

**The Relationship between Quality of Child-Caregiver Attachment, Self-Evaluation and
Cognitive Development in a group of Preschool South African Children.**

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Dissertation (article format) submitted in partial fulfilment of the degree **Magister Artium in
Research Psychology**
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Letter of Consent

Permission Statement to Submit Article for Degree Purposes.

I, the supervisor, hereby declare that the input and effort of Marichelle van Deventer in writing this article, is of sufficient scope to be a reflection of research done by her on this topic. I hereby grant permission that she may submit this article for examination purposes in partial fulfilment of the requirements for the degree Magister Artium in Research Psychology.

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Prof. E. van Rensburg

Intended Journal and Author Guidelines

Intended Journal: Child Development

The manuscript has been styled according to the mentioned journal's specifications (www.blackwellpublishing.com). The format, style and ethics guidelines, provided by the Publication Manual (5th ed.) of the American Psychological Association (2001), were followed.

Child Development

Edited by: Lynn S. Liben

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Manuscripts already under review elsewhere or similar to a previously published a manuscript will not be considered for publication. Manuscripts should be submitted electronically to the Child Development online submission site at www.srcd.org/CDsubmit/ as a Word or WordPerfect file. A cover letter containing the name(s) of the author(s) and affiliation(s) and the street address, telephone, fax and e-mail address of the corresponding author should accompany your manuscript. Submissions failing to comply with these specifications may delay the processing.

American Psychological Association

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Intent five to seven spaces from the left margin.

**The Relationship between Quality of Child-Caregiver Attachment, Self-Evaluation and
Cognitive Development in a group of Pre-school South African Children.**

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Manuscript for examination purposes

Summary

Attachment theory is a fast growing field which contribute considerably to the understanding of the quality of the child-caregiver relationship and its influence in the shaping of the child. The attachment system utilizes cognitive components (Internal Working Models (IWM's)) of the attachment figure, the self and the environment, during the child's interaction with the primary caregiver. These models permit successful navigation of a child's environment, influence the way children construe their experiences and therefore their behaviour, their success in other relationships and constructing perceptions of themselves. Internal Working Models of infant attachment have shown to have developmental continuity. After infancy one have to take into account the rapidly expanding cognitive and affective processes of the developing child and how these interlock with the environmental changes in the child's life to really understand child-caregiver attachment.

The quality of the child-caregiver attachment relationship can be influenced by a number of factors contributed by the number of systems at play in this relationship. The quality of this relationship has been found to predict adjustment in many domains, including social, psychological, behavioural, and cognitive domains. Establishing a secure attachment relationship with the primary caregiver has an effect on how children evaluate themselves, implicate concurrent and later social functioning and improve development of different skills.

In light of what is already known the aim of this study was to explore correlations amongst three variables; namely the quality of the child-caregiver attachment relationship (AQ), self-evaluation (SE), and cognitive development (CD) of pre-school children between the ages 5 years and 0 months and 5 years and 11 months. Keeping in mind the above statements this descriptive, quantitative study proposes that children with more secure attachment will score higher on global self-worth; more secure attachment will be positively associated with age appropriate cognitive development; and more positive self-evaluation

will be positively associated with age appropriate cognitive development in this group of participants.

Ten Afrikaans speaking mother-child dyads from white, two parent, first marriage families participated. Participants were assessed with the Pictorial Self-Evaluation Scale (PSES), The Observed Attachment Behavior Q-set (AQS), and The Griffiths Mental Development Scales – Extended Revised (GMDS-ER) in a single study in a South African context. Data analysis comprised of the computation of Spearman's rank-order coefficient, to calculate correlations between AQ, SE, and CD, through the use of the statistical package, SPSS.

Results indicate that a positive, medium to high practical significant correlations do exist between the reliabilities. The small sample size may have been a factor in the nature of only obtaining practical significance and further investigation with a larger group of participants could be of grave importance to this field of study, especially in South Africa.

Opsomming

Die gehegtheidsteorie is 'n vinnig groeiende veld. Dit lewer 'n betekenisvolle bydrae tot die begrip van die versorger-kind gehegtheidsverhouding en die invloed hiervan in die vorming van die kind. Die gehegheidsstelsel benut kognitiewe komponente ("Internal Working Models (IWM's)) van die gehegheidsfiguur, die self en die omgewing tydens die kind se interaksie met die primêre versorger. Hierdie modelle laat suksesvolle navigasie van 'n kind se omgewing toe, beïnvloed die manier waarop kinders hul ervarings konstrueer, hul sukses in ander verhoudings en die samestelling van hul persepsie van die self. Literatuur oor "Internal Working Models" van kleuters het daarop gewys om ontwikkelings kontinuiteit te hê. Na die kleuter fase moet die spoedig ontwikkelende kognitiewe en affektiewe prosesse en die skakeling tussen hierdie prosesse en die omgewingsveranderinge van die kind van belang om ten volle die kind-versorger gehegtheidsverhouding te verstaan.

Die kwaliteit van die kind-versorger gehegtheidsverhouding kan deur 'n aantal faktore, afkomstig van die verskeie sisteme betrokke by die verhouding, beïnvloed word. Daar is gevind dat die kwaliteit van hierdie verhouding aanpassing in menigte domeine kan voorspel. Die domeine sluit in, die sosiale-, psigologiese-, gedrag-, en kognitiewe domeine. Die vestiging van 'n veilige gehegtheidsverhouding met die primêre versorger het 'n effek op hoe kinders hulself evalueer, impliseer huidige en toekomstige sosiale funksionering en verbeter die ontwikkeling van verskeie vaardighede.

In lig van reeds bestaande kennis het hierdie studie tot doelstelling gehad om korrelasies tussen drie veranderlikes te ondersoek. Die veranderlikes het ingesluit; die kwaliteit van die kind-versorger gehegtheidsverhouding (AQ), self evaluering (SE), en kognitiewe ontwikkeling van voorskoolse kinders tussen die ouderdomme 5 jaar en 0 maande en 5 jaar en 11 maande. Met die bostaande stellings in gedagte was hierdie beskrywende, kwantitatiewe studie van die veronderstelling uit dat kinders met 'n meer veilige gehegtheid 'n

hoër globale selwaarde telling sou hê; dat meer veilige gehegtheid positief sou assosieer met ouderdom gepaste kognitiewe ontwikkeling; en dat meer positiewe self evaluering positief sou assosieer met ouderdom gepaste kognitiewe ontwikkeling in hierdie groep deelnemers.

Tien Afrikaans sprekende moeder-kind diades van blanke, twee-ouer, eerste huwelik gesinne het aan hierdie studie deelgeneem. Deelnemers was ondersoek met die Selbelewingskaal vir jong kinders (PSES), die “Observed Attachment Behavior Q-set” (AQS), en die Griffiths Kognitiewe Ontwikkeling Skale – Uitgebreide Hersiende weergawe (GMDS-ER) in ‘n enkel studie in ‘n Suid Afrikaanse konteks. Data analise het bestaan uit die berekening van Spearman se rank orde koëffisient om die korrelasies tussen AQ, SE, en CD te bepaal met behulp van die statistiese pakket genaamd SPSS.

Resultate het daarop gedui dat positiewe, medium tot hoë praktiese betekenisvolle korrelasies wel tussen die veranderlikes bestaan. Die klein proefgroep kon ‘n bydraende faktor gewees het in die verkryging van slegs praktiese betekenisvolheid en verdere ondersoek met ‘n groter proefgroep kan van kardinale belang wees in hierdie studieveld, veral in Suid-Afrika.

RELATE ATTACHMENT, SELF-EVALUATION AND DEVELOPMENT

The Relationship between Quality of Child-Caregiver Attachment, Self-Evaluation and
Cognitive Development in a group of Pre-school South African Children

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Abstract

The aim of this study was to explore correlations amongst three variables; namely the quality of the child-caregiver attachment relationship (AQ), self-evaluation (SE), and cognitive development (CD), of pre-school children between the ages 5 years and 0 months and 5 years and 11 months. Ten Afrikaans speaking mother-child dyads from white, two parent, first marriage families participated. Participants were assessed with the Pictorial Self-Evaluation Scale (PSES), The Observed Attachment Behavior Q-set (AQS), and The Griffiths Mental Development Scales – Extended Revised (GMDS-ER) in a single study in a South African context. Results indicate that a positive, medium to high practical significant correlations do exist between the reliabilities.

