredenkamp, D., Castle, J., Groothues, C., Kreppner, J., Keaveney, L., Lord, C., O'Connor, T.G. (1999). Quasi-autistic patterns following severe early global privation. *Child Psychology and Psychiatry, 40*, 537-49.

Rutter, M.L., Kreppner, J.M., O'Connor, T.G.; English and Romanian Adoptees (ERA) study team (2001). Specificity and heterogeneity in children's responses to profound institutional privation. *British Journal of Psychiatry, 179*, 97-103.

Serpell, R. (1987) the potential of home environment for promoting healthy psychological development in early childhood: in search of indicators. Paper presented at an international conference on 'promoting the mental health of children and youth', Ottawa, Canada: October 1987.

Shonkoff, J.P., & Phillips, D.A. (2000) from Neurons to neighborhoods: the science of early childhood development. Washington DC, National Academy press.

Skeels, H. M. (1940). Some Iowa studies of the mental growth of children in relation to differentials of the environment: A summary. *Yearbook of the National Society for Research in Child Development, 39, 281-3081.*

Sloutskiy, V.I. (2000). [The phenomenon of public property and its influence on the personality development of the inmates of the Children's Homes]. *Voprosi Psikhologii, 5,* 132 – 136.

Sloutsky, V. M. (1997). Institutional care and developmental outcomes of 6- and 7-year old children: A contextualist Perspective. *International Journal of Behavior Development, 20*, 131-151.

Sokolova, N.D. (1991). Main directions in the correction and rearing work in the specialized Children's Home]. *Defektologiya, 4*, 58 – 64.

Solomon, J., & George, C. (1999). The place ofndisorganization in attachment theory: Linking classic observations with contemporary findings. In J. Solomon, & C. George (Eds.), Attachment disorganization (pp. 3–32). New York: Guilford.

Solomon, J., & George, C. (1996).defining the caregiving system: toward a theory of caregiving. *Infant Mental Health Journal, 17,* 183-197

Spangler, G., Grossman, K.E. (1993). Biobehavioral organization in securely and insecurely attached infants. *Child Development, 64*, 1439–1450

Spitz, R.A. (1945). Hospitalism: An inquiry into the genesis of psychiatric conditions in early childhood. *Psychoanalytic Studies of the Child, 1*, 53-74.

Stams, G., Juffer, F., & van IJzendoorn, M.H. (2002). Maternal sensitivity, infant attachment, and temperament predict adjustment in middle childhood: The case of adopted children and their biologically unrelated parents. *Developmental Psychology, 38*, 806-821

State Statistics Committee of Ukraine, (2004). *State Statistics Committee of Ukraine*, on line [http://www.ukrstat.gov.ua/].

Stevenson-Hinde, J., & Verschueren, K. (2002). Attachment in childhood. In P. K. Smith, & C. Hart (Eds.), Handbook of Childhood Social Development (pp. 182-204). London: Blackwells.

Stolee, M.K. (1988). Homeless children in the USSR, 1917-1957. *Soviet Studies, 1,* 64-83.

Taneja, V., Sriram, S., Aggarwal, R., Kaur, R., Beri, R. S. & Puliyel, J. M. (2002) 'Not by Bread Alone': impact of a structured 90 minute per day play session on development of children in an orphanage. *Child: Care, Health and Development, 28*, 95–100.

Tarasova, T. (2006) Pediatric HIV/AIDS Strategy in Ukraine: Development of Comprehensive Care Model and Human Capacity Building Plan, Meeting Presentation. Kiev, Ukraine.

Tellegen, P. & Laros, J. (1993). The construction and validation of a nonverbal test of intelligence: *European Journal of Psychological Assessment, 9,* 147-157.

Tellegen, P.J., Winkel, M., Wijnberg-Williams, B.J. & Laros, J.A. (1998). Nonverbal Intelligence Test, SON-R 2.5-7, *Manual & Research Report*. Lisse: Swets & Zeitlinger.

The St. Petersburg – USA Orphanage Research Team (2005). Characteristics of children, caregivers, and orphanages for young children in St. Petersburg, Russian Federation. *Applied Developmental Psychology, 26*, 477-506.

Tizard, B., & Joseph, A. (1970). The cognitive development of young children in residential care: A study of children aged 24 months. *Journal of Child Psychology and Psychiatry, 11,* 177–186.

Tizard, B., & Rees, J. (1974). A comparison of the effects of adoption, restoration to the natural mother and continued institutionalization on the cognitive development of four year old children. *Child Development, 43,* 92–99.

Ukrainian Institute of Social Studies (2001). *Causes of institutionalization of young people leaving public care and their future prospects.* UNICEF: Kiev.

UNAIDS. (2004). 2004 Report on the global AIDS epidemic: 4th Global report

United Nations. (1989). Convention on the Rights of the Child. http:// www.unicef.org/crc/.

Van der Mark, I., Bakermans-Kranenburg, M. J., & Van IJzendoorn, M.H. (2002). The role of parenting, attachment, and temperamental fearfulness in the prediction of compliance in toddler girls. *British Journal of Developmental Psychology, 20*, 361-378.

Van IJzendoorn, M.H., Juffer, F., & Klein Poelhuis, C.W. (2005). Adoption and cognitive development: A meta-analytic comparison of adopted and non-adopted children's IQ and school performance. *Psychological Bulletin, 131,* 301-316.

Van IJzendoorn, M.H., & Hubbard, M.H. (2000). Are infant crying and maternal responsiveness during the first year related to infant-mother attachment at 15 months? *Attachment & Human Development, 2*, 386-406.

Van IJzendoorn, M.H., Juffer, F., & Duyvesteyn, M.G.C. (1995). Breaking the intergenerational cycle of insecure attachment: A review of the effects of attachment-based interventions on maternal sensitivity and infant security. *Journal of Child Psychology and Psychiatry, 36, 225 - 248.*

Van IJzendoorn, M.H., & Juffer, F. (2005). Adoption is a successful natural intervention enhancing adopted children's IQ and school performance. *Current Directions in Psychological Science, 14 (6),* 326-330.

Van IJzendoorn, M. H., Juffer, F., & Klein Poelhuis, C. W. (2005). Adoption and cognitive development: A meta-analytic comparison of adopted and nonadopted

children's IQ and school performance. *Psychological Bulletin, 131,* 301–316.

Van IJzendoorn, M.H., & Juffer, F. (2006). Adoption as intervention. Meta-analytic evidence for massive catch-up and plasticity in physical, socio-emotional, and cognitive development. The Emanuel Miller Memorial Lecture 2006. *Journal of Child Psychology and Psychiatry.*

Van Zeijl, J., Mesman, J., Van IJzendoorn, M.H., Bakermans-Kranenburg, M.J., Juffer, F., Stolk, M.N., Koot, H.M., & Alink, L.R.A. (in press). Attachment-based intervention for enhancing sensitive discipline in mothers of one- to three-year-old children at risk for externalizing behavior problems. *Journal of Consulting and Clinical Psychology.*

Vorria , P., Papaligoura, Z., Dunn, J., van IJzendoorn, M.H., Steele, H., Kontopoulou, A. & Sarafidou, Y. (2003). Early experiences and attachment relationships of Greek infants raised in residential group care. Journal of Child Psychology and Psychiatry, 44, 1208- 1220.

