UNIVERSITY OF SOUTHAMPTON

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Evaluating the Use of Attachment Measures to Understand the Quality of Children's Attachment Relationships and Networks

by

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ABSTRACT

FACULTY OF SOCIAL AND HUMAN SCIENCES

Doctorate in Educational Psychology

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There is an increased focus on attachment and its impact on educational outcomes in recent literature. In order to promote effective practices in educational psychology, it is important that research is able to assess children's attachment networks easily and reliably. To understand what measures are available, reliable and usable across primary aged children (6 – 12 years), a systematic review of the literature was conducted. Measures elicited from papers were grouped by the underlying constructs they assessed: attachment patterns, quality of attachment relationships and attachment networks, and the assessment method used: representational and behavioural, and self-report. Validity and reliability of measures was good, but limited measures existed that assessed attachment networks, and which could be used over a large age range. To determine whether a Hierarchical Mapping Technique (HMT) was a useful way of assessing attachment networks in primary aged children, 93 children aged 9 – 10 years completed the HMT and a self-report measure of attachment anxiety and avoidance. Children also completed an attachment figure interview which rated hierarchical preferences of attachment network members for attachment and companionship questions. Results revealed the HMT was a quick and easy way of mapping attachment networks in children. Boys had fewer network members and placed their network members closer to the core-self than girls. An anxious father-child relationship predicted the placement of fathers further away from the core self. Mothers and grandparents who were placed closer to the core self were also more likely to be nominated to fulfil attachment needs. Very few children placed teachers within networks. Implications for educational psychology and future research are discussed.

Keywords: *Attachment networks, children, hierarchies.*

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DECLARATION OF AUTHORSHIP

I, PATIENCE ALICE PICKSLEY declare that this thesis, **'Evaluating the use of attachment measures to understand the quality of children's attachment relationships and networks'**, and the work presented in it are my own and has been generated by me as the result of my own original research.

I confirm that:

1. This work was done wholly or mainly while in candidature for a research degree at this University;
2. Where any part of this thesis has previously been submitted for a degree or any other qualification at this University or any other institution, this has been clearly stated;
3. Where I have consulted the published work of others, this is always clearly attributed;
4. Where I have quoted from the work of others, the source is always given. With the exception of such quotations, this thesis is entirely my own work;
5. I have acknowledged all main sources of help;
6. Where the thesis is based on work done by myself jointly with others, I have made clear exactly what was done by others and what I have contributed myself;
7. None of this work has been published before submission.

Signed: .....

Date: .....

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Definitions and Abbreviations

α	Cronbach's Alpha
AAI	Adult Attachment Interview
AFI	Attachment Figure Interview
AICA	Attachment Interview for Children and Adolescence
ANOVA	Analysis of Variance
ASCT	Attachment Story Completion Task
AQ-C	Attachment Questionnaire for Children
β	Beta coefficients
CAI	Child Attachment Interview
CMCAST	Computer Manchester Child Attachment Story Task
CSQ	Coping Strategies Questionnaire
DMM	Dynamic Maturational Model
ECR-RC	Experiences of Close Relationship Scale Revised for Children
EP(s)	Educational Psychologist(s)
F	Test statistic for ANOVA
FFI	Friends and Family Interview
HMT	Hierarchical Mapping Technique
ICC	Interclass Correlations
IPPA - R	Inventory of Parent and Peer Attachment – Revised
K	kappa
M	Mean

MANOVA	Multivariate Analysis of Variance
MCAST	Manchester Child Attachment Story Task
MSS	MacArthur Story Stem (MSS)
N	Number of participants / studies
ns	Non significant
ONS	Office of National Statistics
p	Probability, significance of a test statistic
PIML	People in My Life
η_p^2	Partial eta-squared
r	Pearson correlation coefficient
SAA	School Age Assessment of Attachment
SAT	Separation Anxiety Test
SD	Standard Deviation
SES	Socio-Economic Status
SRP	Separation Reunion Procedure
SS	Security Scale
SSP	Strange Situation Protocol
STDC	Snack Time Dyadic Coding
TA	Teaching Assistant
U	Mann Whitney U-test
χ^2	Chi square

Chapter 1: The validity, reliability and usefulness of attachment measures suitable for primary school-aged children.

1.1 Introduction

The current review aims to use a systematic approach to investigate the available measures which assess attachment in primary school aged children (ages 6 – 12 years) by exploring the underlying constructs and methods of assessment, which are evaluated for their validity and reliability for use across this age range. Attachment and its impact on primary schooling has received growing acknowledgement in recent years, with special edition journals on this subject (e.g., *Attachment and Human Development*, 2012). A number of books have been recently published providing information on working with pupils in schools who have attachment needs (Bombèr, 2007; Geddes, 2006). One potential reason for this increased focus is the contribution of research demonstrating the impact of parental attachment security on emotional, social and educational success. In primary aged children, mother-child attachment security is associated with higher communication, cognitive engagement and motivation (Moss & St-Laurent, 2001), adaptive emotional regulation (Kerns, Abraham, Schlegelmilch, & Morgan, 2007; Kerns, Tomich, Aspelmeier, & Contreras, 2000; Sroufe, Egeland, & Kreutzer, 1990) and positive peer relationships (Kerns, Klepac, & Cole, 1996). Furthermore, research has identified a unique contribution of the pupil-teacher relationship in the mediation of difficulties associated with insecure attachment (Baker, Grant, & Morlock, 2008; Buyse, Verschueren, & Doumen, 2011). A poor teacher-pupil relationship at pre-school age, characterised by low closeness and high conflict, is a mediating factor for later increased levels of externalising and internalising behaviour in primary aged children (O'Connor, Collins, & Supplee, 2012). Conversely, increased teacher-pupil closeness protects against the risk of aggressive behaviours, and high teacher sensitivity protects against failure to develop a positive teacher-child relationship (Buyse et al., 2011). A secure attachment to teachers in the early years is additionally associated with language development, school readiness and reduced learning difficulty risk (Commodari, 2013). An understanding of this unique role of attachment security and a positive teacher-child relationship has implications for the

field of educational psychology. This understanding could result in more effective working practice to support children most at risk from insecure attachments to increase positive outcomes.

Previous reviews have been conducted that describe the available attachment measures within middle childhood (Kerns, Schlegelmilch, Morgan, & Abraham, 2005). Given the potential negative outcomes for children within this age range, both emotionally, socially and academically, it is important to determine the most up to date information on attachment measures using a systematic technique. By exploring the validity, reliability and usefulness of these measures within the primary school-aged population, information will be provided on the availability of attachment measures. To understand this literature base fully it will be important to initially gain an overview of attachment theory, the changes of attachment throughout the primary-school aged period, and define the construct or dimensions that underlies assessment of attachment with this age group.