Keywords: Attachment, early childhood, development, self-evaluation.

The Relationship between Quality of Child-Caregiver Attachment, Self-Evaluation and Cognitive Development in a group of Pre-school South African Children

Since the inception of Attachment theory in the 1950s the theory has been open-ended and subject to revision and/or extension (Brisch, 2002; Goldberg, 2000). As Bowlby (1969/1982) stated “attachment theory is still growing: its potential and limitations remain unknown” (p. 313). Attachment theory now combines different contributions from ethology, developmental psychology, systems theory, object-relations theory, evolutionary psychology and psychoanalysis to name a few (Ainsworth, 1990; Bowlby, 1969/1982; Bretherton & Munholland, 1999; Brisch, 2002; Bronfenbrenner, 1986; Diamond, Diamond, & Hogue, 2007; Kail & Cavanaugh, 2007; Marvin & Britner, 1999; Marvin & Stewart, 1990; O’Connor & Croft, 2001; Schore, 2000; Sroufe, Carlson, Levy, & Egeland, 1999). The attachment theory has come to contribute considerably to the understanding of the importance of the quality of the child-caregiver relationship, and its influence on/or relation to numerous other factors¹ throughout the individual’s life cycle, and more specifically, in the shaping of the child.

Children are born with an innate disposition to display attachment behaviour due to the fact that the child is dependent on a nurturer for safety and nurturance. Typically, preferred attachment appears in the latter part of the first year of life (Boris et al., 2005). To be attached to someone means that one is “strongly disposed to seek proximity to and contact with a specific figure and to do so in certain situations, notably when you are frightened, tired or ill” (Bowlby, 1969/1982, p. 371). This organisation of behaviour is known as “attachment behaviour” and “refers to any of the various forms of behaviour that a child commonly engages in, to attain and/or maintain a desired proximity” (Bowlby,

1969/1982, p. 371). From an evolutionary based propensity, infants cannot survive without being protected and provided for and this automatically leads to certain goal-directed behaviour by the child for survival (e.g., crying when distressed to obtain the caregiver's attention) (Bowlby, 1969/1982). Children, therefore, obtain a state of homeostasis through their behaviour. Reflecting on the last statement, the attachment system can be seen as a biological system, regulating itself to obtain a homeostatic equilibrium status and flexibly adjusting in changing circumstances (de Schipper, Stolk, & Schuengel, 2006). In 1951 Bowlby concluded that normal development is promoted by a warm, intimate and lasting relationship between a young child and his or her caregiver. Bowlby claimed that this relationship has important implications for children's concurrent and later social development and, therefore, later relationships (Bowlby, 1969/1982, 1973/1991; Marvin & Britner, 1999). Patterns of attachment behaviour evolve with development (Ainsworth, 1990; Boris, Aoki, & Zeanah, 1999; Marvin & Stewart, 1990; Schneider-Rosen, 1990).

After infancy attachment manifests in different ways², but major concepts such as: internal working models (the inner organisations of attachment), the secure base concept (the starting point for exploration), and the organisation of behaviour in context, continue their value in the view of continuity and change in later development (Ainsworth, 1990). To understand attachment after infancy one has to take into account the rapidly expanding cognitive and affective processes of the developing child and how these interlock with the environmental changes in the child's life. Expansion of attachment theory and other influential factors are of great importance if influences on the individual's life cycle are to be understood.

In the light of contributing to this widely expanded field, the current study's aim was to examine correlations amongst the quality of the child-caregiver attachment

relationship (henceforth denoted as AQ), self-evaluation (henceforth denoted as SE), and cognitive development (henceforth denoted as CD) of the child in a sample of 10 child-caregiver dyads in white, two parent, first marriage families. Previous studies have shown that relationships amongst these variables do exist, but no literature could be found combining these variables in a single study. The purpose of this study is to extend prior research in two ways. Firstly, combining these variables in a single study and to explore the correlations amongst them and secondly, by conducting the research in a South African context since research in this domain is almost non-existent.

Before discussing the main variables (namely the quality of child-caregiver attachment relationship, the representation of the self and cognitive development) of this study, it is of important content to discuss an underlying concept of great value to the formation of the attachment relationship.

Internal Working Models in Attachment Relationships

Bowlby centred his ideas of attachment on the concept of ‘internal working models’ (henceforth denoted as IWM’s) that derived from the thinking of psychoanalysis (Bretherton & Munholland, 1999; Schneider-Rosen, 1990). According to Bowlby (1969/1982), the attachment system utilizes cognitive components, specifically mental representations (internal working models [IWM’s]), of the attachment figure, the self, and the environment during the child’s interaction with the primary caregiver, the child’s own actions, and the feedback the child receives from these actions (Cicchetti, Cummings, Greenberg, & Marvin, 1990). According to Cassidy (1990), these models are similar to cognitive maps (not permanent or static mental schemes, but flexible models) that permit successful navigation of an organism’s environment (Brisch, 2002; Marvin & Britner, 1999; Mennen & O’Keefe, 2005). These IWM’s contain the “early outlines of the self and

how it fits into the social landscape” (Howe, 2005, p. 29). Cassidy (1990) states that the IWM’s of the self contain cognitions about one’s lovableness and worthiness. Through postulating that the attachment system utilizes these cognitive components, explanations can be given of how the child’s experiences with the attachment figure come to influence the pattern of attachment the child develops (Bowlby, 1969/1982). Children inevitably extract, from their experiences with their attachment figure, expectations regarding likely behaviour of others and their own behaviour in interpersonal relating (Fairchild, 2006; Howe, 2005; Schneider-Rosen, 1990; Sroufe et al., 1999). These experienced interaction patterns (known as IWM’s) are cognitively stored by the children and influence the way children construe their experiences and, therefore, their behaviour (Ainsworth, 1990; Howe, 2005). Once internalized, these IWM’s are good guides for children’s behaviour, their success in other relationships and for constructing perceptions of themselves (Ainsworth, 1990; Burgess & MacDonald, 2004; Bretherton & Munholland, 1999; Howe, 2005; Verschueren & Marcoen, 2002). Children will, therefore, “approach new situations with certain preconceptions, behavioural biases, and interpretive tendencies” (Sroufe et al., 1999, p. 5). The mother’s availability during these experiences forms a major part of the IWM the child will store (Schuengel, de Schipper, & Sterkenburg, 2003). When a child has an IWM of the attachment figure as being available, responsive and accessible when needed, a secure attachment occurs. Children are considered to be insecurely attached when they lack such a representation. Secure attachment, therefore, sets a secure base for the child, which fosters exploration, play and other social behaviour (Bretherton & Munholland, 1999). Smooth, homeostatic integration of the child’s attachment behaviour with the attachment figure’s caregiving behaviour is a prerequisite for the successful development and operation of this secure base (Bowlby, 1969/1982). According to Marvin

and Britner (1999), it is a critical component of the child's rapidly expanding physical and social world to use the attachment figure as a secure base. These exchanges during caregiver and child interaction caused children's IWM's of the self to be intertwined with the ones the child held of the attachment figure (Bowlby, 1969/1982, 1973/1991, 1980). Caregivers, therefore, cannot be seen as the only determining factor of secure attachment, but children can also be seen as an active participant in constructing their own experiences (Sroufe et al., 1999).

Internal working models of infant attachment have shown to have developmental continuity (Fairchild, 2006). With maturation and the expansion of experience beyond infancy children develop more complex and differentiated models of self, others and of relationships (Cicchetti et al., 1990), because mental states "take centre stage in children's understanding of their and others' actions" only at the age of 4 years (Kail & Cavanaugh, 2007, p. 124). As children enter the pre-school years they begin to understand that their attachment figures' goals and motives can differ from their own (Bretherton & Munholland, 1999; Marvin & Britner, 1999). When this happens, children can assess situations and plan their behaviour within the framework of these models, therefore, changing the attachment relationship to a goal-corrected partnership (final phase of Bowlby's proposed phases in the development of attachment) (Bowlby, 1969/1982). Children are able to feel secure even when the attachment figure is not physically present, only by relying on their secure IWM's (Bretherton & Munholland, 1999). Ultimately, these IWM's act as filters through which the child's perceptions of social events and expectations regarding relationships are interpreted (Greenberg, Cicchetti, & Cummings, 1990; Mennen & O'Keefe, 2005). These working models can be seen to "influence the overt manifestation of attachment behaviours as children grow older" (Schneider-Rosen, 1990, p. 212).