Vorria, P., Papaligoura, Z., Sarafidou, J., Kopakaki, M., Dunn, J.,. Van IJzendoorn, M.H. & Kontopoulou, A. (in press). The development of adopted children after institutional care: A follow-up study. *Journal of Child Psychology and Psychiatry.*

Vorria, P., Rutter, M., Pickles, A., Wolkind, S., Hobsbaum, A. (1998). A comparative study of Greek children in long-term residential group care and in two-parent families: I. Social, emotional, and behavioural differences. *Child Psychology & Psychiatry, 39,* 237-245.

Widdowson E.M. (1951) Mental contentment and physical growth. *Lancet.* ;1(6668):1316–1318.

Widdowson EM, Spray CM. (1951) Chemical development in utero. *Arch Dis Child.* (127):205–214.

Wismer Fries, A.B. & Pollak, S.D. (2004). Emotion understanding in postinstitutionalized Eastern European children. *Development and Psychopathology, 16,* 355-369.

World Health Organization (1983). Measuring change in nutritional status. Guidelines for assessing the nutritional impact of supplementary feeding programmes for vulnerable groups. Geneva: WHO.

Zeanah, C.H., Smyke, A.T., Dumitrescu, A. (2002). Attachment disturbances in young children. II: Indiscriminate behavior and institutional care. *Journal of American Academy of Child and Adolescent Psychiatry, 41*, 983-989.

Zeanah, C.H., Smyke, A.T., Koga, S., Carlson, E. & the BEIP Core Group (2005). Attachment in institutionalized and community children in Romania. *Child Development, 76*, 1015-1028.

Zegers, M, Schuengel, C., Van IJzendoorn, M.H., & Janssens, J. (in press). Attachment representations of institutionalized adolescents and their professional caregivers: predicting the development of therapeutic relationships. *American Journal of Orthopsychiatry*.

Zhang, H., Gong, W., Sun, Y. & Tian, X. (1997). Nonverbal Intelligence Test-Revision (SON-R) in China. Psychological Science China, 20, 97-103.

Zhang, X., Sliwowska, J.H., & Weinberg, J. (2005). Prenatal Alcohol Exposure and Fetal Programming: Effects on Neuroendocrine and Immune Function *Experimental Biology and Medicine, 230*, 376 - 388.

Appendix A. Constructs and measures

Domain	Constructs	Measures	Source of Data	Comments
Environment	Structure and functioning of the institutions	Questionnaire	Observations, semi-structured interview	Information about the size, structure, logistics, schedules
	Care giving environment	Early Childhood HOME Inventory HEPA	Naturalistic observation Structured questionnaire	
Caregivers	Parental characteristics	Characteristics of biological parents	Assessment of the case records / interviews	
	Sensitivity	The Emotional Availability Scale	Naturalistic observation	10 minute Play interaction episode
Children	Social background	Child's individual history of being in the orphanage	Assessment of the case records	
	Physical characteristics	Height	Exam of a child	
		Weight	Exam of a child	
		Head Circumference	Exam of a child	
	Level of cognitive functioning	IQ test- SON-R	Exam of a child	
	Attachment	SSP	Child and caregiver	8 Episodes of three minutes each

APPENDIX BI

Questionnaire for the center

This questionnaire is directed to manager of the child care center.
Goal: collect background information of the center in for the study.
All data will be analyzed anonymous.

1. Name child care center: .....
2. Filled in by: .....
3. Date: .....
4. For how long does your child care center exist?

   ... Years
5. How many children attend you child care center?

   ... Children aged 0-4 years
6. How many child places (for children aged 0-4 years) do you have?

   ... Places
7. How many groups do you have?

   ... Groups
8. What type of groups do you have?

   ... Baby groups, aged ... to ..... months

   ... toddler groups, aged ... to ..... months

   ... preschool groups, aged ... to ..... months

   ... mixed-aged groups, aged ... to ..... months

   other, namely: ..... groups, aged ... to ..... months

9. *You only have to answer these question's if your center only consist of mixed-aged groups*

a. Since what year do you have mixed-aged groups?

   Since .....

b. what are the reasons for mixed-aged groups:

.....

.....

.....

.....

10. what type of organization is your center?

    # independent organization

    # umbrella organization

    # other, namely:.....

11. How many caregivers and other employees do you have?

    ... caregivers

    ... other employees who work in the children (substitute)

    ... student

    ... other employees who do not work with the children (e.g. management)

12. How many caregivers and other employees who work with the children did quiet their jobs, had maternity leave of had been ill for a long period?

    ... caregivers who quit their jobs.

    ... caregivers with maternity leave

    ... caregivers were ill for a long period (at least 1 month)

    ... other employees who work with the children who quit their jobs.

    ... other employees who work with the children with maternity leave

    ... other employees who work with the children were ill for a long period (at least 1 month)

13. Do you have the opportunity for flexible

    Non-flexible care is care in the same group of children, with the same caregivers, on the same days (at least 4 mornings/ midday's) between 8.00 AM and 18.00 PM in the same space.

    # yes → move to question 14

    # no → move to question 15

14. What type of flexible care do you offer?

Open early

Close late

care at changing days

care in the evening

care at night

care in the weekend

Dinner

Extra hours

The opportunity to bring and pick up the child the entire day

Other, namely.....

15. Do you have an open door policy?

This is the opportunity for the children to move to different spaces, without the other children of their group

yes

No

16. Do you have a specific vision for your center (for example. Reggio Emilia, Rudolf Steiner)?

no

Yes, namely: .....

If you have any remarks, please write them down for us:

.....

.....

.....

.....

APPENDIX BII. Quistionnaire for the caregiver

This questionnaire is directed to the caregiver.
Goal: collect background information of the caregivers.
All data will be analyzed anonymous.

1. Name center: .....
2. Name group: .....
3. Filled in by: .....
4. Date: .....
5. What is your age?

... years

6. What is your gender?

male
female

7. Where do you live?

.....

8. Have you attained any education in child care?
9. Do you follow a course on the moment?

No
Yes, namely: .....

10. What is the highest education you finished?

. .....

11. How many hours a week do you work as a child caregiver?
    ... hours a week
12. For how many years are you working in childcare?
    ... years
13. For how many years are you working with this group of children?
    ... years

If you have any remarks, please write them down for us:

.....