Attachment Theory

Bowlby (1982), highlighted the normative event for all children to develop a deep and enduring bond or attachment to another person, not always, but usually to their primary caregiver. This bond develops in the first year of life. The attachment is characterised by a desire on the behalf of the child to maintain proximity to the attachment figure and to use this figure as a 'safe haven' in times of fear or distress. This figure also provides a 'secure base' for the child to explore their environment. The attachment bond can vary in quality, and research has assessed this attachment quality to caregivers, throughout infancy, childhood and adulthood (Howe, 2011).

In developmental research, the 'Strange Situation Protocol' (SSP) (Ainsworth, 1979) has been developed and used to identify individual differences in how children organise their attachment behaviour. Within the SSP, an infant is left for a period of time in a room and their behaviour on reunion with their caregiver is observed and coded by trained researchers. Infants reliably demonstrate four typical patterns of behaviour when reunited with their caregiver. Infants are categorised as 'secure' when they are observed to be happy to explore their environment in the presence of their caregiver (secure base behaviour). 'Secure' infants may appear distressed on separation, but are easily comforted by their caregiver's return (safe haven behaviour). A further

three patterns are observed in infants through the SSP which are classified as 'insecure'. These are categorised as anxious ambivalent (also known as resistant), avoidant, and disorganised (Main & Solomon, 1990). Infants who are described as anxious ambivalent demonstrate high levels of distress even before separation from their caregiver. This is seen in 'clingy' behaviour, and the child is difficult to soothe following a separation from the caregiver. Infants classified as avoidant are more likely to ignore the caregiver when they are present and display little emotion on separation or reunion with them. Insecure disorganised infants demonstrate unusual behaviours, such as stilling and freezing, not consistent with the other attachment patterns. This category was added at a later date in response to difficulties with coding infants into only three categories (Main & Solomon, 1990). The SSP is now regarded as the 'gold standard' assessment method (Bick, Dozier, & Perkins, 2012) for understanding attachment patterns in infancy.

Attachment security, as described above, has historically been identified through coding and categorising children into attachment patterns or types. More recently, this type of data has been revisited to determine whether variations in attachment patterns could be explained through continuous dimensions rather than categorical methods of analysis (Fraley & Spieker, 2003). Taxometric techniques on existing SSP data has been conducted and a two dimensional continuous model has been extricated which is thought to underlie attachment behaviour seen in infants (Fraley & Spieker, 2003). The first dimension is defined as proximity seeking versus avoidant strategies which is characterised by the degree to which children were observed to maintain proximity. The second dimension is defined as angry and resistant; characterised by the amount of conflict shown by the infant towards the caregiver. As well as behavioural observations, self-report measures used in research to assess attachment patterns appear to tap into two continuous dimensions; anxiety and avoidance (Borelli, David, Crowley, & Mayes, 2010). By crossing these dimensions, it is possible to group respondents into traditional attachment patterns as observed through SSP (Brenning, Soenens, Braet, & Bosmans, 2011).

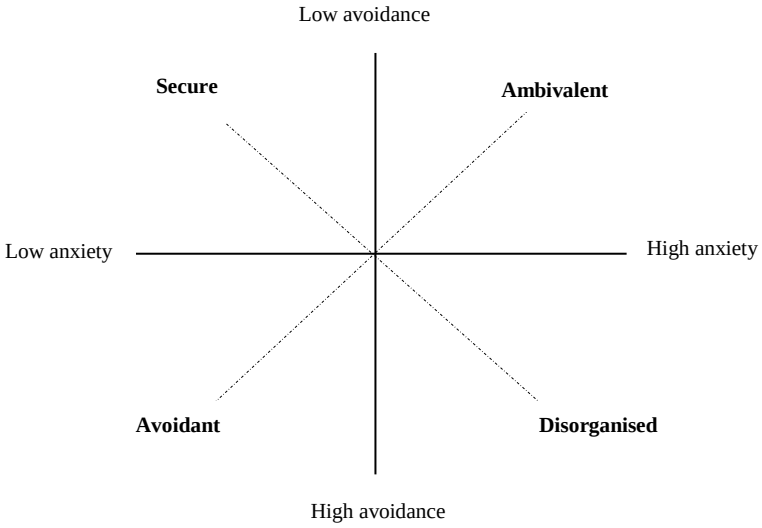


Figure 1. Attachment Dimensions and associated Attachment Patterns in Children. Adapted from "An adaptation of the experiences in close relationship scale-revised for use with children and adolescents" by K. Brenning, B. Soenens, C. Braet and G. Bosmans, 2011, *Journal of Social and Personal Relationships, 28*, p.2.

Apart from measures which assess traditional attachment patterns through categorical or continuous dimensions, the quality of attachment relationship is also a key factor in attachment research given its importance in establishing attachment security. Attachment security seen in young children has been related to the quality of parental interaction with the child (Bowlby, 1982). It is thought that secure and insecure attachment is communicated through the interaction of parent to child, with maternal sensitivity being associated with child attachment security (De Wolff & van Ijzendoorn, 1997). Quality of relationships such as warmth and communication within close attachment relationships, is a protective factor against stress and reduces the risk of a future negative outcome (Brennan, Le Brocque, & Hammen, 2003; Haskett, Nears, Sabourin Ward, & McPherson, 2006). Given these findings, a number of measures are available which aim to assess the quality of attachment relationships in children (Finnegan, Hodges, & Perry, 1996; Granot & Mayseless, 2001).

Stability of attachment

Research shows there is relative stability of individual attachment patterns over time. This has been demonstrated through the modest correlations (.039) found between early attachment security with attachment security in later life (Fraley, 2002). Furthermore attachment patterns are transmitted across generations (Shah, Fonagy, & Strathearn, 2010) with more secure mothers having more secure children (Benoit & Kevin, 1994). However, it should be noted that, longitudinal research suggests that this stability can be affected by significant attachment related life and family events which may disrupt attachment relationships (Waters, Merrick, Treboux, Crowell, & Albersheim, 2000). It is therefore important in research investigating stability over time, to take into consideration such events as a potentially confounding variable.

Early insecure attachment is a risk factor for later negative developmental outcomes (Fearon, Bakermans-Kranenburg, Van IJzendoorn, Lapsley, & Roisman, 2010). Therefore, it is arguable that measuring attachment stability is an important area of research for educational psychology. However, effectively measuring attachment stability is not without its difficulties. This is demonstrated through the variety of methods used and underlying constructs which assessments tap into. Therefore, there appears to be a need for the development of a tool which can be used across the wider age range. This would reduce the amount of variance as a result of using multiple assessment methods.