Quality of Child-Caregiver Attachment Relationship

The quality of the attachment relationship can be influenced by a number of factors. When considering the quality of the attachment relationship, the interrelation amongst the primary caregiver, the child and the environmental aspects (context) are of great importance. Each of these systems brings a number of influential factors, e.g., the caregiver with his/her sensitivity and responsivity, parenting style, marital quality, and quality of care; the child with his/her temperament, and sex; and the environmental aspect, e.g., a nurturing environment, life events, and family experiences (Brown, Dutton, & Cook, 2001; de Muller, Denham, Schmidt, & Mitchell, 2000; Dozier, Stovall, Albus, & Bates, 2001; Easterbrooks & Goldberg, 1990; Fairchild, 2006; Kail & Cavanaugh, 2007; Lyons-Ruth, Alpern, & Repaeholi, 1993; Mennen & O'Keefe, 2005; O'Connor & Croft, 2001; Schuengel & Janssen, 2006; Sroufe, 1979, 1988). These factors come to influence each other in a complex interactional process that determines the quality of the attachment formed by the child. Both caregiver and child's behaviour can only be understood when "viewed in the context of the child-mother-dyad-as-system" (Marvin & Stewart, 1990, p. 61). Consequently one of four distinct patterns of attachment (see Fairchild, 2006; Mennen & O'Keefe, 2005) is formed, of which a secure attachment can be viewed as the style most beneficial, installing trust and confidence in children (Kail & Cavanaugh, 2007). Secure and insecure attachment are explained by de Schipper et al. (2006) as follows:

Securely attached children flexibly use their caregivers as either a secure base to explore from when conditions are safe or as a safe haven when the child perceives the conditions as dangerous. Insecurely attached children, on the other hand, appear locked in a relationship pattern that either overemphasizes independence and exploration (secure base) or dependence and proximity (safe haven). (p. 204)

The quality of a child's attachment has been found to predict "adjustment in many domains, including social, psychological, behavioural and cognitive domains" (Mennen & O'Keefe, 2005, p. 578). The way in which children view themselves has been identified as one of these domains (Cassidy, 1988; Verschueren, Marcoen, & Schoefs, 1996).

Attachment Quality and Representation of the Self

With the attachment relationship between the child and the primary caregiver (the attachment figure), being the first relationship children find themselves to be in, it can be believed to have a significant impact on children's concept of the self. According to Sroufe (1988), attachment theory makes its strongest claims on domains like "inner sense of confidence and relationships with others" and "strongly predicts that feelings of efficacy and inner worth should be related to attachment" (p. 19). The self develops not in isolation but in relation to (social) interaction with the environment. One aspect of social interaction, particularly relevant to the formation of the self, is the early interaction with the attachment figure (Bowlby, 1969/1982, 1973/1991, 1980). This relationship with a significant other gives rise to feelings of the self.

Consistency of the caregiver's behaviour and sensitive responsiveness gives the child some experience and knowledge about his or her ability to act for the self and how they affect others, which theoretically predicts self-esteem (Cassidy, 1990, 1999; Sander, 1976, 1977). Ainsworth (1990) explains this as follows: Children with a secure working model of their relationship with their primary caregiver are assumed to have more positive expectations regarding the caregivers' responsiveness and availability than their insecure counterparts, which will have more negative expectations. Therefore, it is the relation between the expectations (of the child) and the actual availability and responsiveness (of the caregiver) that builds the representation of the specific attachment relationship. Having

a positive self-esteem in a securely attached relationship comes as no surprise, because the children feel confident and effective as individuals (Howe, 2005).

These inner representations of the child-caregiver interactions are embodied in the cognition (as IWM's), and are conceived as a "dynamic conception of the characteristics and the behaviour of the attachment figure toward the self (and vice versa)" (Verschueren et al., 1996, p. 2494). This gives the child an idea of his or her own worth and acceptability as a person in the eyes of the attachment figure (Bowlby, 1973/1991, 1979; Cassidy, 1990). Several studies indicate that a positive and strong connection between the security of the child-primary caregiver attachment representation and the positiveness of self does exist (Cassidy, 1990; Vékony, van Aggelen-Gerrits, van Aken, & Goudena, 2004; Verschueren & Marcoen, 1999; Verschueren et al., 1996).

Attachment Quality and Cognitive Development

Exploration of the attachment formation process (Bowlby, 1969/1982) indicated that interaction between the child and the caregiver forms part of a bigger, more complex cognitive process. Empirical literature suggests that attachment to a primary caregiver may affect different domains of a child's development (Grossmann, Grossmann, Fremmer-Bombik, Kindler, Scheurer-Englisch, & Zimmerman, 2002; Lyons-Ruth et al., 1993; Mennen & O'Keefe, 2005; Verschueren & Marcoen, 1999). Ainsworth (1990) pointed out that cognitive development (after infancy) allows children to part from the primary caregiver for longer periods. According to Janssen, Schuengel, and Stolk (2002), the level of a child's cognition plays a vital role in the development of the attachment relationship and later cognitive representations. Securely attached children are known to be more enthusiastic, persistent, exhibit more positive affect and are more effective in facing environmental challenges on their own than their insecure counterparts (Sroufe, 1979).

Infants with disorganised attachment may have deficits in cognitive skills as these children seem to be unable to use the caregiver as a secure base for exploration (Moss, Rousseau, Parent, St-Laurent, & Saintong, 1998).

Attachment research on children with mental retardation associated attachment security with measures of mental development (Schuengel & Janssen, 2006). According to van IJzendoorn, Goldberg, Kroonenberg, and Frenkel (1992), children with a developmental delay are significantly more likely to be classified as insecure. Although studies conducted on animals indicated a relationship between deprivation of a maternal figure or harsh mothering and lower cognitive functioning (de Kloet, Sibug, Helmerhorst, & Schmidt, 2005), interpretation of studies that associate quality of attachment and intellectual disabilities in human beings (see Rutter, O'Connor, & English and Romanian Adoptees (ERA) Study Team, 2004) needs to be done with caution (Schuengel & Janssen, 2006). However, Schuengel, and Janssen (2006) indicated that relatively high cognitive competence and maternal sensitivity is strongly associated with secure attachment and that “mental development was also significantly and positively associated with AQS security” (p. 25). As mentioned earlier, it is clear that both caregiver and child affect the outcome of the attachment relationship.

Association between the Self and Cognitive Development

A wide variety of denominations is connected to studies about the self and terminology like self-esteem, self-worth, self-concept, self-competence, and self-evaluation, to name a few, is common. Brown et al. (2001) related self-evaluation to self-esteem. Self-evaluation is a term related to self-affect and describes the value people place on themselves (Cassidy, 1990) and other people's view of their abilities and attributes (Brown et al., 2001). Self-esteem is termed global self-worth by Harter (1990), which

descends to the overall value a person places on him or herself. The preceding statement makes it clear that self-evaluation can be viewed as a part of global self-worth.

Harter (1990) asserted that children under the age of 8 years possess a sense of self, but do not have the cognitive ability required to verbalize it. Over time more age-appropriate methods, making use of more playful methods of assessment, have been developed to assess younger children's self-representation (Verschueren, Buyck, & Marcoen, 2001).

When considering self-worth it is necessary to consider actual functioning. Children's subjective evaluation of the self/actual competence may differ from their perceived competence. This argument has been explored on both theoretical and empirical bases by several researchers (see Phillips, 1984, 1987; Schuengel, Voorman, Stolk, Dallmeijer, Vermeer, & Becher, 2006; Verschueren & Marcoen, 2002). Overly optimistic views of one's actual abilities, for whatever reason, do exist and can influence results obtained by measurements on self-worth. This issue will be considered in this study during the developmental assessment.

Research on intellectual disability by Janssen et al. (2002) indicated that these individuals are at risk of developing low self-esteem. According to Carens and Verschueren (2000), low self-esteem in children indicated shying away from challenges, not being proud of one's achievements, and losing interest when frustrated.

In summary the goal of this descriptive, quantitative study was to examine the correlations amongst AQ, SE, and CD. Expectations for this group were as follows: (1) Children with more secure attachment will score higher on global self-worth, thus arguing that the early attachment relationship between a child and a primary caregiver may have an influence on the child's global self-worth (more secure attachment will be positively

associated with more positive self-evaluation in this group). (2) In addition it was also expected that more secure attachment will be positively associated with age appropriate cognitive development in this group. (3) Furthermore that more positive self-evaluation will be positively associated with age appropriate cognitive development in this group.