APPENDIX C

Social background of the orphanage children

Child's individual history of orphanage life

		Boys (N=)	Girls (N=)
Reason for admission	Financial/practical		
	Family disruption		
	Lack of family		
Previous residence	Parental Home		
	Relatives, foster family		
	Institution(s)		
Moves between institutions	None		
	1-3 moves		
	More than 3 moves		
Change of primary caregivers since admission	None		
	1-3 caregivers		
	More than 3 caregivers		
Age at first admission	0-3 months		
	3-6 months		
	6-12 months		
Years spent in institutions	6 months		
	1 year		
	Over 1 year		
Siblings in the same institutions	Yes		
	No		
Amount of contact with parents or realtives	Frequent		
	Sporadic		
	Rare		

Characteristics of biological parents

Biological parents	Orphanage children (N=)	Adopted children (N=)	Control group (N=)
Criminality			
One/both parent(s)			
Psychotic disorder			
One/both parent(s)			

Social malfunctioning
One/both parent(s)
Composite measure
No abnormality
One index only
Two or more indices

APPENDIX D

Overview toys SSP (2-, 3-, and 4-year-olds)

- Bert and Ernie (Dolls of Sesame Street)
- Duplo
- Spinning top
- Hand-doll
- Ball
- Hammer game
- Blocks
- Big stuffed dog
- Motorway with cars
- Doll
- Hoisting crane
- Plastic farm with animals, etc

Overview toys SSP (3-, 4-, and 5-year-olds)

- Set of tools
- Spinning top
- Hand-doll
- Ball
- Wooden hammer game
- Big stuffed dog
- Motorway with cars
- Doll
- Hoisting crane
- Plastic farm with animals, etc

APPENDIX E

Lab session post-test

General instructions in the waiting room

As soon as you have been called (or buzzed) that the mother has arrived, you go and pick her up at the reception and you walk with her to the waiting room next to the coffee machine on the first floor (ask mother whether she prefers going by stairs or taking the elevator). Explain to mother that she may leave her buggy there and take off coats, which you will take with you into the observation room, and that she can give her bag to you, the experimenter. Ask her about her trip, whether she could find it, et cetera.

Tell her:
"As you know, we will do several tasks in the coming two hours. We will start with collecting saliva again, like you did at home. Next, there will be sort of a waiting room situation, in which you will be asked to leave the room two times for a short moment and than there is a break, in which you can eat or drink something. Did you bring something to drink for ***(name child)****?* (Preferably no orange juice or milk because of the cortisol measurement!) *And what would you like to drink then? Coffee/tea, milk/sugar?*
After the break we will do some more tasks, like cleaning up, playing together with toys, and finally we will ask you to fill in another questionnaire. Of course, I will tell you every time before the task what we are going to do. I will also often give you a card with the explanation, because children otherwise already know what is going to happen. That is also what I did for the first part. That is the waiting room situation that you will probably remember from the other times. I will let you read the card for this situation in a moment. Do you have any questions about this?"

When the mothers tell you that they feel insecure about what is going to happen, you can give some additional explanation. For example that they are going to do many different tasks and that you will come in every time to give explanation about the task and then will leave again. That you will afterwards come in for the next task, give explanation and leave again. Refer to the visits before. You can also tell that you will usually give a card on which explanation is written because children of this age otherwise often already know what is going to happen.

When mothers tell you that they feel insecure about the waiting room situation, you can tell a bit more about it, for example that it is very important for us that mother leaves the room two times shortly, but that she then immediately can go in if the child is upset. Tell her that she can watch the situation from the other side of the window and she can herself comment on how she feels that it is going. Also tell her that this is the only part where mother leaves the room (2 times leaving the room shortly and from then on continually together)

About playing together you can tell that in the waiting room situation mother has more distance (reading in the chair), but that they will do all kinds of things together after the break.

"Shortly we will go again to another room. That is the room where you will do the tasks. There is, as you know, a one-way mirror, where you can look through from one side, and not from the other side; like sometimes is shown in police movies. As you know, this will be filmed again and the person who operates the camera is behind the mirror, and I will be there too in the time between (you can tell who else will be there)."

Ask whether the mother or child maybe would like to go to the toilet first.

"Would you maybe like to go to the toilet before we start?"

Also ask whether children have things in their pockets (keys, little stones, etc) or have a stuffed animal with them. When this is the case, ask them to put it in the bag and tell them that they will get it back in the break and at the end, but that experience teaches us that it can be distracting when children take this with them.

*"Does (**name child**) maybe have anything in his/her pockets. Then I would like to ask you to put it in the bag. In the break and at the end you will of course get the bag back, but experience teaches that it can be distracting when children have these things with them during play and during the tasks."*

Also ask whether mother could turn her mobile phone off, if she has it with her, because that causes problems for the equipment!

"I will then explain the next task to you.

There are two chairs in the room where we will go to shortly. You can take a seat in the chair on the right side and (**name child**) can play. I will then let you read the card with explanation for this first part. You can keep it with you so that you can look at it again if you want."

Now tell mother not to say that she needs to go to the toilet, because experience tells us that children then want to go with them.

In the playroom you give the card to the mother (0). When mother has read the card, you let her hear how the knock sounds.

Strange Situation (20 minutes)

Episode 1:

Walk with mother and child to the playroom. Point to the chair where she can take a seat, give the card (0). Let her hear the knock when she has read the card, so that she will recognize the sound.

"The knock sounds like this: (**knock**)"

Ask her whether she understands everything up to this point.

Camera man:
! Start the video recorder just before mother and child enter the play room.
! Push the timekeeper at the right moment: as soon as the experimenter has left the playroom, you turn on the timekeeper by pushing button S6 down.

Episode 2: *Mother and child are together in the playroom*

Experimenter:
Keep track of the time on the monitor, because that is the most accurate for this episode (each time 3 minutes per episode).

➔ **After 3 minutes (on the timekeeper; 2.50 on your stopwatch)** you let the stranger go into the room, with a magazine. Now, keep track of the time on your stopwatch.

Episode 3: *Mother, child and stranger are together in the playroom.*

Turn on the stopwatch:
➔ **After 1 minute** you knock for the stranger (*talking)*
➔ **After 2 minutes** you knock for the stranger (*playing*)
➔ **After 3 minutes** you knock for the mother (*leaving the room*).
It is important that at the moment of mother's leaving, the focus of the child is not on the mother. In other words, the child may sit close to the mother, as long as he/she does not have his/her attention focused on the mother (by looking, holding, talking).

Then go stand in the corridor to take care of the mother. It is ok when the mother says bye to the child.

Try to see whether you can already make a judgment of how the child may be going to react to the separation and how soon you need to start with your explanation to the mother.

When the mother is not able to leave the room, do not intervene at first. It is important to record the possible discussion that emerges between mother and child. The experimenter has to judge himself/herself when it really takes too much time. Than you can give a knock for the stranger to intervene. But do not do that too soon!
When mother asks for help from the stranger, the stranger can react by saying for example: 'maybe you can do it like you are used to do at home'.
When the child walks along with mother out of the playroom, the experimenter asks mother whether she wants to let the child go in.
Depending on how the child reacts after the departure of mother, you start immediately with the explanation to be able to send the mother back in.

- reset stopwatch -

Episode 4: *The child is in the playroom together with the stranger*

After episode 3 you stand in the corridor to take care of the mother, and you take her with you to the observation room. Watch with her and now and then say something positive about what is happening inside. Keep your tone and the atmosphere relaxed. Make sure it is not silent the whole time, that gives the mother a feeling of insecurity. Avoid subjects concerning the development of the child and/or feelings of mother and child. For example, you can explain that the toys have been cleaned for the whole morning/afternoon, because we know that children sometimes put it in their mouth and that that is therefore ok. Or you can ask which toys the child already knows.

If the separations are really difficult, you can add that this is the only task where mother leaves the room (once more) and that they will be together during the rest of the visit.

➔ **After 1.50 minutes** you start with the following instruction:

When the child is upset or is starting to get upset, you start your explanation sooner.