Attachment across cultures

Research into cross cultural validity of attachment theory has been conducted in western cultures and a number of non-western cultures including Africa, China, Israel, Japan and Indonesia (Van Ijzendoorn & Sagi-Schwartz, 2008). Cross cultural studies investigating the validity of attachment theory have demonstrated that all infants appear to become attached to one or more specific caregivers. This is also known as the ‘universality hypothesis’ (Van IJzendoorn, 1990). Meta-analyses have demonstrated the three basic attachment patterns; secure, avoidant and ambivalent, to be present in every culture studied (Van Ijzendoorn & Kroonenberg, 1988). Research suggested there are variations in the distributions, although secure patterns predominate (Van Ijzendoorn & Sagi-Schwartz, 2008). This dominance of attachment security across cultures studies is known as the ‘normative hypothesis’(Van Ijzendoorn & Sagi-Schwartz, 2008) . Recent

research suggests that variation in attachment distributions is due to individual differences in child rearing practices. This causal link between sensitive caregiving and attachment security has been found across cultures studied and is more commonly known as the 'sensitivity hypothesis' (Van Ijzendoorn & Sagi-Schwartz, 2008). Waters and Cummings (2000) highlight that attachment theory assumes that sensitivity to infant signals, co-operative interaction, availability and responsiveness all play a role in attachment development across all cultures. However, it does not assume these are equally prevalent and more research is needed to provide more definitive information on the link between attachment and sensitivity across cultures (Van Ijzendoorn & Sagi-Schwartz, 2008).

In summary, there are a number of universal attachment hypotheses which are demonstrated in cross cultural research. However, infant and child attachment systems, across cultures, may be activated by different experiences and the expression of attachment needs may be communicated differently. Therefore, measures to identify attachment patterns may need to be adapted and the coding informed by people of that culture.

Primary School-Aged Children

An increased understanding of the impact of attachment on educational outcomes is arguably due to a recent focus in the study of attachment within middle childhood (Kerns & Richardson, 2005). Middle childhood is a period of significant changes to a child's attachment relationships (Ainsworth, 1985). Whereas young infants and children rely on the physical proximity of a caregiver (seen in the distress of parting in the strange situation), children in middle childhood appear to be increasingly concerned with the psychological availability of these attachment figures (Kerns, Tomich, & Kim, 2006). This coincides with a shift in mental representations where a child is increasingly aware of another person's motivations and therefore able to compromise their own behaviour for the sake of the relationship (Lieberman, 1992). This is more commonly known as a 'goal corrected partnership' (Bowlby, 1982).

Primary caregivers are usually, but not always, preferred attachment figures in middle childhood. However, this period is characterised by the increased presence of other social figures such as friends, peers, teachers, relatives and neighbours (Kobak, Rosenthal, & Serwik, 2005). Some of these social figures may serve as attachment

relationships (Kobak et al., 2005; Seibert & Kerns, 2009) and research with young adults has examined this through investigating preferences of who would be chosen first to provide a safe haven and secure base (Fraley & Davis, 1997). This systematic preference for figures to meet attachment needs is also known as an attachment 'hierarchy' (Kobak et al., 2005). These hierarchies demonstrate children often have networks of important relationships which meet their attachment needs (Kobak et al., 2005). However, there appears to be relatively limited research on these attachment networks within middle childhood.

It is also during this period that children appear to move from a focus on specific relationships to form a broader 'relationship construct' in which a mental model or framework is used by the child to interpret behaviour in their interactions and future relationships. This prediction of others behaviours has been supported through neuroimaging studies in adults. Ruby and Decety (2004) demonstrated the ability of adult humans to understand other people's actions and emotions merely through observed or imagined interactions. At a cognitive level, this framework to understand others current or future behaviour is known as an 'internal working model' (Bowlby, 1982). This model is thought to be bidirectional in both influencing and being influenced by experiences of multiple relationships (Howes, 1999). Internal working models in adults are most usually measured through the Adult Attachment Interview (Main, Kaplan, & Cassidy, 1985) which is a semi-structured interview about the adult's childhood attachment experiences. In very young children, internal working models are assessed through the SSP as described earlier. To assess internal working models in middle childhood, there has been a growing literature base of similar measures to those used in adulthood, which elicit subconscious information through projective techniques. These have usually been through assessing the coherence of children's narratives for actual or imagined events, designed to activate children's attachment system (Minnis et al., 2006).

Assessing Attachment Measures Validity and Reliability

Arguably, the measurement of attachment is of crucial importance. Research has demonstrated associations between attachment security with social competence, externalising and internalising behaviour problems, even in young children (NICHD, 2006). The developmental changes associated with attachment in childhood have

resulted in a number of potential relevant and useful attachment measurements being used in research to assess attachment patterns, quality of attachment relationships and attachment to non-parental figures (Guttmann-Steinmetz & Crowell, 2006). Solomon and George (2008) suggest that researchers pay attention to the following core theoretical predictions, based on knowledge about attachment theory, when assessing the validity of any attachment measure. Firstly, attachment security should be associated with a high level of parental warmth and engagement. Secondly, there should be a continuity of attachment security in a particular caregiver-child relationship over time. Thirdly, there should be coherence of attachment and behavioural observations across developmental areas, with secure attachment being related to the absence of internalising and externalising behaviour difficulties. Finally, attachment security should be demonstrated across cultures and across attachment figures as attachment behaviour is described as a universal and evolutionary occurrence (Bowlby, 1982). Together with the above four core theoretical predictions, Solomon and George (2008) emphasise the importance of reliability and validity of the attachment measures. This is determined through four criteria, (1) inter-rater reliability; the degree to which two or more coders produce the same conclusions as each other, (2) internal consistency; the degree to which items of similar constructs produce similar scores, (3) discriminant validity; the degree to which unrelated measures/concepts are different from the measure and (4) construct validity; the degree to which an assessment measure is correlated with similar measures of attachment (Solomon & George, 2008).

In summary, measures exist in middle childhood to determine a number of different attachment constructs. Three of these constructs include (1) the pattern of attachment types, as demonstrated through measures which tap into a child's internal working model usually through behavioural or projective techniques, (2) attachment networks, which identify a hierarchy of preferred relationships to meet attachment needs, (3) the quality of attachment relationships identified through the parental warmth and communication between attachment figures and the child. These constructs have led to a large number of measures being developed to assess attachment. To understand the breadth and quality of measures that are current and relevant for a school aged population, a systematic review of the literature was conducted in order to make sense of the increasing evidence base. Therefore, the current review aims to identify what measures are available, their validity and reliability, alongside the potential difficulties of using these with primary school-aged children. This has implications for

understanding the developmental outcomes for children with attachment needs. There are also educational implications in recognising and intervening in the teacher-child relationship to provide more positive outcomes for children and young people.