Method

Participants

Families were recruited voluntarily through local pre-schools and day-care centres, in Potchefstroom, Republic of South Africa, by means of an availability sampling technique to participate in the study. Participants consisted of 12 child-primary caregiver (the mother in all cases) dyads of which two dyads were excluded on grounds of non-compliance to the selection criteria³ (Children being too old at the time of testing). The remaining participants came from white, first marriage families. Mothers had at least 12 years of education and were aged between 33 years to 47 years (Mean age = 36 years, SD = 4.88). The children ranged in ages 5 years 0 months to 5 years and 11 months (Mean age = 5 years, 6 months, SD = 3.79). Four children were male and six female and all were Afrikaans speaking. The children attended pre-school/day-care between 12 and 47 hours (SD = 10.60) a week.

Measurements

Assessment of the self.

The *Pictorial Self-Evaluation Scale* (henceforth denoted as PSES) by Verschueren and Marcoen (1993a) was designed to measure global self-worth in children from 5-7 years of age. This rating scale consists of six items (e.g. "This girl/boy does not like her/himself that much"). Items are based on the General self-worth subscale of Harter's Perceived Competence Scale (Harter, 1982) and the Hand Puppet Interview of Cassidy (see

Verschueren & Marcoen, 1993b). Each item has two pictures; representative of the child's global self-worth of a specific domain of the child's functioning (Gadeyne, Ghesquière, Onghena, & Verschueren, 2000). The English version of the PSES was translated to Afrikaans by M. van Deventer and edited by Dr. A. van der Merwe, with permission from Prof. K. Verschueren.

The page containing the pictures is placed in front of the child. A short description is given about the child in the picture after which the child has to indicate which is more like him or her. After a picture is chosen the other picture is closed and the child is asked to what degree he or she is like the child in the chosen picture. To make answering easier, the response categories were visualized as circles underneath the picture of increasing size, with the small circle representing "sometimes" and the larger circle representing "hardly ever". Each item is scored on a 4 point scale of which the sum of the six items would be representative of the global self-worth as reported by the child (Verschueren & Marcoen, 1993b).

Cronbach's alpha of 0.82 was obtained by the developers of the scale, indicating internal consistency for the measure; whereas the test-retest reliability was .38 ($p < .001$) and went up to .50 ($p < .001$) in a study done by Verschueren, Marcoen, and Schoefs (1996). Cronbach's alpha and test-retest reliability could not be calculated for this study as a result of the small number of participants relative to the number of items in the measurement (Noar, 2003).

Assessment of attachment security.

The Observed Attachment Behaviour Q-set (Version 3.0) (henceforth denoted as *AQS*) (Waters & Deane, 1985) is a standardized method for the naturalistic observation of attachment behaviour between child-caregiver dyads at home or in public places. The AQS

consists of 90-items printed on cards that were developed to describe secure base behaviour (Vaughn & Waters, 1990) of children from age 10 months to 72 months (10 months to 6 years) (Fairchild, 2006).

Sorting and scoring of the items take place after observation. The 90 cards (each with their own rationale (Waters, 1987)) are sorted into nine 10-card piles, from most to least descriptive for the observed dyad. Examples of behaviours described on a single card include, “Child readily shares with mother or lets her hold things if she asks to” and “Runs to mother with a shy smile when new people visit the home”. Scores obtained by the Q-sorter (a computerized sorting and scoring programme) (Dekker & Schuengel, 2003-2004) range from -1.0 to +1.0. The higher the score the more secure the attachment relationship.

According to van IJzendoorn, Vereijken, Bakermans-Kranenburg, and Riksen-Walraven (2004) and Fairchild (2006), the AQS is a valid instrument to assess AQ among the dimension of security-insecurity. Inter-observer reliability indicated a range of scores from .72 to .95/7 respectively, in several studies (Fairchild, 2006; Solomon & George, 1999). Due to the lack of trained observers in South Africa, inter-observer reliability scores could not be obtained for this study. The researcher was trained in the Netherlands at the Vrije University, Amsterdam, under supervision provided by M. Oosterman. At completion a reliability score of 85% were achieved by the researcher.

Assessment of cognitive development.

The *Griffiths Mental Development Scales – Extended Revised* (henceforth denoted as *GMDS-ER*) (for testing babies and young children from birth to eight years) (Luiz, Barnard, et al., 2006; Luiz, Faragher, et al., 2006) obtains the child’s developmental level (Mental Age (MA)) at the time of testing. The scale for the two to eight year olds measures six domains of functioning, each of which is assessed on a separate subscale. These

subscales are; A: Locomotor; B: Personal-Social; C: Language; D: Eye and Hand Coordination; E: Performance, and F: Practical Reasoning. Subscales are separate and complete in themselves and allow assessors to assess the child's development in gross motor skills (A); activities of daily living, interaction and independence (B); receptive and expressive language abilities (C); fine motor skills, manual adroitness and visual monitoring skills (D); visuospatial skills (E); and the child's level of general and specific cognitive abilities to problem solving. Each subscale has a number of items that are administered, observed and scored. Scoring can take place manually or by using a computerized scoring programme (Luiz, Foxcroft, & Stewart, 2001).

After revision the GMDS-ER showed continuing validity over time and across cultures (Luiz et al., 2001; Luiz, Barnard, et al., 2006; Luiz, Faragher, et al., 2006), but further exploration is needed (Luiz, Foxcroft, & Povey, 2006). Inter-observer reliability for MA scores was found to be .97 (intraclass r) by Grantham-McGregor, Stewart, and Powell (1991). According to Hogrefe (2008), Cronbach's alpha was calculated for each of the scales, which included all of the items in each of the scales, and exceeded a minimum value of .70 (also see Luiz, Faragher, et al., 2006).

An accredited training course by the ARICD (Association for Research in Infants and Child Development) in the administration of the scales was completed by the researcher.

Procedure

Permission to conduct this study was granted by the Ethics Committee of the North-West University; with the ethical clearance number NWU-00034-07-S4. After obtaining the ethical clearance, child-caregiver dyads participated in two evaluation sessions at different times during the period of 11 April 2008 until 23 June 2008. Sessions

were scheduled at a time considered to be best by the caregiver. Participants were assessed once only on each of the measurements (Mann, 2003).

The first evaluation at the dyads home began with the signing of consent for research participation. Consent included no foreseeable risk for participation; participant confidentiality through protection of participant identity and the research data; thorough indication of the research goals, purposes, and advantages; and that participation is of an optional nature with no consequences if terminated. All participants were treated in accordance with the Ethical Principles of Psychologist and Code of Conduct (APA, 1992, 2001) and the ethical standards of the SRCD (Society for Research in Child Development [SRCD], 2007). After consent was obtained, demographic data were gathered from the primary caregiver. At the same time the Afrikaans version⁴ of the PSES was administered to the child (in absence of the primary caregiver). The visit was concluded by the AQS observation and video taping. The AQS observation was a once off video taping at the dyads home for a period of approximately two hours. The primary caregivers were encouraged to go about their usual activities and to treat the home visitor as they would any other visitor. A number of toys (unknown to the child), provided by the observer, were included for play in the last half hour of observation to obtain a clear picture of the child's orientation towards and interactions with the primary caregiver. The sorting and scoring of the Q-sort items were completed by the observer on the same day after watching the tapes. Security scores were computed by correlating the Q-sort descriptions of an individual with the 90-item criterion Q-sort composite description of a "hypothetically most secure child" (Waters & Dean, 1985).

The second evaluation occurred in a standardized testing environment as described in the administration manual of the GMDS-ER (Luiz, Barnard, et al., 2006). The visit was a

two hour assessment on cognitive development with the child. Short breaks and knowledgeable alternation between the subscales precluded the possibility of boredom and fatigue. All mothers decided to be absent during the assessment period. Manual scoring took place immediately after administration. A written report of the results was made available to all participating parties.

Data Analysis

To manage and analyze the data obtained in the above-mentioned methods the statistical package, SPSS (Version 15.0) for Windows, was used. To examine correlation between AQ, SE and CD Spearman's rank-order coefficient (Bless & Kathuria, 1998) were computed on the security scores of the AQS, the average scores of the PSES, and the age equivalent scores obtained from the GMDS-ER. Further correlation analysis was conducted between the three measurements and each of the GMDS-ER subscales scores. Correlations were interpreted and reported in terms of both statistical and practical significance.