*"When you go in again shortly, would you please call (**name child**)'s name first in the corridor, before you go in, then knock on the door, then open the door and when you go in call his/her name again. I would like to ask you then to stay there for a moment and then you can go further into the room. (**If the child cries**: If so desired you can comfort (**name child**)) You can then take a seat again and start reading. (**Name child**) can then go playing again. Then I give another knock on the window, then I would like to ask you to leave again. You can say bye to (**name child**). You will be waited for over here again and then I will explain the next part to you. Please do not say that you will go to the toilet, because experience tells us that there is a big chance then that the child wants that too. So call his/her name in the corridor, knock, open the door and say his/her name again, stay there for a moment and then go on. And when you hear the knock, leave the room again. "*

If the first separation was really difficult, say that when leaving the second time is not possible, we will skip it (however, you will try to do the second separation). Say that you then give a knock on the window, so that mother knows she does no longer need to try it and can go sit down and read again.

If the child cries: Emphasize that the mother is allowed to comfort the child, but that she needs to sit down again after comforting and should not play (too) long with the child.

→ **After 2.40 minutes** you knock for the stranger, who if necessary makes space to walk and takes a seat. You can explain this shortly to mother if desired.

Camera man:
Put the cameras ready for the reunion: Camera no. 1 (corridor camera) zoomed out on the face of the child and Camera no. 2 (window camera) zoomed out on the door (try to include the child)

- The facial expressions of the child are important. It is important that the facial expressions of the child are well visible during the first greeting
- Make sure that also the hands of the child are in the picture
- Be prepared that the mother might lift the child (camera zoomed out).
- During the remainder of the reunion, the camera needs to film the mother as well as the child, as long as they are close enough to have a clear picture of the facial expressions of the child. Otherwise, the camera needs to be focused on the child while every now and then shortly zooming out so that the mother will also be in the picture.
- So the child needs to be in the picture the whole period from the front or from the side.

→ **After 3 minutes (2.55)** let mother go back in.

→ If necessary, you give an "emergency knock" for the stranger, as a sign that the mother is arriving at that moment and that the stranger needs to withdraw to the chair.

- reset stopwatch -

Episode 5: *Mother is now alone with the child in the playroom*

→ **After 3 minutes** you knock again.

After the knock you go to the corridor again to take care of the mother.

If the child is very upset because of the first separation and you expect that the separation will be more difficult because of this, you prolong episode 5 a bit (about one minute), before you give the knock for mother.

If mother is really not able to leave the room, you knock on the window, so that mother knows she can go and have a seat and read again (if you gave this explanation behind the window, otherwise you come in to say it). You skip this and the following episode and come in after 3 minutes for the break.

- reset stopwatch -

Episode 6: *The child is now alone in the playroom.*

Let mother watch with you and every now and then make a positive comment. Keep the tone and atmosphere relaxed. Make sure it is not silent during this whole period, that gives mother a feeling of insecurity. Avoid subjects concerning the development of the child and/or feelings of mother and child. For example, you can talk about the toys the child likes, whether he/she has them at home too, what a nice clothes/shoes he/she is wearing, et cetera.

Let the stranger go stand before the door and tell the mother that the stranger is standing there, so that the child does not look into an empty corridor, but sees a familiar face when he/she opens the door.

➔ **After 3 minutes (2.55)** the stranger goes back in (or sooner if necessary).
Give the stranger a sign for this purpose and give explanation to the mother.

- reset stopwatch –

Episode 7: *The child is in the playroom together with the stranger.*

Still make a positive comment every now and then. Make sure it is not silent during this whole period, that gives the mother a feeling of insecurity.

➔ Start **after about 1.50 minutes** with the following instruction.
*"When you go in later, you can immediately knock, then open the door and when you go in, call (**name child**)'s name. First you need to stand there for a moment and then you can go in the room further. (**If the child cries**: If desired, you can comfort (**name child**)) Then you can take a seat and read again, and (**name child**) can then play again. Next, I will come in again for the break.*
So first knock, open the door, call name, stand there for a moment and then go further."

If the child cries, emphasize again that the mother is allowed to comfort, but after comforting she needs to go take a seat again and not to play (too) long with the child.

➔ **After 2.40 minutes** you knock again for the stranger, who if necessary makes space to walk and takes a seat. You may explain this shortly to mother.

Camera man:
Put the cameras ready for the reunion: Camera no. 1 (corridor camera) zoomed out on the face of the child and Camera no. 2 (window camera) zoomed out on the door (try to include the child)

- The facial expressions of the child are important. It is important that the facial expressions of the child are well visible during the first greeting
- Make sure that also the hands of the child are in the picture
- Be prepared that the mother might lift the child (zooming out the camera).
- During the remainder of the reunion, the camera needs to film the mother as well as the child, as long as they are close enough to keep a clear picture of the facial expressions of the child. Otherwise, the camera needs to be focused on the child while now and then shortly zooming out so that the mother will also be in the picture.
- So the child needs to be in the picture the whole period from the front or from the side.

→ **After 3 minutes (2.55)** you let the mother go back in.

→ When necessary, you give an "emergency knock" for the stranger, as a sign that the mother is arriving at that moment and that the stranger needs to withdraw to the chair.

- reset stopwatch -

Episode 8: *Mother and child together in playroom.*

Mother goes in.

Ask the stranger immediately to get coffee or tea for the mother

→ After **3 minutes (2.55)** the experimenter goes in.

NB. If the child has cried and it took some time before he/she was quiet again, prolong the situation a bit; a few minutes after the child has become quiet you can stop the episode.

Episode 9: *Strange Situation is finished.*
NB.
Never let the child cry for more than **15 sec**. after separation; Then send stranger (or mother) back in. If the child prepares to leave with mother during separation, immediately send back in the stranger.

Strange Situation

Episode.	**person**	Activities	**task**
1	Mother, child, experimenter	Let mother and child go in, Point a chair, Let mother read the card Let mother hear the knock.	"You can go take a seat here. "The knock sounds like this: (**knock**)"
2	Mother, child	**After 3 min.** stranger goes in	
3	Mother, child, stranger	**Turn on the stopwatch** **After 1 min.** knock, **After 2 min.** knock, **After 3 min.** knock. *Reset stopwatch*	
4	Child, stranger	Take care of the mother, Let mother watch with you, Make positive comments, **After 1.50 min.** explanation episode 5, **After 2.40 min.** knock, **After 3 min. (2.55)** mother goes back in. *Reset stopwatch*	*"When you go in again shortly, would you please call (**name child**)'s name first in the corridor, before you go in, then knock on the door, then open the door and when you go in call his/her name again. I would like to ask you then to stay there for a moment and then you can go further into the room. (**If the child cries**: If so desired you can comfort (**name child**)) You can then take a seat again and start reading. (**Name child**) can then go playing again. Then I give another knock on the window, then I would like to ask you to leave again. You can say bye to (**name child**). You will be waited for over here again and then I will explain the next part to you. Please do not say that you will go to the toilet, because experience tells us that there is a big chance then that the child wants that too.* *So call his/her name in the corridor, knock, open the door and say his/her name again, stay there for a moment and then go on. And when you hear the knock, leave the room again. "*
5	Child, mother	**After 3 min. knock.** *Reset stopwatch*	
6	Child	Take care of mother, Let mother watch with you, Make positive comments,	

		After 3 min. (2.55) stranger goes back in *Reset stopwatch*	
7	Child, stranger	**After 1.50 min.** instructions, **After 2.40 min.** knock, **After 3 min. (2.55)** Mother goes back in. *Reset stopwatch*	*"When you go in later, you can immediately knock, then open the door and when you go in, call **(name child)**'s name. First you need to stand there for a moment and then you can go in the room further. **(If the child cries**: If desired, you can comfort **(name child)**) Then you can take a seat and read again, and **(name child)** can then play again. Next, I will come in again for the break. So first knock, open the door, call name, stand there for a moment and then go further."*
8	Mother, child	Let stranger get coffee! **After 3 min. (2.55)** experimenter goes back in	

APPENDIX F

Checklist Strange Situation Procedure

Name child:	
Respondent no.:	

Date:	
Experimenter:	
Stranger:	

Comments regarding the procedure:

.....
.....
.....
.....
.....
.....
.....