1.2 Method

Two electronic databases were selected to perform the literature search, PsycInfo EBSCO and Web of Science. Search terms were generated and used in each database and related terms were generated using the databases thesaurus (See Appendix B). Additional records were found through looking at reference lists of extant papers within the initial search, as well as key papers identified by a supervisor. An initial search in both databases retrieved 231 papers using an initial inclusion and exclusion criteria set within the parameters of each database. This resulted in the inclusion of papers published in peer reviewed journals and the exclusion of unpublished works such as dissertations, conference papers and review articles Furthermore, only papers published in English were included. After an initial screening of these papers, through reading titles and abstracts, a further 166 papers were excluded using the criteria below. The remaining 73 records where then retrieved in full and another 41 papers were excluded on identifying further information which met the exclusion criteria (See Appendix C).

Participant age. Papers were included where participants were of primary school age; between ages of six and 12 years. Papers with all participants outside of this age range were excluded. Papers were still included if the majority of participants fell within this age range.

Participant group. Papers which used only clinical participant groups were excluded. Papers which used a combination of clinical and non-clinical groups were included. Clinical groups are defined as those referred to outpatient mental health services or referrals from social care departments whereas non clinical groups refer to the general population.

Attachment measure. Papers which used a ‘relationship’ attachment measure as one of their measures were included (a number included attachment to other factors such as school, God etc.). Papers were only included if an attachment measure was primary to the research aims.

Literature review/book chapters. Papers were excluded if they did not contain original research by the author.

The data extracted from the articles included age range, participant group (e.g. clinical or non-clinical populations), number of participants, reporting quality, construct validity, inter-rater agreement or internal consistency , discriminant validity, specificity of relationship measured (specific or general) and dimensionality of measurement (continuous or categorical data). An author created checklist based on Downs and Black (1998) and Solomon and George (2008) was used to evaluate the reporting quality of articles and the validity and reliability. A list of criteria can be found in Appendix D.

1.3 Results

Thirty-one papers were included in the review and a full table of retrieved articles can be seen in Appendix A. From these papers 20 attachment measures were elicited. To aid in transparency and clarity for the reader, attachment measures extracted from articles were organised into categories, and a hierarchical model was produced (See Appendix E). This model was constructed using two common themes; construct of assessment and measurement technique. Specificity of relationship (specific or general) and type of measurement (categorical versus continuous) were omitted as categories because some measures included both factors within the dimension.

Construct of Assessment

Measures were grouped initially under three types of construct; attachment patterns, quality of attachment relationship and attachment networks. This division was guided by general reading of attachment theory, but also through the information within articles found in the literature search. Measures grouped under ‘attachment patterns’ were those that tapped into individual differences of attachment. This included classifying children on attachment dimensions (anxiety and avoidance) and determining attachment security (secure versus insecure) on attachment types (Ainsworth, 1979). Classifications were also based on the more recently proposed Dynamic Maturational Model (Crittenden, 2000). This model includes those based on the traditionally observed attachment patterns using the SSP, but also recognising a wider range of attachment types which reflect the impact of a child’s neurological maturation and

experience in developing self-protective strategies to deal with their family attachments (Crittenden, 2000). The majority of papers used measures which assessed attachment patterns.

Measures grouped under 'quality of attachment relationship' tapped into the specific quality of the relationship. This included a range of qualities; perceptions of care giving, communication and enjoyment. Measures included those which assessed the quality of primary attachment figure relationships, such as parents, but also with other attachment figures, such as peers. Therefore, this type of measurement provides an opportunity to investigate multiple relationships with whom the young person may have formed an attachment bond.

The last group was categorised as 'attachment network' measures. This group assessed the degree to which network members are used in response to situations which elicited attachment behaviours such as safe haven and secure base. This gave the opportunity to gather information on the nature of the relationships by investigating who children would go to first, with preferred attachment figures featured at the top of this hierarchy. Only those which allowed free choice of individuals were included.

Method of Assessment

In addition to the above grouping (patterns, quality and network), measures were also grouped by three assessment techniques. Firstly, measures were grouped as 'behavioural' when there was direct observation of the child and the attachment figure in situations that elicit attachment behaviour, for example through separation and reunion techniques as demonstrated with the SSP. Secondly, 'representational' measures were those which utilised projective, semi-projective or interview techniques. Projective, in this instance, relates to unconscious information elicited from a participant through narratives or acting out imagined events, which is then usually interpreted and coded by an interviewer (e.g. Bretherton & Oppenheim, 2003). Lastly, 'self –report' measures required participants to answer a set of questions without additional prompts or variations and required no interpretation from a coder or interviewer. Only self-report measures completed by the children themselves were included and measures completed by teachers or parents were excluded.

Attachment Patterns: Behavioural

These measures classified children into attachment patterns using a wide range of behavioural, self-report and representational measures.

Separation Reunion Procedures (SRP)

Two papers used the Separation Reunion Procedure (SRP) (Bureau & Moss, 2010; Humber & Moss, 2005) a behavioural observation technique which is based upon Ainsworth's SSP (Ainsworth, 1985). This determines a child's attachment type through the coding of observed behaviour during a separation and reunion with a primary caregiver. The two papers included used this behavioural observation to evaluate the child's physical proximity to their mother, their affective expression and the verbal exchanges. This resulted in categorisation of secure (B), insecure avoidant (A), insecure dependent (C), insecure disorganised/controlling (D) patterns in children aged 5 – 7 years. This measure is used with the youngest children within the age range investigated and is traditionally used with children aged 1 - 18 months. Both papers used the Cassidy and Marvin (1992) coding schedule of the separation-reunion procedure for early school age children.

Validity and Reliability

Humber and Moss (2005), had a relatively large sample size (n = 121) and demonstrated good inter-rater reliability on attachment classifications between coders (k =.88). The second paper, Bureau and Moss (2010), used this measure as part of a longitudinal design to assess the stability of attachment classifications over time. This study also demonstrated good inter-rater reliability (k =.84). When children's attachment types were re-assessed over time using narrative story stem approaches, the SRP demonstrated good predictive validity, with attachment classifications remaining stable over time (in the absence of significant life events). Both studies did not repeat measures which meant test-retest stability could not be determined and therefore stability over time cannot be accurately assessed. As with SSP in infancy, the SRP used with the youngest primary aged children appears to be a relatively robust measure of attachment patterns and is able to predict later attachment types.