Reporting statistical significance of results in seclusion is under escalating criticism (both positive and negative) (Thompson, 1997, 2001, 2002a, 2002b). Statistical significance is not sufficient to evaluate the worth of all research (Thompson, 2002b). Practical significant indexes, called effect sizes, can be reported through various measures (Steyn, 2006; Trusty, Thompson, & Petrocelli, 2004). Literature proposes one of these measures to be based on Spearman's rank correlation (see Ellis & Steyn, 2007). According to Thompson (2002b), it is critical to report effect sizes, "particularly ... because statistical tests are so heavily influenced by sample size" (p. 65). More recently the APA (2001), publication manual (5th ed.) emphasized that "it is almost always necessary to include some index of effect size or strength of relationship in your result section" (p. 25).

Results

Descriptive statistics for the AQS; PSES; GMDS-ER with the six subscales, are presented in Table 1.

[Insert Table 1 here]

The central tendency ($M = .24$) of the AQS security scores is high and the magnitude of skewness is in a negative direction. Security scores show the largest range between scores that could have influenced the mean score of the measurement. According to Bless and Kathuria (1998), extreme high or low scores can affect the mean score. Both the PSES and GMDS-ER scores show a positive direction of skewness. Ranges of the scores for these two measurements are small with means of 3.61 and 64.95 respectively.

Subscales A, D, and E, of the GMDS-ER, show a negative direction in the distribution of scores obtained for the 10 participants. Scores of subscales B, C, and F show positive direction of skewness. The preceding indicates that the data for the participants is not equally distributed; therefore Spearman's correlation coefficient was calculated. The central tendencies of scores tend to be moderate for all of the subscales except for the Locomotor subscale. Locomotor scores were affected by extremes in the measurement results. Eye and Hand Coordination show the smallest variation between scores, whereas the Performance subscale shows the largest variation.

[Insert Table 2 here]

Table 2 shows that although the correlations of the measurements are not statistically significant, practical significant associations are indicated for this group of participants. The small sample size may have been a factor in the nature of findings obtained (Thompson, 2002b; Rosenthal, Rosnow, & Rubin, 2000). Rosenthal et al. (2000) advised that one might make a serious mistake when concluding results amounts to

nothing, when confronted with a non-significant p and a large effect size in the case of small samples. Results, henceforth, will be discussed respectively according to practical significance (\dagger) at $r_s \approx .5$ (according to Cohen's (1990) effect size guidelines 0.1, 0.3, 0.5; also see Field, 2005; Steyn, 2006) and statistical significance at the .05 level (2-tailed) (*) and the .01 level (2-tailed) (**).

Correlation between Attachment Quality (AQ) and Self-Evaluation (SE) (see Table 2)

Correlation between the children's attachment quality (AQS scores) and their self-evaluation (PSES averages) show a practically significant correlation ($r_s = .40, p = .24$) for these 10 participants.

Correlation between Attachment Quality (AQ) and Cognitive Development (CD) (see Table 2)

After computing Spearman's rank-order coefficient on the security scores of the AQS and the Age equivalent scores of the GMDS-ER, for examination of the correlation between AQ and CD, results showed a practically significant ($r_s = .46, p = .17$) relationship between variables. Effect sizes reflect that the correlation is practically significant for the 10 dyad pairs.

Correlation between Self-Evaluation (SE) and Cognitive Development (CD) (see Table 2)

Examination of the correlation, Spearman's rank-order coefficient, between the children's self-evaluation (SE) and their cognitive development (CD) indicated a large effect ($r_s = .61, p = .06$). For all practical purposes the effect sizes indicate that the correlation between the average scores of the PSES and the Age equivalent scores of the GMDS-ER are significant for the 10 children in this study.

Correlation between Attachment Quality (AQ) and the GMDS-ER Subscales (see Table 2)

The quality of child-caregiver relationship (AQ) correlated with several of the GMDS-ER subscales. The *Personal/Social subscale* shows a practically significant correlation ($r_s = .42, p = .22$) towards attachment quality (AQS) scores. Correlation between AQS scores and the *Language subscale* show statistical significance ($r_s = .68$) at the .05 level. For all practical purposes the effect sizes indicate that the correlation between the security scores of the AQS and Subscale F (*Practical Reasoning*) ($r_s = .54, p = .10$) are significant.

Correlation between Self-Evaluation (SE) and the GMDS-ER Subscales (see Table 2)

The third subscale (*Language*) of the GMDS-ER indicates statistical significant correlation ($r_s = .64, p < 0.05$) with the PSES averages (SE). For all practical purposes the effect sizes of the *Eye and Hand Coordination-, Performance-, and the Practical Reasoning subscale* show significance, $r_s = .49$ ($p = .14$); $r_s = .40$ ($p = .24$); and $r_s = .56$ ($p = .09$) respectively, in their correlation with the average scores of the PSES (SE) for the 10 children.

Correlation between Cognitive Development (CD) and the GMDS-ER Subscales (see Table 2)

Subscale A (*Locomotor*) of the GMDS-ER is the only subscale that showed practical significant correlations ($r_s = .55, p = .10$) with the GMDS-ER age equivalent scores (CD). Correlation between CD (GMDS-ER age equivalent scores) and the remaining GMDS-ER subscales show statistical significant correlations at a .01 level. Effect sizes are as follows; *Personal/Social subscale* ($r_s = .80$), *Language subscale* ($r_s = .77$), *Eye and Hand Coordination subscale* ($r_s = .84$), *Performance subscale* ($r_s = .90$), *Practical Reasoning subscale* ($r_s = .95$) for the 10 participants.

Discussion

As intended by the present study, existence of positive correlations between attachment quality, self-evaluation and cognitive development were confirmed. Correlations between the measurements did not show any statistical significance, but an overall medium to large practical significance was obtained for these participants. When considering results, one needs to keep in mind the individual and the context in which that individual functions. Results can never be viewed in isolation. Marvin and Stewart (1990) formulate it as “a whole adds the property of relationship among the parts” (p. 34). There is never one single cause for an effect; it’s usually far more complex.

In this study more secure attachment relationships, between the children and their mothers, have been found to positively correlate with higher global self-worth of the children. This result is not all new and has been found both empirically and theoretically (Cassidy, 1988; Easterbrooks & Goldberg, 1990; Verschueren & Marcoen, 1999; Verschueren et al., 1996). Establishing a secure attachment relationship with the mother has an effect on how children evaluate themselves. In previous studies done by Verschueren and Marcoen (1999, 2002) positiveness of self and global self-worth showed the highest correlation with the security to the mother. Even though clarity in connection with the development of the self before age eight is not yet established (Carens & Verschueren, 2000), Bowlby (1969/1982) suggested that a global sense of worth develops in conjunction with the early child-mother relationship, based on established IWM’s of their daily experiences. Being able to use the mother as a secure base for exploration increase ones own level of competency (Marvin & Stewart, 1990) and could contribute to the representation of the self (Verschueren & Marcoen, 1999). The earliest relationships and environments of individuals therefore, “provide the context for the emergence of self”

(Schneider-Rosen, 1990, p. 187). This early relationship is, therefore, important for concurrent and later adaptation (Marvin & Stewart, 1990) and self-esteem development (Brown et al., 2001).