Was the child *ill, did he/she had a cold, were his/her teeth bothering him/her*?

.....
.....

Did he/she has a *dirty diaper*?

.....
.....

Did *father or grandparents* come along, were they standing in the corridor?

.....
.....

Did the child recently *stayed the night over*?

.....
.....

Did the child *sleep* well last night?

.....
.....

Did the *trip by train* go well, was it a special experience for the child?

.....
.....

Has the child been *ill* recently? Or did the child get *vaccinations*? Or was the child *hospitalized*?

.....

.....

Does the child have a *new babysitter*, changes in the *day care centre*?

.....

.....

Did the child get recently a *new brother or sister*?

.....

.....

Has the mother been recently on a *(business)trip*?

.....

.....

Has the mother been recently *hospitalized*?

.....

.....

Has there been a *heat wave*?

.....

.....

Has there been *noise pollution*?

.....

.....

Other comments:

.....

.....

.....

.....

.....

.....

.....

.....

APPENDIX G

Explanation card Strange Situation

In a moment you can go read the magazine.
Your child can go play with the toys on the ground

After a while someone comes in and takes a sit in the other chair and starts reading

- After the **first** knock, she will start making conversation with you.
- After the second **knock** she will start playing with your child.
- After the **third** knock you may leave the room. You may say bye shortly.

I will be standing in the corridor and take you with me to the film room. I will give you further explanation over there.

APPENDIX H

HEALTH ASSESSMENT QUESTIONNAIRE

Name of child_____
Date of birth_____

_____

Place of birth_____

_____

Birth data

Prenatal exposure

	yes	no	unknown
alcohol			
drugs			
smoking			

Prematurity (number of weeks of pregnancy at delivery)_____

Apgar scores

at one minute after birth_____
at five minutes after birth_____

Type of delivery

- ☐ normal
- ☐ forceps or vacuum extraction
- ☐ cesarean section
- ☐ unknown

Date of admission to orphanage_____

_____

Growth and development

	birth	3 mo	6 mo	9 mo	1 year	2 years	3 years	4 years
Weight								
Height								
head circumference								

Family/Social history (if possible)

Mother

age _____

profession/social functioning_____

_____

	yes	no	unknown
Alcohol use			
Drug use			
Presence of psychotic disorders			
Criminal record			

Father

age _____

profession/social functioning_____

_____

	yes	no	unknown
Alcohol use			
Drug use			
Presence of psychotic disorders			
Criminal record			

Siblings

age _____

place of living (home/orphanage)_____

Developmental milestones

Gross motor development

skill	months
rolls over	
sits independently	
crawls on hands and knees	
walks alone well	
rides tricycle	

Fine motor development

skill	months
mature pincer grasp	
builds tower of 2 blocks	

Transfusions

reason	date

Chronic medical conditions_ (specify)

_____

_____

_____

_____

_____

Infectious diseases

disease	yes	no	unknown
Measles			
Chickenpox			
Mumps			
Throat infection			
Otitis media			
TBC			
Hepatitis B			
Hepatitis C			
Intestinal parasites or other enteric infections			
HIV			
Syphilis			
Skin infections			

Other (specify)_____

_____

_____

Other medical conditions

disease	yes	no	unknown
Fetal alcohol syndrome			
Microcefaly			
Hearing impairment			
Visual impairment			
Craniofacial anomalies			
Rickets			
Cardiac disease			

APPENDIX I

University of Malawi
CHANCELLOR COLLEGE
DEPARTMENT OF PSYCHOLOGY

Home Environment Potential Assessment (HEPA) schedule (Form D)

based on University of Zambia, Psychology Dept (1985) HEPA (Form B) Age-range: 2 - 6

Child's Name: _____ **Gender:** _____ **Age:** _____

Address: _____ **Date of Birth:** _____

1. Key persons in the child's home environment

(a) Mother's name: _____
(*In case of substitute, specify circumstances below: otherwise delete)

Age: 15-20/21-30/31-45/46+

Health: Good/ Fair/ Minor illness/ short-term serious illness/ long-term debilit

(specify any problems _____

Number of children under age 13 currently living in her care: _____

(of whom aged less than 2_____ aged 2-6 _____ aged 7-12 _____)

Years of schooling, etc.: _____

Employment status: _____

Other information: _____

_____

_____

_____

(b) Grandmother's name: _____

(only if child eats and/or sleeps with her or spends much of waking day with her – check pattern during past week: sleeping _____, eating _____ waking day _____)

Age: 30-45/ 46-60/ 61+

Allergies			
Cerebral palsy			
Enuresis			
Encopreses			

Other (specify)_____

APPENDIX I

University of Malawi
CHANCELLOR COLLEGE
DEPARTMENT OF PSYCHOLOGY

Home Environment Potential Assessment (HEPA) schedule (Form D)

based on University of Zambia, Psychology Dept (1985) HEPA (Form B) Age-range: 2 - 6

Child's Name: _____ **Gender:** _____ **Age:** _____

Address: _____ **Date of Birth:** _____

1. Key persons in the child's home environment

(a) Mother's name: _____
(*In case of substitute, specify circumstances below: otherwise delete)

Age: 15-20/21-30/31-45/46+

Health: Good/ Fair/ Minor illness/ short-term serious illness/ long-term debility

(specify any problems _____)

Number of children under age 13 currently living in her care: _____

(of whom aged less than 2_____ aged 2-6 _____ aged 7-12 _____)

Years of schooling, etc.: _____

Employment status: _____

Other information: _____

_____

_____

_____

(b) Grandmother's name: _____

(only if child eats and/or sleeps with her or spends much of waking day with her – check pattern during past week: sleeping _____, eating _____ waking day _____)

Age: 30-45/ 46-60/ 61+

Health:Good/ Fair/ Minor illness/ short-term serious illness/ long-term debility

(specify any problems _____)

Number of children under 13 currently living in her care:

(of whom aged less than 2 _____ aged 2-6 _____ aged 7-12 _____)

Years of schooling, etc.: _____

Other information: _____

_____

_____

(d) Other care giver's name: _____

(only if child eats and/or sleeps with him/her or spends much of walking day with her- check pattern during past week: Sleeping _____ eating _____ waking day _____ - specify how closely is this person's care supervised/ guided by (a) or (b): not at all/loosely/closely)

Relationship to child: _____

Gender: male/ female

Age: 7-13,0 / 13,1 –16/ 17-20/ 21-30 /31-45/ 46-60/61+

Health:Good/ Fair/ Minor illness/ short-term serious illness/ long-term debility

(specify any problems _____)

Number of children under age 13 currently living in his or her care (of whom aged less than 2 _____ aged 2-6 _____, aged 7-12 _____)

Years of schooling, etc. _____

Employment status: _____

Other information: _____

_____

_____

_____

(d) This schedule is based on an interview with the following key persons:

Mother / Mother-substitute / Grandmother / other care-giver

ADMINISTRATION OF THE SCHEDULE

1. Home visitor's name: _____

2. Accompanied by: _____

3. Date of visit: _____ day of week: _____

4. Time of visit: _____ to _____ Duration _____

5. Supplementary visit(s) (if any, specify day of week + time of day)

_____

_____

_____

_____

6. Language(s) used during the interview(s) in order of decreasing frequency.

_____

7. Was adequate communication established?

Good/Fair/Poor
3 2 1

8. Was child present for a sufficient proportion of the interview?

Most ½ to ¾ ¼ to ½ Very little
4 3 2 1

9. Was the key person cooperative?

Enthusiastic/	compliant/	reserved/	dominated by/ another family member	Hostile
5	4	3	2	1

10. How did the key person rate child's behaviour during visit by comparison with the child's normal pattern of behaviour?