Attachment Patterns: Representational

The largest group of classification measures were grouped as representational, with 23 papers using 9 different measures. These measures used projective or semi-projective approaches (i.e., doll play story stems, photographs, interview and family drawings) to elicit unconscious information from the participant. Doll play story stems assess attachment patterns in children by eliciting information about parents and caregiving through completion of a story or situation using figures, dolls or characters. In the current review, 10 papers used three different measures based on this narrative technique; The MacArthur Story Stem (MSS), the Manchester Child Attachment Story Task (MCAST) and the Attachment Story Completion Task (ASCT).

The MacArthur Story Stem (MSS)

The MSS was used in one paper (Minnis et al., 2006), and the authors developed this measure into a computer program. Six story stems were administered to children aged 4 - 9 years through simple animated drawings. A voice over on the computer then asks children to 'show me and tell me' what happens next. Prompts which would have been given by the interviewer were replaced by an animated figure, 'Mr Query', to elicit full responses from children by checking whether the child has finished the story after a specific time period has elapsed. Responses of children were recorded by the program and were rated on scales of avoidance, coherence and intentionality.

Validity and Reliability

The inter-rater reliability reported by the authors was good and the study used clinical and non-clinical groups for comparison to distinguish between high risk and low risk populations. Discriminant validity was only partially met as verbal comprehension and age influenced scores on all scales. This is a potential problem for future research particularly in consideration of using this measure with a wider age range. The MSS requires further research to determine its construct validity through use of concurrent measures of attachment, and would benefit from retesting over different time periods to determine its stability over time. Lastly, the study included only a very small sample size (n = 34) and therefore has difficulties generalising to larger populations.

The Manchester Child Attachment Story Task (MCAST)

Three papers used the MCAST (Goldwyn, Stanley, Smith, & Green, 2000; Green, Stanley, Smith, & Goldwyn, 2000; Minnis et al., 2010). Two papers were companion articles, looking at validity, reliability and construct validity of the MCAST and its associations with other measures of attachment (Goldwyn et al., 2000; Green et al., 2000). The third paper developed this technique into use as a computer program (The Computer Manchester Child Attachment Story Task (CMCAST)). Papers used participants aged 5 - 7 years, which together with the behavioural measures are one of the youngest age groups within the current review. Children are read the beginnings of four story stems which place a doll in distress situations. These situations provide an opportunity to represent proximity seeking behaviour. The child is asked how the child/parent doll is feeling, what they are thinking and asked what the child doll would do. The way in which the child plays out the story is then coded and the child is assigned an attachment classification.

Validity and Reliability

The MCAST and CMCAST demonstrated good inter-rater reliability and stability of attachment patterns over time; with children who were initially rated as secure remaining most stable (Green et al., 2000). Additionally this measure showed concurrent validity against other well validated measures of attachment assessing attachment security and predictive validity with a measure of parental attachment (Goldwyn et al., 2000). As with the MSS, there were some difficulties with age effects found particularly for children over 6 years with variations found in a number of scales. These differences disappeared in children under 6 years, suggesting this behavioural method maybe particularly suitable for children of pre-school age. There are practical implications in delivering this assessment to children, as with other story stem techniques. Training is required in order to deliver the assessment and code narratives correctly which has time and resource implications. However, the adaptations to computer based programs has standardised the delivery of this measure to some extent and reduced the need for extensive training to deliver this correctly. Testing of larger populations is facilitated and this measure may be suitable for a larger age range of children.

Attachment Story Completion Task (ASCT)

The final story stem measure is the ASCT, which was used in two studies (Granot & Mayseless, 2001; Kerns, Brumariu, & Seibert, 2011). The papers used the measure with children aged 9 - 12 years which is the oldest age range using story stem techniques. Participants were read the beginning of five attachment-related stories drawn from a larger pool of story stems (Bretherton, Ridgeway, & Cassidy, 1990) and then asked to complete the story using dolls. Granot and Mayseless (2001), further developed this measure by making minor changes to the procedure of the original ASCT and developing the coding criteria so children are rated as secure, ambivalent, avoidant or disorganised. Kerns et al. (2011) adapted this, making it relevant for US children and specifically focussing on the mother-child dyad.

Validity and Reliability

Granot and Mayseless (2001), demonstrated good inter-rater agreement on the four attachment categories (k =.77) and good test-retest stability (k =.91). Additionally, the measure demonstrated good discriminant validity as classifications did not differ on language skills or logical thinking. Less favourable inter-rater reliability was found on some scales (Kerns et al., 2011) (k =.65 - .92) and only partial construct validity was found with parental security correlating with child reports of security. No correlations were found with insecure attachment types. However, there were expected associations between attachment security, as measured on the ASCT, with parental child interaction. This demonstrated a positive correlation of attachment security (from ASCT) with positive engagement of parents (from behavioural observations) and parental acceptance (from child reports).

The Separation Anxiety Test (SAT)

Representational measures also include the use of photographs or pictures to elicit children's views in order to classify children into attachment types. The Separation Anxiety Test (SAT) and the School Age Assessment of Attachment (SAA) were used in four studies to elicit views using photographs or pictures of attachment related events. The SAT was used in three studies (Duffy & Fell, 1999; Kerns et al., 2000; Wright, Binney, & Smith, 1995). This method had been developed from an earlier study with younger children by Klagsbrun and Bowlby (1976) and later adapted for use with older

children. Children in the current studies were aged between 8 - 12 years. The photographs used in the SAT depict separations, for example a child going away for two weeks, or a parent going into hospital. Children are shown these pictures and asked how the child in picture feels, why they feel that way, and what they are going to do. They are then asked the same question when imagining they were in that situation. The scoring system gives the child a score for attachment, self-reliance and avoidance for both the hypothetical child in the picture, and for their own response. An adaptation to a computerised version was developed byKerns et al. (2011), which classified children into traditional attachment types.

Validity and Reliability

Good inter-rater reliability was demonstrated by Duffy and Fell (1999), but this was not as good for Wright et al. (1995) with only two scales, (attachment and avoidance) meeting acceptable internal consistency. Furthermore, correlations of test-retest four weeks later did not reaching significant levels. Kerns et al. (2000) found poor three way agreement for categories (e.g. secure, dismissing and preoccupied) so were forced to group children into more generalised secure and insecure categories. Duffy and Fell (1999), extended its use by comparing with other measures of attachment however, a very small sample size (n = 13) means that these results are difficult to generalise. In summary, the SAT does not appear to show reliability or replicability over time. Future research would be beneficial to identify whether specific age ranges are more suitable for its use and comparison with clinical groups may demonstrate its ability to discriminate between attachment types.