As expected, this study indicated that a more secure attachment correlate with age appropriate cognitive development. The quality of the relationship formed between child and mother has implications for later development (Grossmann et al., 2002; Verschueren & Marcoen, 1999). During developmental transitions of children the attachment relationship may be temporarily disrupted (Ainsworth, 1990) with a decrease in security as a result (Marvin & Stewart, 1990). Homeostasis needs to be established for the relationship to stabilise again. Although attachment behaviour changes with development, IWM's of the early child-mother relationship are still at play to establish proximity and contact (Marvin & Stewart, 1990) despite situational variation (Cassidy, 1990). Positive IWM's and the ability to still use the primary caregiver as a secure base promote exploration, autonomy, social activity and the mastering of these new developmental tasks (Easterbrooks & Goldberg, 1990; Kail & Cavanaugh, 2007; Schneider-Rosen, 1990). The inability to do so will predict less optimal functioning during these periods of change (Easterbrooks & Goldberg, 1990). According to Sroufe (1979) "exploration of the new has adaptive advantage" (p. 835). Children with a secure attachment move further away from their primary caregiver; communicate over larger distances; (Fairchild, 2006; Schneider-Rosen, 1990) and start to communicate their goals that put them in a goal-corrected relationship with their attachment figure (Bowlby, 1969/1982). Attachment theory predicts that "the quality of attachment is related to the child's cognitive and language development" (Verschueren & Marcoen, 1999, p. 197). With the latter in mind it is clear why the Language subscale of the GMDS-ER showed such a strong correlation with more secure

child-mother attachment relationship scores. Further positive correlations were found between the quality of attachment scores and the Personal/Social- and the Practical Reasoning subscale. Attachment theory implies that security of the attachment relationship has important implications in concurrent and later social functioning (Verschueren & Marcoen, 2002). Establishing an attachment relationship is a critical socio-emotional task (during infancy) that creates a basis for competence, effective functioning and successful transition through the different developmental tasks in the socio-emotional and cognitive domains (Bowlby, 1969/1982, 1973/1991, 1980; Easterbrooks & Goldberg, 1990). Going to pre-school, for example, with positive IWM's of a secure attachment relationship can increase pre-schooler's ability to use their teacher as a subordinate attachment figure which will improve development of alternative skills because the child is able to operate independently from the mother for extended periods of time (Marvin & Stewart, 1990).

While controlling for perceived competence, a positive relation between self-evaluation and cognitive development was obtained. According to Cassidy (1990), "self-related beliefs and feelings play a key role in development" (p. 87). This group's evaluation of their abilities and attributes (Brown et al., 2001) were found to be an indicator of their cognitive ability at the time of evaluation. Thinking about oneself in more positive ways, therefore, has a positive influence on cognitive development. The PSES scores correlated with several of the GMDS-ER subscales. The Language subscale is the most intellectual subscale in the GMDS-ER (Luiz, Barnard, et al., 2006). The significant correlation between the Language subscale and the self-evaluation scores confirms Harter's (1990) claim that children require cognitive ability to verbalize their sense of self. According to Schneider-Rosen (1990), language and the expression thereof is of great importance in relationships and plays a role in the feelings about the self and others in these relationships. Correlations

between the PSES scores and the GMDS-ER subscales; Eye and Hand Coordination and Performance, could be explained by the fact that pre-schoolers define themselves with respect to their physical characteristics (which are observable and concrete), their preferences and their competencies (Kail & Cavanaugh, 2007). Viewing themselves as valuable and worthwhile (Cassidy, 1990), pre-school children may start to believe more in their own ability to make plans and solve real-life situations (Kail & Cavanaugh, 2007). This practical ability to act for the self may explain the correlation between PSES scores and the Practical Reasoning subscale. Although statistical significant scores were not obtained in the correlation between these reliabilities, this study demonstrates potential in reporting effect sizes.

Limitations and Suggestions for Further Research

The first limitation of this study would be the small number of participants. Future research with a larger sample size ($n > 30$) holds great potential. Secondly, the results of this study cannot be generalized to other five-year-olds, for participants did not represent a true random sample of this population in Potchefstroom, South Africa. The third limitation of the study was that global self-worth was measured via self-reported methods which may have limited the truthfulness of the answers based on the uncertainty about children's cognitive ability to verbalize their sense of self (Harter, 1990). Future researchers can benefit from including another self-worth measurement, completed by the parents or a teacher, for triangulation purposes. Another limitation was the lack of trained AQS individuals in South Africa, which compromised inter-observer reliability. Comparative discussions, of the results, were also limited due to the lack of attachment studies conducted in a South African context. Finally, future research on the subscales of the

GMDS-ER, in connection with self-evaluation and attachment quality, will contribute to a greater understanding of these initial findings.

References

- Ainsworth, M. D. S. (1990). Some considerations regarding theory and assessment relevant to attachment beyond infancy. In M. T. Greenberg, D. Cicchetti, & E. M. Cummings (Eds.), *Attachment in the preschool years: Theory, research and intervention* (pp. 463-488). Chicago: University of Chicago Press.
- American Psychological Association. (1992). Ethical principles of psychologists and code of conduct. *American Psychologist*, 47 (12), 1597-1611.
- American Psychological Association. (2001). *Publication manual of the American Psychological Association* (5th ed.). Washington, DC: American Psychological Association.
- Bless, C., & Kathuria, R. (1998). *Fundamentals of social statistics: An African perspective*. Cape Town: Juta & Co.
- Bowlby, J. (1969/1982). *Attachment and loss: Vol. 1. Attachment*. NY: Basic Books.
- Bowlby, J. (1973/1991). *Attachment and loss: Vol. 2. Separation: Anxiety and anger*. NY: Basic Books.
- Bowlby, J. (1979). *The making and breaking of affectional bonds*. London: Tavistock.
- Bowlby, J. (1980). *Attachment and loss: Vol. 3. Loss, sadness and depression*. NY: Basic Books.
- Boris, N.W., Aoki, Y., & Zeanah, C. H. (1999). The development of infant-parent attachment. *Infants and Young Child*, 11 (4), 1-10.
- Boris, N. W., Zeanah, C. H., Bernet, W., Bukstein, M. D., Arnold, C., Arnold, V., et al. (2005). Practice parameter for the assessment and treatment of children and adolescents with reactive attachment disorder of infancy and early childhood. *Journal of the American Academy of Child & Adolescent Psychiatry*, 44 (11), 1206-1219.

- Bretherton, I., & Munholland, K. A. (1999). Internal working models in attachment relationships: A construct revision. In J. Cassidy, & P. R. Shaver (Eds.), *Handbook of attachment: Theory, research, and clinical applications* (pp. 89-111). NY: The Guilford Press.
- Brisch, K. H. (2002). *Treating attachment disorders: From theory to therapy*. NY: The Guilford Press.
- Bronfenbrenner, U. (1986). Ecology of the family as a context for human development: Research perspective. *Developmental Psychology*, 22 (6), 723-742.
- Brown, J. D., Dutton, K. A., & Cook, K. E. (2001). From the top down: Self-esteem and self-evaluation. *Cognition and Emotion*, 15 (5), 615-631.
- Burgess, R. L., & MacDonald, K. (2004). *Evolutional perspectives on human development* (2nd ed.). Thousand Oaks, CA: Sage.
- Carens, M., & Verschueren, K. (2000). *Self-esteem, task choice and persistence in children: A cross-sectional study*. Paper presented on achievement and task motivation, Leuven, Belgium.
- Cassidy, J. (1988). Child-mother attachment and self in six-year-olds. *Child Development*, 59 (1), 121-134.
- Cassidy, J. (1990). Theoretical and methodological considerations in the study of attachment and the self in young children. In M. T. Greenberg, D. Cicchetti, & E. M. Cummings (Eds.), *Attachment in the preschool years: Theory, research and intervention* (pp. 87-119). Chicago: University of Chicago Press.
- Cassidy, J. (1999). The nature of the child's ties. In J. Cassidy, & P. R. Shaver (Eds.), *Handbook of attachment: Theory, research, and clinical applications* (pp. 3-20). NY: The Guilford Press.

- Cicchetti, D., Cummings, E. M., Greenberg, M. T., & Marvin, R. S. (1990). An organizational perspective on attachment beyond infancy: Implications for theory, measurements, and research. In M. T. Greenberg, D. Cicchetti, & E. M. Cummings (Eds.), *Attachment in the preschool years: Theory, research and intervention* (pp. 3-49). Chicago: University of Chicago Press.
- Cohen, J. (1990). Things I have learned (so far). *American Psychologist, 45* (12), 1304-1312.
- Dekker, S. R., & Schuengel, C. (2003-2004). *Qsorter: Windows-based sorting and scoring of q-sort* (version 3.0.0) [Computer software]. Amsterdam, The Netherlands: Vrije Universiteit & Zetten. The Netherlands: OG Heldring.
- de Kloet, E. R., Sibug, R. M., Helmerhorst, F. M., & Schmidt, M. (2005). Stress, genes and the mechanisms of programming the brain for later life. *Neuroscience and Biobehavioral Reviews, 29* (2), 271-281.
- de Muller, E. K., Denham, S., Schmidt, M., & Mitchell, J. (2000). Q-sort Attachment process: Links from home to school. *Developmental Psychology, 36* (2), 274-282.
- de Schipper, J. C., Stolk, J., & Schuengel, C. (2006). Professional caretakers as attachment figures in day care centers for children with disability and behavior problems. *Research in Developmental Disabilities, 27* (2), 203-216.
- Diamond, G. M., Diamond, G. S., & Hogue, A. (2007). Attachment-based family therapy: Adherence and differentiation. *Journal of Marital and Family Therapy, 33* (2), 177-191.
- Dozier, M., Stovall, K. C., Albus, K. E., & Bates, B. (2001). Attachment for infants in foster care the role of caregiver state of mind. *Child Development, 72* (5), 1467-1477.