Better than usual / normal / worse than usual
2 3 1

11. Was the child sleepy during the visit?

Yes / No
1 2

12. Was the child hungry during the visit?

Yes / No
1 2

13. Was the child unwell during the visit?

Yes / No
1 2

14. Was the child distressed by some other external factor during the visit? Yes / No
1 2

(If so, specify below)

_____

_____

Additional information relevant to quality of data generated by visit

_____

_____

_____

_____

_____

(1) PHYSICAL SUPPORT

All ages

OS	1.	Is the child's family assured of an adequate food supply? (even at month ends and in January)	Yes + 1 No
OS	2.	Was the child clothed at the first contact in garments which are not tattered or thread bare? No	Yes + 1
OS	3.	At the first contact was the child's clothing smelly?	No + 1 Yes
OS	4.	During the visit were the hair, ears and nose of the child clean?	Yes + 1 No
PS	5.	Did the key person show evidence of an adequate knowledge of primary child health care? cuts - cleaning/antiseptic diarrhoea - liquids/oral rehydration eye problems – no patent ointments/referral ear problems – no sharp objects/referral high temperatures – cooling/aspirin/referral	Yes + 1 No
PS	6.	Did the key person express a commitment to daily bathing of the child?	Yes + 1 No
PS	7.	Does the key person generally allow the child to sleep at certain times when adults are awake? (e.g. early to bed, late to rise, afternoon sleep)	Yes + 1 No
OR	8.	Does the child show clear signs for moderate malnutrition? (very thin limbs, pot belly, reddish hair, etc.)	No Yes – 1

OR	9.	Did you notice any clearly unsafe features of the house? (if so, specify below)	No
OR	10.	Did you notice any unsafe features of the most accessible play area? (if so, specify below)	No Yes – 1
PR	11.	Did the key person report that in the cold season the child sleeps with a brazier indoors?	No Yes – 1

Physical Support sub-total score: strengths +

_____

_____

risks -

_____

Global assessment: how do you rate this child's regular effective environment in terms of physical support?

very weak/ weak / average / strong / very strong
1 2 3 4 5

Additional notes on Physical Support

_____

_____

_____

_____

(2) EMOTIONAL SUPPORT

All ages

OS	14.	During the visit did you observe the child laughing cheerfully together with the key person	Yes + 1 No
OS	15.	Was the key person's tone of voice warm when talking about the child?	Yes + 1 No
OS	16.	Did the key person respond positively to praise of the child by you (the visitor)?	Yes + 1 No
PS	17	Did the key person's conversation about the child express a generally hopeful outlook?	Yes + 1 No
OR	18.	Was the child's behaviour during the visit generally sullen in the company of the key person?	No Yes – 1
PR	19.	Did anything said by the key person suggest to you that s/he could quite easily abandon the child? (If so, specify below)	No Yes – 1

_____

_____

PR	20.	Did the key person give the impression of being a generally unfriendly person?	No Yes – 1

Under 2 and 2-6

OS	24.	During the visit was key person openly affectionate towards the child?	Yes + 1 No
OS	25.	During the visit was the child openly affectionate towards the key person?	Yes + 1 No

2-6 only

PS	26.	Did the key person report that s/he generally allows the child to cuddle up for at least 10 minutes each day?	Yes + 1 No

Emotional Support sub-total score. _____

- Strengths: + _____

_____

_____

- Risks: - _____

Global assessment: how do you rate this child's regular effective environment in terms pf emotional support?

Very weak/ weak / average/ strong/ very strong

1 2 3 4 5

Additional notes on Emotional Support

_____

_____

_____

_____

FRAMING

All ages

OS	30.	Did the key person converge with you (the visitor) freely and easily?	Yes + 1 No
OS	31.	Was the physical home environment of the child organized and tidy?	Excessively tidy Very tidy +1 Average 0 Rather untidy –1 (Chaotic) Excessively untidy –2
PS	32.	Has the child's home environment included the same father – figure all the child's life?	Yes + 1 No
OR	33.	Did the key person, without adequate explanation, insist on sending the child away during the interview.	No Yes – 1
OR	34.	Did the key person when discussing the child express uncertainty 2 or mote times.	No Yes – 1
OR	35.	Did the key person during the visit show signs of significant frustration?	No Yes – 1
OR	36.	Did the key person during the visit display strange behaviour suggestive of mental illness?	No Yes – 1
PR	37.	Have there been any recent major changes in the daily routine of the family? (if so, specify below)	No Yes – 1
PR	38.	Did the parents of the child divorce or separate for more than 3 months after the child was 1 year old?	No Yes – 1
PR	39.	Did the key person report frequent disagreements with another authority figure in the child's family concerning the child's upbringing?	No Yes – 1
PR	40.	Did the key person report that s/he often threatens the child with punishments or loss of privileges without actually implementing the threat?	No Yes – 1
PR	41.	Did the key person report that during the child's lifetime the key person has experienced one or more episodes of mental illness? (including ngulu, etc.)	No Yes – 1

2-6 and 7-12

PS	44.	Did the person express an attitude which is supportive of the child forming lasting friendships with other children?	Yes +1 No
PS	45.	Did the key person report that the child is expected to observe regular meal-times?	Yes + 1 No
PS	46.	Did the key person report that the child is expected to go to sleep at a regular time?	Yes + 1 No
PS	47.	Has the child shifted from one home to another more than once in the past 6 months?	No Yes – 1

Framing sub-total score: - Strengths: +

- Risks: -

Global assessment: how do you rate this child's regular effective environment in terms of framing?