The School Age Assessment of Attachment (SAA)

The SAA is a measure developed by (Crittenden, 2000) and based on the Dynamic Maturational Model of Attachment. This measure was used in one paper (Crittenden, Kozlowska, & Landini, 2010) with 5 - 12 year olds using both a clinical sample (n = 51) and general population (n = 40). Seven picture cards which depict age salient threats that children frequently face or imagine facing are shown to the child. The interviewer asks for an imagined story about the child on the card, and also asks for a recall of a similar episode in the child's life focussing on thoughts, feelings and future actions. Coders assign children to classifications as defined by the Dynamic Maturational Model (DMM) of attachment.

Validity and Reliability

The measure demonstrated good construct validity with expected associations found between the SAA and exposure to danger. DMM theory suggests attachment classifications are a result of life experiences alongside neurological maturation and therefore associations were expected between life events and classification types. The SAA was also able to discriminate between a 'high-risk' (clinical) and 'low risk' (general population) children. Unlike other measures, the SAA was able to provide more information than 'secure' and 'insecure' categories, so it is likely to have a higher utility when assessing school aged children. Inter-rater reliability was not as high as found in other studies using alternative measures, however, it was still acceptable (k= .57 - .58). There were some difficulties with small sample size and an over-representation of single parent families. Additionally, a lack of test-retest and associations with concurrent measures of child functioning would be areas for future research to explore.

The Child Attachment Interview (CAI)

The second type of representational measure comprised interview based techniques. These were a downward extension of the familiar and largely used Adult Attachment Interview (AAI) adapted for use with children. Two measures were based on the AAI; The Child Attachment Interview (CAI) and Attachment Interview for Children and Adolescence (AICA). Three studies used the CAI with children aged between 7 -13 years (Shmueli-Goetz, Target, Fonagy, & Datta, 2008; Target, Fonagy, & Shmueli-Goetz, 2003; Zachrisson, Roysamb, Oppedal, & Hauser, 2011). The interview focusses on attachment related events with questions such as "what happens when you hurt yourself?" The interview is then coded on a number of scales that assess the child's overall state of mind with respect to attachment and the overall narrative elicited from the interview. The CAI individual scales include: emotional openness; balance of references; use of examples; preoccupied anger with mother and father; idealization of mother and father; dismissal in respect to mother and father; resolution of conflicts. More recently the coding schedule has been adapted to provide a continuous scale of attachment security in addition to the traditional four attachment classifications (Zachrisson et al., 2011).

Validity and Reliability

Good inter-rater reliability was found in studies particularly when grouped into secure and insecure categories. These classifications remained relatively stable over time particularly for children classified as disorganised. The measure demonstrated good construct validity and expected associations of parental interactions to attachment security with disorganised /controlling children and their mothers scoring lower on coordination and enjoyment. Furthermore, the CAI demonstrated good discriminant validity with no differences in verbal ability, gender, Social Economic Status (SES) or age found between secure and insecure classified children (Shmueli-Goetz et al., 2008; Target et al., 2003). Finally, when considered in relation to mother security, the CAI demonstrated good predictive validity with main attachment classifications for insecure children related to mother-child attachment.

Although primarily used to classify individuals into those showing 'types' of attachment, continuous scales were also used in some studies. These did not always demonstrate good inter-rater reliability as there was discrepancies between raters at both initial rating and when rating scales over time (Shmueli-Goetz et al., 2008). More recent research has demonstrated increased validity in the use of a continuous scale of attachment security and preoccupation, to demonstrate individual differences in attachment using the CAI (Zachrisson et al., 2011) with both a one and two factor model. The authors report some gender effects in security, with boys more likely than girls to be categorised as insecure, which may warrant further investigation.

Attachment Interview for Children and Adolescence (AICA).

One study used the AICA (Ammaniti, Van Ijzendoorn, Speranza, & Tambelli, 2000) with children aged 10 – 14 years. Although the oldest children were out of the age range assessed, the measure was included due to its use with the youngest group (10 – 12 years). This adaptation from the AAI had alterations to simplify language but kept the structure and sequence of questions unchanged. As with the AAI, the AICA elicits children's general descriptions of main attachment figures, supportive or contradictory memories and their quality of relationship with them. Narratives are scored and children are classified into four categories informed by the AAI; Dismissing, Secure, Preoccupied, and Unresolved attachment representation.

Validity and Reliability

Moderate inter-rater reliability was found between the four classifications types (*k* =.64). Stability over a four year period for this four way classification was relatively high (74% agreement) (*k* =.48) however preoccupied and unresolved categories were the least stable categories. Some difficulties were noted with children's 'narrative diachronicity' i.e. children's coherence of narrative was unclear with their examples oscillating between past and present experiences. It is likely this is due to their age, as their experiences with parents are more likely to refer to their current rather than past experience. This can have an impact on the coding of narratives as confusion between past and present impacts on coherence coding, an important aspect on which classifications are assigned.

The AICA demonstrated similar distributions of attachment classifications to those found in adult populations using the AAI. This suggests the measure may be a useful way of categorising children into attachment types, with the ability to test this stability over a much larger period given the upward extension available (i.e., AAI). Discriminant validity was not determined, and no concurrent measurements of attachment were included, however, the paper used comparison data from other studies to demonstrate high correlations with the distribution of attachment types. This suggested that attachment distributions were independent of verbal ability by comparing data from other studies using children with parents of differing verbal ability (Muscetta, Dazzi, Decoro, Ortu, & Speranza, 1999).

Family Drawings

The last group of representational measures of attachment classifications used family drawing techniques. Two papers used family drawings to assign attachment patterns to children (Fury, Carlson, & Sroufe, 1997; Pianta, Longmaid, & Ferguson, 1999), however, they used different aged populations and developed separate coding systems to rate discrete features and overall drawings. Fury et al. (1997), used drawings with children aged 8 – 9 years as part of a larger longitudinal study. Children were asked to draw a picture of their family, and a coder used a checklist of specific drawing signs, e.g., 'presents himself alone in the drawing', on a 7-point rating scale to determine overall attachment patterns (secure, avoidant and resistant).

Validity and Reliability

There were reported difficulties with using individual signs to classify children into attachment types, however when signs were aggregated this demonstrated more predictive power. Inter-rater reliability (*k* =.57 - .90) was only partially acceptable in this study however there was good discriminant validity. This was demonstrated through attachment classifications and drawing quality being unaffected by cognitive ability of the child. Construct validity was demonstrated in the association between secure mother-child attachment (demonstrated in earlier attachment measures using separation-reunion procedures) and drawing quality. This suggests family drawings maybe a useful way of determining childhood attachment security when behavioural observations within this age group becomes harder to use. Future research would benefit from test-retest procedures to determine the stability of classifications of drawings over time.