- Easterbrooks, M. A., & Goldberg, W. A. (1990). Security of toddler-parent attachment: Relations to children's sociopersonality functioning during kindergarten. In M. T. Greenberg, D. Cicchetti, & E. M. Cummings (Eds.), *Attachment in the preschool years* (pp. 221-244). Chicago: University of Chicago Press.
- Ellis, S. M., & Steyn, H. S., Jr. (2007). Nonparametric effect size measures. Paper presented at the annual conference of the South African Statistical Association, Muldersdrift, South Africa.
- Fairchild, S. R. (2006). Understanding attachment: Reliability and validity of selected attachment measures for preschoolers and children. *Child and Adolescent Social Work Journal*, 23 (2), 235-261.
- Field, A. (2005). *Discovering statistics using SPSS*. London: Sage.
- Gadeyne, E., Ghesquière, P., Onghena, P., & Verschueren, K. (2000). Meten van zelfconcept bij jonge kinderen [Measuring self-concept of young children]. *Kind en Adolescent*, 21 (2), 125-143.
- Goldberg, S. (2000). *Attachment and development*. London: Arnold.
- Grantham-McGregor, S., Stewart, M., & Powell, C. (1991). Behaviour of severely malnourished children in a Jamaican hospital. *Developmental Medicine and Child Neurology*, 33 (8), 706-714.
- Greenberg, M. T., Cicchetti, D., & Cummings, M. (1990). *Attachment in preschool years*. Chicago: University of Chicago Press.
- Grossmann, K., Grossmann, K. E., Fremmer-Bombik, E., Kindler, H., Scheurer-Englisch, H., & Zimmerman, P. (2002). The uniqueness of the child-father attachment relationship: fathers' sensitive and challenging play as the pivotal variable in a 16-year longitudinal study. *Social Development*, 11 (3), 307-337.

- Harter, S. (1982). The perceived competence scale for children. *Child Development*, 53 (1), 87-97.
- Harter, S. (1990). Causes, correlates, and the functional role of global self-worth: A life-span perspective. In J. Kolligian, & R. J. Sternberg (Eds.), *Competence considered* (pp. 67-97). New Haven, CT: Yale University Press.
- Hogrefe. (2008). GMDS-ER-2-8-Griffiths Mental Development Scales-Extended Revised: 2 to 8 years. Retrieved September 4, 2008 from <http://www.hogrefe.co.uk/?/test/show/111/>
- Howe, D. (2005). *Child abuse and neglect: Attachment, development and intervention*. NY: Palgrave Macmillan.
- Janssen, C. J. C., Schuengel, C., & Stolk, J. (2002). Understanding challenging behaviour in people with severe and profound intellectual disability: A stress-attachment model. *Journal of Intellectual Disability Research*, 46 (6), 445-453.
- Kail, R. V., & Cavanaugh, J. C. (2007). *Human development: A life-span view* (4th ed.). Belmont, CA: Thompson/Wadsworth.
- Luiz, D., Barnard, A., Knoesen, N., Horrocks, S., McAlinden, P., Challis, D., et al. (2006). Griffiths Mental Development Scales-Extended Revised (Two to eight years): Administration manual. Oxford: Hogrefe.
- Luiz, D., Faragher, B., Barnard, A., Knoesen, N., Kotras, N., Burns, L. E., et al. (2006). Griffiths Mental Development Scales-Extended Revised (Two to eight years): Analysis manual. Oxford: Hogrefe.
- Luiz, D. M., Foxcroft, C. D., & Povey, J. (2006). The Griffiths scales of mental development: A factorial validity study. *South African Journal of Psychology*, 36 (1), 192-214.

- Luiz, D. M., Foxcroft, C. D., & Stewart, R. (2001). The construct validity of the Griffiths scales of mental development. *Child Care, Health and Development, 27* (1), 73-83.
- Lyons-Ruth, K., Alpern, L., & Repaeholi, B. (1993). Disorganized infant attachment classification and maternal psychosocial problems as predictors of hostile-aggressive behaviour in the preschool classroom. *Child Development, 64* (2), 572-585.
- Mann, C. J. (2003). Observational research methods. Research design II: Cohort, cross sectional, and case-control studies. *Emergency Medical Journal, 20* (1), 54-60.
- Marvin, R. S., & Britner, P. A. (1999). Normative development: The ontogeny of attachment. In J. Cassidy, & P. R. Shaver (Eds.), *Handbook of attachment: Theory, research, and clinical applications* (pp. 44-67). NY: The Guilford Press.
- Marvin, R. S., & Stewart, R. B. (1990). A family systems framework for the study of attachment. In M. T. Greenberg, D. Cicchetti, & E. M. Cummings (Eds.), *Attachment in the preschool years: Theory, research and intervention* (pp. 51-85). Chicago: University of Chicago Press.
- Mennen, F. E., & O'Keefe, M. (2005). Informed decisions in child welfare: The use of attachment theory. *Children and Youth Services Review, 27* (6), 577-593.
- Moss, E., Rousseau, D., Parent, S., St-Laurent, D., & Saintong, J. (1998). Correlation of attachment at school age: Maternal reported stress, mother-child interaction, and behavior problems. *Child Development, 69* (5), 1390-1405.
- Noar, S. M. (2003). The role of structural equation modeling in scale development. *Structural Equation Modeling, 10* (4), 622-647.
- O'Connor, T. G., & Croft, C. M. (2001). A twin study of attachment in preschool children. *Child Development, 72* (5), 1501-1511.

- Phillips, D. A. (1984). Illusions of incompetence among academically competent children. *Child Development, 55* (6), 2000-2016.
- Phillips, D. A. (1987). Socialization of perceived academic competence among highly competent children. *Child Development, 58* (5), 1308-1320.
- Rosenthal, R., Rosnow, R. L., & Rubin, D. B. (2000). *Contrasts and effect sizes in behavioural research: A correlational approach*. Cambridge: Cambridge University Press.
- Rutter, M., O'Connor, T. G., & English and Romanian Adoptees (ERA) Study Team. (2004). Are there biological programming effects for psychological development? Findings from a study of Romanian adoptees. *Developmental Psychology, 40* (1), 81-94.
- Sander, L. W. (1976). Issues in early mother-child interaction. In E. N. Sander, & A. Shapiro (Eds.), *Infant psychiatry* (pp. 127-147). London: Yale University Press.
- Sander, L. W. (1977). The regulation of exchange in the infant-caregiver system and some aspects of the context-content relationship. In M. Lewis, & L. A. Rosenblum (Eds.), *Interaction, conversation, and development of language* (pp. 133-158). NY: Wiley.
- Schneider-Rosen, K. (1990). The development reorganization of attachment relationships: Guidelines for classification beyond infancy. In M. T. Greenberg, D. Cicchetti, & E. M. Cummings (Eds.), *Attachment in the preschool years: Theory, research and intervention* (pp. 185-219). Chicago: University of Chicago Press.
- Schore, A. N. (2000). The effects of early relational trauma on right brain development, affect regulation, and infant mental health. *Infant Mental Health Journal, 22* (1-2), 201-269.