Very weak/ weak / average/ strong/ very strong
1 2 3 4 5

Additional notes on framing

(3) INDIVIDUALISING

All ages

OS/R	51.	During the visit, when the child asked him/her questions was the key person verbally responsive and considerate (as opposed to evasive, dismissive or repressive)?	Yes + 1 N/A No – 1
OS	52.	During the visit, did the key person actively encourage the child to talk?	Yes + 1 No
OS	53.	During the visit, did the key person help the child to demonstrate some achievement?	Yes + 1 No
OS	54.	During the visit, did the key person assign the child a challenging task requiring some initiative?	Yes + 1 No
OS	55.	Did the key person introduce the child to you (the visitor)?	Yes + 1 No
OS	56.	During the visit, did the key person praise the child openly?	Yes + 1 No
OS	57.	Did you observe that the child has an acknowledged special place for storing his/her play things?	Yes + 1 No
PS	58.	Did the key person show an awareness of the child's personal tastes and preferences?	Yes + 1 No
PS	59.	Did the key person express a tolerant attitude towards any of the child's play things in the house?	Yes + 1 No – 0
PS	60.	Does the key person profess to allow the child some choice in respect of clothing?	Yes + 1 No
PS	61.	Does the key person profess to sometimes reserve extra or special food for the child?	Yes + 1 No
OR	62	Did the key person smack the child during the visit?	No Yes – 1
OR	63.	During the visit did the key person use mockery or sarcasm towards the child?	No Yes – 1
OR	64.	During the visit did the key person scold the child more than appropriate?	No Yes – 1
OR	65.	Did you at any time during the visit observe the child run away from the key person in fear?	No Yes – 1
OR	66.	Did you observe the child tense up or fall silent as a response to the key person's presence?	No Yes – 1

OR	67.	Did you observe the child cheer up or relax when the key person left?	No Yes – 1
OR	68.	Was the child unusually timid towards you (the visitor)?	No Yes – 1
PR	69.	Does the key person report that the child sometimes hides from him/her when s/he has done wrong?	No Yes – 1
PR	70.	Does the key person profess to often intervene in the child's choice of play mates?	No Yes – 1

2-6 only

OR	74.	During the visit did the key person physically restrain the child?	No Yes – 1
PR	75.	Did the key person report that s/he would ever use shaming to punish the child e.g. if s/he wet her/ himself?	No Yes – 1

2-6 and 7-12

PS	76.	Does the key person report that the child is willing to report his/her own mistakes to the key person?	Yes + 1 No.
PS	77.	Does the key person report that s/he would reassure rather than punish the child if s/he was visibly distressed by her/his own mistake?	Yes + 1 No
PS	78.	Does the key person report that s/he would encourage the child to try again in the event of failure?	Yes + 1 No
PR	79.	Does the key person report that s/he strictly controls child's personal décor (e.g. hairstyles, badges, bangles, etc.)	No Yes – 1
PR	80.	Did the key person report that any adult family member has used severe corporal punishment on the child in the past week?	No Yes – 1

Individualising sub-total score: - Strengths: _____ +

_____

_____

- Risks: _____ -

Global assessment: how do you rate this child's regular effective environment in terms of individualising?

Very weak/ weak / average/ strong/ very strong
1 2 3 4 5

Additional notes on individualising:

_____

_____

_____

_____

_____

(4) TRAINING IN SOCIAL RESPONSIBILITY

All ages

OR	84	During the visit did the child display in the key person's presence Open aggression without rebuke or restraint from the key person	No Yes – 1
OR	85.	During the visit did the child display in the key person's presence indisciplined, antisocial behaviour without rebuke or restraint from the key person?	No Yes – 1
OR	86.	Was the key person's behaviour over protective towards the child?	No Yes – 1
OR	87.	Did the key person express disapproval of altruistic behaviour in the child as foolish?	No Yes – 1
PR	88.	Did the person report that child has severely limited opportunities for play with peers?	No Yes – 1
PR	89.	Did the key person express an attitude in favour of severely restricting the child's play with peers?	No Yes – 1

Under 2 and 2-6

OS	91.	During the visit did the child perform at least one act of spontaneous sharing?	Yes + 1 No

2 to 6 and 7-12

OS	92.	During the visit, did the child perform at least one act of spontaneous, domestically responsible behaviour? (e.g. carry away cup from living area, serve food, sweep floor, etc.)	Yes + 1 No
OS	93.	During the visit, did the child perform at least one act of nurturance towards another child? (e.g. wipe nose, comfort, feed, carry on back, etc.)	Yes + 1 No
PS	94.	Did the key person state that if s/he observed the child behaving in a non-aggressive but selfish manner they key person would intervene to correct the selfishness? (e.g. induce the child to share, rebuke or punish the child)	Yes + 1 No
PS	95.	Did the key person describe one or more instances in which s/he required the child to wait before receiving something the child wants very much (e.g. food)?	Yes + 1 No
PS	96.	Did the key person differentiate between intentional and unintentional acts in discussing allocation of blame to the child? (e.g. was the act done "on purpose", did the child	Yes + 1 No

understand what s/he was doing?)

PS 97. Does the key person <u>insist on child carrying out instructions promptly</u>? Yes + 1 / No

Responsibility sub-total score: - Strengths: +

- Risks: -

<u>Global assessment:</u> how do you rate this child's regular effective environment in terms of responsibility?

Very weak/ weak / average/ strong/ very strong
1 2 3 4 5

<u>Additional notes</u> on training for social responsibility:

(6) DEMONSTRATION AND EXPLANATION OF IDEALS

All ages

PS	102.	Is the key person very keen for the child to go to secondary school in future?	Yes + 1 No
PS	103.	Did someone in the child's regular effective environment, who is a parent figure, complete some secondary schooling?	Yes + 1 No
OR	104.	During the visit, did the child consume some alcohol, tobacco or hemp?	No Yes – 1
OR	105.	During the visit, did the key person violate one or more rules of common courteousy?	No Yes – 1
PR	106.	Does the key person report that the child sometimes accompanies adults to drinking places?	No Yes – 1

Under 2 and 2 – 6

PR	107.	Did the key person report that s/he would always hit back if the child hit them?	No Yes – 1

2 – 6 and 7 – 12

OS	108.	During the visit, did the child volunteer one or more substantive comments as a contribution to the adult discussion of child behaviour and child-rearing?	Yes + 1 No
PS	109.	Does the child regularly (at least once per week) receive a significant amount of care (half a day or more) from another adult (other than the key person being interviewed)?	Yes + 1 No
PS	110.	Does the child regularly attend church, Sunday school, or a similar activity where moral principles are openly stated?	Yes + 1 No
PS	111.	If the child expresses negative feelings, would the key person, in principle, listen (rather than repressing):	Yes + 1 No
PS	112.	Does the key person favour the use of reasoning in settling children's disputes?	Yes + 1 No
PR	113.	Does the key person report that the child sometimes smokes or drinks alcohol?	No Yes – 1
PR	114.	Is the child's immediate family very isolated from other relations and friends with little or no social contact with them?	No Yes – 1

Ideals Demonstration sub-total score: - Strengths: +

- Risks: -

Global assessment: how do you rate this child's regular effective environment in terms of demonstration and explanation of ideals?