In the second of the papers to use drawing techniques, (Pianta et al., 1999) asked a large group of children (*n* = 200) aged 5 - 7 years to draw a picture of a family. This was then coded into the 4 major attachment classifications by examining the presence and patterning of discrete features of drawings e.g. figures floating in the air or unfinished objects. There was good agreement on four way classification of attachment (*k* =.82) and good overall inter-rater reliability for drawing features (*k* =.82). Overall, classifications proved more useful and reliable than discrete drawing features, although further clarification between disorganised and ambivalent children's drawings was harder to establish. The study did not investigate concurrent validity between drawings and other measures of attachment, so it is unknown whether this is an effective measure to classify children's attachment. Furthermore there were some difficulties with discriminant validity as classifications based on drawings were affected by cognitive ability, fine motor co-ordination and SES, e.g. children who were judged secure demonstrated higher cognitive ability, fine motor co-ordination and SES.

In summary, from the evidence in the two available papers for the use of family drawings in the classification of attachment in children, Fury et al. (1997) appears to be the most sound. Both papers found the overall classification of drawings more useful than the coding of discrete features to determine attachment patterns.

Attachment Patterns: Self-report

The Attachment Questionnaire for Children (AQ-C)

In the systematic search only two self-report measures which assessed attachment patterns were found. These were the Attachment Questionnaire for Children (AQ-C) and the Experiences of Close Relationship Scale – Revised for Children (ECR-RC). The AQ-C (Muris, Meesters, van Melick, & Zwambag, 2001) is a single item measure of attachment style questionnaire. The questionnaire asks about relationships with other children and provides three descriptions concerning their feelings about and perceptions of relationships with other children. The AQ-C categorised each child's attachment as either secure, avoidant or ambivalent.

Validity and reliability

The Inventory of Parent and Peer Attachment (IPPA) was used to determine the AQ-C's construct validity (Armsden & Greenberg, 1987).This assessed the positive and negative affective and cognitive dimensions of children's relationships with their parents and close friends. The IPPA gives scores for trust, communication and alienation experienced within parent and peer relationships. As expected, children who were classified as securely attached on the AQ-C had higher scores for positive qualities in a relationship (trust) and lower scores on negative aspects (alienation) than those who were insecurely attached. Internal consistency was not possible to calculate as there is only one item per attachment type classification. Additionally, there was a low frequency of children who rated themselves as insecure and this indicates low discrimination between attachment patterns. Neither discriminant validity nor relatively short term stability of attachment patterns through test-retest measure was assessed in the AQ-C. In summary, although this appears to meet some core theoretical predictions, such as associations of secure attachment with quality of parent-child interactions, there is a need for more evidence to ensure it is a valid and reliable measure to use with primary-aged children.

Experiences of Close Relationships - Revised for Children (ECR-RC)

The second measure is the ECR-RC and was used in two papers (Brenning et al., 2011; Brenning, Soenens, Braet, & Bosmans, 2012). It is a 36 item self-report

questionnaire adapted from the ECR (Brennan, Clark, & Shaver, 1998) for older adolescents and adults. The questionnaire assesses attachment anxiety and avoidance dimensions by examining the child's relationship with his or her mother or father. The validation study (Brenning et al., 2011) used a large sample size (n = 810) with children aged 8 to 13 years.

Validity and Reliability

The ECR-RC demonstrated good construct validity with significant correlations found with other self-report measures of attachment security and attachment anxiety and avoidance. It also demonstrated expected associations with child-reported behaviour. Increased anxiety and avoidance in attachment style associated was with higher depression scores. Internal consistency was reportedly very good in both studies (α = .80 or above) and the ECR-RC demonstrated good discriminant validity with no effects of age, gender or family structure on attachment anxiety and avoidance. Future research would benefit from further exploration of its concurrent validity with representational measures of attachment and in its stability over time.

Quality of attachment relationships: Behavioural

Measures within this grouped tapped into the specific quality of the attachment relationship measured through behavioural, representational and self-report measures.

Snack Time Dyadic Coding (STDC)

Only one behavioural measure was found to assess quality of attachment relationships. One paper used the STDC (Humber & Moss, 2005), with 121 children aged 5 to 7 years. In this observation, a mother and her children were left alone for 10 minutes in a room with a snack and drink but with no instructions as to what action to take. Their interactions were videotaped. Parent-child quality of attachment during this interaction was then coded on nine scales; coordination, communication, partner role, emotional expression, responsibility/sensitivity, tension/relaxation, mood, enjoyment.

Validity and Reliability

The measure demonstrated good associations to parental interactions emphasised as necessary by Solomon and George (2008), with securely attached children (as

categorised by the SRP) more likely to have positive interactions with their parents as measured by the STDC in the areas of attunement, reciprocity and balanced emotional expression. There was low reported inter-rater reliability on some of the scales measured by the STDC (ICC = .62 to .75) which may be a slight cause for concern. Overall, STDC is a valid way of assessing attachment in young school-aged children given its associations with attachment security. However, the authors identified a need for further research on the application of the STDC with other groups of children. This method of identifying attachment types by observing behaviour makes it an attractive alternative from some of the more verbal-based measures, as there is reduced reliance on verbal ability skills. However, the time and resource implications needed to deliver this measure should be carefully considered.

Quality of attachment relationships: Representational

The Friends and Family Interview (FFI)

The Friends and Family Interview (FFI) was developed and validated by Steele and Steele (2005) as part of a larger longitudinal study which utilised other measures such as the SSP. The FFI is a semi-structured interview for older children and adolescents exploring their attachment representations with significant attachment figures such as best friends, siblings, and parents. It was delivered to 57 children aged 11 years who were asked about their relationships with each attachment figure. Participants were asked to illustrate through examples and their answers videotaped. These were then coded on coherence of the narrative and apparent secure base availability of parents. The four scales related to coherence are; truth or quality (a fit between specific memories and general evaluations of relationship), economy or quantity (a succinct but complete picture), relation (provision of relevant material), and manner (clarity of presentation).

Validity and Reliability

Internal consistency for the four items related to coherence of narratives was good (α = .74 - .88) however no information about the training or inter-rater agreement of coders was given. Discriminant validity was determined as there were no gender effects or verbal ability effects on the coherence on the FFI. Predictive validity was looked at between the FFI and infant-mother attachment observed at 18 months and parental AAI

classifications. There were no significant correlations found between infant- mother attachment and FFI coherence. This variation was explained by the low associations found in eliciting attachment classifications through different methods e.g., SSP uses behavioural observation and the FFI uses projective techniques. There were however, gender specific associations between the FFI and AAI, with boys coherence on FFI related to AAI coherence for both parents, and FFI coherence of girls to mothers coherence on the AAI.