- Schuengel, C., de Schipper, C., & Sterkenburg, P. (2003). *Hechtingsstoornissen en verstoorde gehechtheid* [Attachment disturbances and disturbed attachment]. In S. Colijn, E. C. A. Collumbien, G. Lietaer, & R.W. Trijsburg (Eds.), *Handboek integrative psychotherapie* (VI 8.1: p. 1-24). Utrecht: De Tijdstroom.
- Schuengel, C., & Janssen, C. G. C. (2006). People with mental retardation and psychopathology. Stress, affect regulation and attachment. *International Review of Research in Mental Retardation*, 32, 229-260.
- Schuengel, C., Voorman, J., Stolk, J., Dallmeijer, A., Vermeer, A., & Becher, J. (2006). Self-worth, perceived competence, and behaviour problems in children with cerebral palsy. *Disability & Rehabilitation*, 28 (20), 1251-1258.
- Society for Research in Child Development. (2007). Ethical standards for research with children. Retrieved May 19, 2007, from <http://www.srcd.org/ethicalstandards.html>
- Solomon, J., & George, C. (1999). The measurement of attachment security in infancy and childhood. In J. Cassidy, & P. R. Shaver (Eds.), *Handbook of attachment: Theory, research, and clinical applications* (pp. 287-316). NY: The Guildford Press.
- SPSS Inc. (2006). SPSS® 15.0 for Windows, Release 15.0.0, Copyright© by SPSS Inc., Chicargo: Illinois.
- Sroufe, L. A. (1979). The coherence of individual development: Early care, attachment, and subsequent development issues. *American Psychologist*, 34 (10), 834-841.
- Sroufe, L. A. (1988). The role of infant-caregiver attachment in development. In J. Belsky, & T. Nezworski (Eds.), *Clinical implications of attachment* (pp. 8-40). Hillsdale, NJ: Erlbaum.

- Sroufe, L. A., Carlson, E. A., Levy, A. K., & Egeland, B. (1999). Implications of attachment theory for development psychopathology. *Development and Psychopathology, 11* (1), 1-13.
- Steyn, H. S., Jr. (2006). *Handleiding vir die bepaling van effekgrootte-indekse en praktiese betekenisvolheid [Guidelines for determining of effect size indices and practical significance]*. Noordwes Universiteit (Potchefstroomkampus), Potchefstroom. Retrieved August 5, 2008, from <http://www.puk.ac.za/fakulteite/natuur/skd/index.html>
- Thompson, B. (1997). If statistical significance tests are broken/misused, what practices should supplement or replace them? Paper presented at the annual meeting of the American Psychological Association. Retrieved August 25, 2008, from <http://eric.ed.gov/ERICDocs/data/ericdocs2sql/context>
- Thompson, B. (2001). Significance, effect sizes, stepwise methods, and other issues: Strong arguments move the field. *The Journal of Experimental Education, 70* (1), 80-93.
- Thompson, B. (2002a, April). What future quantitative social science research could look like: Confidence intervals for effect sizes. *Education Researcher*, pp. 25-32.
- Thompson, B. (2002b). "Statistical," "practical," and "clinical": How many kinds of significance do counsellors need to consider? *Journal of Counseling & Development, 80*, 64-71.
- Trusty, J., Thompson, B., & Petrocelli, J. V. (2004). Practical guide for reporting effect size in quantitative research in the Journal of Counseling & Development. *Journal of Counseling & Development, 82* (1), 107-110.

- van IJzendoorn, M. H., Goldberg, S., Kroonenberg, P. M., & Frenkel, O. (1992). The relative effects of maternal and child problems on quality of attachment: A meta-analysis of attachment in clinical samples. *Child Development, 63* (4), 840-858.
- van IJzendoorn, M. H., Vereijken, C. M. J. L., Bakermans-Kranenburg, M. J., & Riksen-Walraven, J. M. (2004). Assessing attachment security with the Attachment Q-sort: Meta-analytical evidence for the validity of the observer AQS. *Child Development, 75* (4), 1188-1213.
- Vaughn, B. E., & Waters, E. (1990). Attachment behavior in the home and in the laboratory: Q-sort observations and strange situation classifications of one-year-olds. *Child Development, 61* (6), 1965-1973.
- Vékony, A., van Aggelen-Gerrits, M. H., van Aken, M. A. G., & Goudena, P. P. (2004). De relatie tussen zelfwaardering en gehechtheid aan ouders bij zevenjarige kinderen [The effect of attachment relationships on 7-year-olds' self-esteem]. *Pedagogiek, 24* (2), 124-137.
- Verschueren, K., Buyck, P., & Marcoen, A. (2001). Self-representations and socioemotional competence in young children: A 3-year longitudinal study. *Developmental Psychology, 37* (1), 126-134.
- Verschueren, K., & Marcoen, A. (1993a). Zelfbelevingsschaal voor Jonge Kinderen [Pictorial Self-Evaluation Scale]. Intern rapport. Katholieke Universiteit Leuven, Faculteit Psychologie en Pedagogische Wetenschappen. Centrum voor Ontwikkelingspsychologie.
- Verschueren, K., & Marcoen, A. (1993b). Zelfbelevingsschaal voor Jonge Kinderen [Pictorial Self-Evaluation Scale]. Administration manual. Katholieke Universiteit

Leuven, Faculteit Psychologie en Pedagogische Wetenschappen. Centrum voor Ontwikkelingspsychologie.

- Verschuieren, K., & Marcoen, A. (1999). Representation of self and socioemotional competence in kindergartners: Differential and combined effects of attachment to mother and to father. *Child Development, 70* (1), 183-201.
- Verschuieren, K., & Marcoen, A. (2002). Perceptions of self and relationship with parents in aggressive and nonaggressive rejected children. *Journal of School Psychology, 40* (6), 501-522.
- Verschuieren, K., Marcoen, A., & Buyck, P. (1998). Five-year-olds' behaviorally presented self-esteem: Relations to self-perceptions and stability across a three-year period. *The Journal of Genetic Psychology, 159* (3), 273-279.
- Verschuieren, K., Marcoen, A., & Schoefs, V. (1996). The internal working model of the self, attachment, and competence in five-year-olds. *Child Development, 67* (5), 2493-2511.
- Waters, E. (1987). Attachment Q-set (Version 3). Retrieved January 22, 2007, from <http://www.johnbowlby.com>
- Waters, E., & Deane, K. (1985). Defining and assessing individual differences in attachment relationships: Q-methodology and the organization of behavior in infancy and early childhood. In I. Bretherton, & E. Waters (Eds.), *Monographs of Society for Research in Child Development, 50* (1-2), 41-65.

Footnotes

¹Expansion on the different factors over extends the scope of this research. In this article there would only be focused on three distinctive factors, namely; the quality of the attachment, self-evaluation and cognitive development.

²After infancy there is a decrease in physical proximity and contact. Older children “increasingly organise their intimate interactions with their attachment figures on the basis of physical orientation, eye contact, nonverbal expressions, and affect, as well as conversations about personal matters” (Marvin & Britner, 1999, p. 57).

³Selection criteria were as follows: (a) The pre-school child must be between 60 and 72 months old at the time of testing; (b) The pre-school child lives with his/her biological parents since birth; (c) The pre-school child’s mother tongue is Afrikaans or English.

⁴The English version of the PSES was translated to Afrikaans by M. van Deventer and edited by Dr. A. van der Merwe, with permission from Prof. K. Verschueren.

Table 1

Descriptive Statistics (n = 10) for the AQS; PSES; GMDS-TR with 6 Subscales

	M	SD	Range		Skewness
			Minimum	Maximum	
AQS	.24	.21	-.19	.52	-.84
PSES	3.61	.34	3.00	4.20	.02
GMDS-TR	64.95	7.50	54.00	77.00	.38
GMDS-TR subscales					
A. Locomotor	65.80	9.64	42.50	79.50	-1.42
B. Personal/Social	65.65	9.87	52.50	80.50	.22
C. Language	66.65	7.24	54.50	79.50	.25
D. Eye & Hand coordination	58.25	5.75	50.00	66.50	-.12
E. Performance	77.40	17.77	56.00	96.00	-.11
F. Practical reasoning	62.70	5.92	53.00	73.00	.17

Table 2

Spearman's Correlation (r_s): Inter-scale correlations

	AQS	PSES	GMDS-TR
AQS	1.00		
PSES	.40 [†]	1.00	
GMDS-TR	.46 [†]	.61 [†]	1.00
GMDS-ER Subscales			
Locomotor	.31	.35	.55 [†]
Personal/Social	.42 [†]	.37	.80 ^{**}
Language	.68 [*]	.64 [*]	.77 ^{**}
Eye & Hand Coordination	.14	.49 [†]	.84 ^{**}
Performance	.29	.40 [†]	.90 ^{**}
Practical Reasoning	.54 [†]	.56 [†]	.95 ^{**}

Note. AQS = attachment security scores; PSES = average self-evaluation scores;

GMDS-ER = age equivalent mental score.

† $r_s \approx .5$ (practical significance)

* $p < .05$.

** $p < .01$.