Very weak/ weak / average/ strong/ very strong
1 2 3 4 5

Additional notes on demonstration and explanation of ideals:

(7) INTELLECTUAL STIMULATION AND CAPACITATION

Under 2 and 2 – 6

OS	128.	During the visit, did the key person spontaneously express an explicit interest in promoting the child's developmental advance?	Yes + 1 No

2 – 6 only

OS	129.	Does the key person express his/her ideas in words coherently? (i.e. normal adult speech)	Yes + 1 No
OS	130	Were there at least 10 books visible in the home?	Yes + 1 No
OS	131.	Can the child count up to 10?	Yes + 1 No
OS	132.	Can the child read a few written words or letters? (age 2:3 Letters; age 3:5 letters; age 4: al letters, age 5-6:5 words)	Yes + 1 No
OS	133.	Can the child write her/his own name? (age 2-4:1 recognizable age 5-6: most letters recognizable)	Yes + 1 No
PS	134.	Does the child attend a pre-school?	Yes + 1 No
PR	135.	Does the child ever accompany the key person when she/he goes out visiting?	Yes + 1 No

2 - 6 and 7 - 12

OS	136.	Does the key person sometimes use complex sentence structures or unusual vocabulary (difficult for young children to understand)?	Yes + 1 No
OS	137.	Did you observe the key person include in her/his conversation with the child an explanation of a general principle?	Yes + 1 No
OS	138.	did the key person generally answer the child's questions verbally?	Yes + 1 N/A No – 1
OS	139	During the visit did the key person encourage the child to talk and take time to listen?	Yes + 1 No
OS	140	Did the key person, during the visit, try to test the child's knowledge?	Yes + 1 No
OS	141	Did the key person, during the visit, deliberately elicit skilled performance by the child?	Yes + 1 No

OS	142	Does the child have free access to a (real or toy) musical instrument?	Yes + 1 No
OS	143	Did you see on display in the home a product of the child's creative activity? (e.g. beadwork, carving, drawing, knitting, model-building painting, sewing etc.) or was the child's creative contribution to cookery or plaiting etc pointed out to you?	Yes No
PS	144	Is the child reported to participate actively in story-telling, riddle-setting, etc.?	Yes + 1 No
PS	145	Does an adult (17+) member of the child's regular effective environment engage in a structured intellectual activity with the child about once per week or more? (excluding assignments set by the school (e.g. playing nsolo, draughts, etc., reading to one another, testing child's knowledge of bible, checking family business stocks, etc.)	Yes + 1 No
PS	146	Does the child regularly engage in this type of activity (described in item 145) with other children?	Yes + 1 No
PS	147	Is there any member of the household who is a teacher by occupation?	Yes + 1 No
OR	148	Is the child physically able to move around freely in the home environment?	Yes No – 1

Intellectual capacitation sub-score: - Strengths: +

- Risks: -

Global assessment: how do you rate this child's regular effective environment in terms of intellectual stimulation and capacitation?

Very weak/ weak / average/ strong/ very strong
1 2 3 4 5

Additional notes on intellectual stimulation and capacitation:

APPENDIX J
Early Childhood HOME
Bettye M. Caldwell and Robert H. Bradley
Summary Sheet

Family name _____ Date _____ Visitor _____

Address _____ Phone _____

Child's name _____ Birth date _____ Age _____ Sex _____

Interviewee _____ If other than parent, relationship to child _____

Family composition _____
(persons living in household, including sex and age of children)

Family ethnicity _____ Language spoken _____ Maternal education _____ Paternal education _____

Is mother employed? _____ Type of work when employed? _____ Hrs/Wk _____

Is father employed? _____ Type of work when employed? _____ Hrs/Wk _____

Current child care arrangements _____

Summarize past year's arrangements _____

Other person(s) present during visit _____

SUMMARY

Subscale	Possible Score	Median	Actual Score	Comments
I. LEARNING MATERIALS	11	8		
II. LANGUAGE STIMULATION	7	6		
III. PHYSICAL ENVIRONMENT	7	6		
IV. RESPONSIVITY	7	6		
V. ACADEMIC STIMULATION	5	4		
VI. MODELING	5	3		
VII. VARIETY	9	8		
VIII. ACCEPTANCE	4	4		
TOTAL SCORE	55	40		

Early Childhood HOME Record Form

Place a plus (+) or minus (-) in the box alongside each item depending on whether the behavior is observed during the visit, or if the parent reports that the conditions or events are characteristic of the home environmer Enter the subtotals and the total on the Summary Sheet. **Observation (O), Either (E), or Interview (I) is indicated for each item.**

I. LEARNING MATERIALS		24. Rooms are not overcrowded with furniture. **O**	
1. Child has toys which teach colors, sizes, and shapes. **E**		25. House is reasonably clean and minimally cluttered. **O**	
2. Child has 3 or more puzzles. **E**		**IV. RESPONSIVITY**	
3. Child has a record, tape, or CD player and at least 5 children's records, tapes, or CDs. **E**		26. Parent holds child close 10-15 minutes per day. **I**	
4. Child has toys or games permitting free expression. **E**		27. Parent converses with child at least twice during visit. **O**	
5. Child has toys or games requiring refined movements. **E**		28. Parent answers child's questions or requests verbally. **O**	
6. Child has toys or games which help teach numbers. **E**		29. Parent usually responds verbally to child's speech. **O**	
7. Child has at least 10 children's books. **E**		30. Parent praises child's qualities twice during visit. **O**	
8. At least 10 books are visible in the apartment or home. **E**		31. Parent caresses, kisses, or cuddles child during visit. **O**	
9. Family buys and reads a daily newspaper. **I**		32. Parent helps child demonstrate some achievement during visit. **O**	
10. Family subscribes to at least one magazine. **I**		**V. ACADEMIC STIMULATION**	
11. Child is encouraged to learn shapes. **I**		33. Child is encouraged to learn colors. **I**	
II. LANGUAGE STIMULATION		34. Child is encouraged to learn patterned speech. **I**	
12. Child has toys that help teach names of animals. **E**		35. Child is encouraged to learn spatial relationships. **I**	
13. Child is encouraged to learn the alphabet. **I**		36. Child is encouraged to learn numbers. **I**	
14. Parent teaches child simple verbal manners (please, thank you, I'm sorry). **I**		37. Child is encouraged to learn to read a few words. **I**	
15. Parent encourages child to talk and takes time to listen. **I**		**VI. MODELING**	
16. Child is permitted choice in breakfast or lunch menu. **I**		38. Some delay of food gratification is expected. **I**	
17. Parent uses correct grammar and pronunciation. **O**		39. TV is used judiciously. **I**	
18. Parent's voice conveys positive feelings about child. **O**		40. Child can express negative feelings without harsh reprisal. **I**	
III. PHYSICAL ENVIRONMENT		41. Child can hit parent without harsh reprisal. **I**	
19. Building appears safe and free of hazards. **O**		42. Parent introduces Visitor to child. **O**	
20. Outside play environment appears safe. **O**		**VII. VARIETY**	
21. Interior of home or apartment is not dark or perceptually monotonous. **O**		43. Child has real or toy musical instrument. **E**	
22. Neighborhood is aesthetically pleasing. **O**		44. Child is taken on outing by a family member at least every other week. **I**	
23. House has 100 square feet of living space per person. **O**		45. Child has been on a trip more than 50 miles during past year. **I**	

46. Child has been taken to a museum during past year. **I**		**VIII. ACCEPTANCE**
47. Parent encourages child to put away toys without help. **I**		52. No more than one instance of physical punishment occurred during the past week. **I**
48. Child eats at least one meal on most days with mother and father. **I**		53. Parent does not scold or yell at or derogate child more than once. **O**
49. Parent lets child choose certain favorite food products or brands at grocery store. **I**		54. Parent does not use physical restraint during visit. **O**
50. Parent uses complex sentence structure and vocabulary. **O**		55. Parent neither slaps nor spanks child during visit. **O**
51. Child's art work is displayed some place in house. **O**		

TOTALS

I_____ **II**_____ **III**_____ **IV**_____ **V**_____ **VI**_____ **VII**_____ **VIII**_____ **TOTAL**__