In summary, the FFI appears to be a useful measure to determine attachment classifications in 11 year olds, with good internal consistency and good discriminant validity. Further research using the FFI to determine its limit of validity with a wider age population and concurrent measurement with other representational methods (e.g. doll play story stems) may allow for further exploration of its construct validity.

Quality of attachment relationships: Self-report

The Security Scale (SS)

Within the systematic search, self-report measures are the most frequently used to determine relationship quality, with four measures used across 11 papers. The Security Scale (SS) was the most frequently used self-report measure of quality of attachment relationships. Five papers used the SS with participants aged 9 - 12 years (Granot & Mayseless, 2001; Kerns et al., 2007; Kerns et al., 2011; Kerns et al., 1996; Kerns et al., 2000). The SS provides a continuous dimensional assessment of attachment security through the degree to which a child feels an attachment figure is responsive and available, the child's tendency to rely on this figure in times of stress and the ease in communicating with this figure. Although the SS is said to assess attachment security, it is a more direct measure of the child's perceptions of the quality of care received from attachment figures, which in turn will be a determinant of their attachment security. That is why this measure is included here (as an assessment of quality of attachment relationship), rather than above in the attachment pattern section. Fifteen items are rated on a 4-point scale and children are asked which statement is more characteristic of them and whether it is really true or sort of true for them.

Validity and Reliability

Internal consistency for the SS was good (α = .70 or above) in all studies apart from one (Kerns et al., 2000) although there was variation across ages with lower internal consistency scores found for younger children (α = .64). Good construct validity was demonstrated with negative associations between SS and avoidant coping as measured with the Coping Strategies Questionnaire (Kerns et al., 2000). The children who have high attachment security on the SS were less likely to demonstrate an avoidant quality in their attachment relationships. As expected, the SS was significantly positively related to parent child interactions with higher score on the SS associated with more positive mother-child interactions (Kerns et al., 2000). Finally, the measure is quick and easy to administer and, therefore, could be used with large groups of children.

Coping Strategies Questionnaire (CSQ)

The CSQ was used in four papers (Brenning et al., 2011; Finnegan et al., 1996; Kerns et al., 2011; Kerns et al., 2000) with children aged 9 - 14 years. The CSQ is a 36 item questionnaire which assesses a child's response to everyday stressors involving their mother e.g., during separations. Questions assess the degree to which children have a preoccupied coping response (a strong need for their parent but an inability to be soothed by them) or an avoidant one (a denial of need of their parent in response to stressful situations). Authors report that this measure is not a direct measure of insecure attachment and, therefore, remains within the quality of attachment relationship section.

Validity and Reliability

Good internal consistency was found in all papers (α =. 80 or above) and construct validity was demonstrated through negative associations between avoidant coping with measures of attachment security (Kerns et al., 2011; Kerns et al., 2000). Test-retest stability was determined in one study over a two week period and was found to be relatively high (.83 and .76) (Finnegan et al., 1996). Expected coherence of attachment, within behavioural observations across a child's development, was found in positive associations between avoidant coping and children's externalizing problems and between preoccupied coping and internalizing problems (Finnegan et al., 1996). Furthermore, expected correlations between parent-child interactions with attachment quality were found in the positive associations between high parental engagement with

low avoidance of that parent (Kerns et al., 2000). There were some difficulties with discriminant validity as there were age and gender effects in the reporting of preoccupied coping responses. Less preoccupied strategies were used with increasing age and boys reported less use of these strategies overall than girls (Finnegan et al., 1996). IQ and verbal ability were not assessed so it is unknown whether these factors are potential confounding variables.

Adapted versions of Inventory of Parent and Peer Attachment

Two papers used adapted versions of the Inventory of Parent and Peer Attachment; a measure used with adolescents and adults. These were the; Inventory of Parent and Peer Attachment - Revised (IPPA-R) used with 9 - 11 year olds (Gullone & Robinson, 2005) and the People in My Life (PIML) measure (Ridenour, Greenberg, & Cook, 2006) used with children aged 10 - 12 years. Both measures were used to assess the positive and negative affective and cognitive dimensions of children's relationships with their parents and close friends. This was done by assessing the level of trust in relationships, the accessibility and responsiveness of parents and peers, and experiences of anger or hopelessness resulting from unresponsive or inconsistent responsive attachment figures. The questionnaire uses a continuous scoring to provide 'trust', 'communication' and 'alienation' scores for parents and peers and an overall attachment scale was calculated for both.

Validity and Reliability

Internal consistency was good in both papers for communication and trust scales ($\alpha = .70$ or above), however it was less acceptable for the alienation scale for peers ($\alpha = .65$ and .66). There was a positive association between parent attachment score on the IPPA-R with a measure of parental care using a parental bonding measure (Gullone & Robinson, 2005) suggesting the overall score is tapping into similar constructs. The PIML parent and peer communication scores were negatively correlated with children's self-reported delinquency i.e. higher communication scores were indicative of lower self-report delinquency (Ridenour et al., 2006).This suggests higher levels of communication are associated with fewer self-reported behavioural difficulties. There were differences between males and females on the IPPA-R with males scoring higher on measures of parental trust and communication, but lower on alienation. Females

scored higher on peer trust and communication and lower on alienation. Younger children scored higher on parental trust and communication. This suggests the measures had some difficulties with discriminant validity. The PIML however found no gender, age or ethnicity differences in scores. However, there were some significant differences for children with Special Educational Needs (SEN) who demonstrated lower attachment and greater alienation on parent and peer subscales. Construct validity was not fully investigated in either paper as the IPPA-R and PIML were only examined in comparison to measures of constructs that are related to, but separate from, attachment.

Attachment Networks: Representational

Attachment network measures elicit information on who children are more likely to go to for safe haven or secure base functions. Unlike other measures, children are given a free choice to nominate individuals. No self-report or behavioural measures were found and only one representational measure was identified.

The Attachment Figure Interview (AFI)

The AFI was developed and used by Seibert and Kerns (2009) in their study on attachment figures in middle childhood. Participants were 114 children, aged 7 - 12 years old. The structured interview was used to distinguish nominations of figures important in the child's life for either companionship function or in meeting attachment needs such as the role as a safe haven and a secure base. This provided information not only on the types of members nominated for safe haven and secure base functions, but also hierarchical information between figures about whom a child would go to first, or ever. Questions included general and specific attachment situations e.g. "*If you felt really sad, who would you go to first?*", general and specific companionship situations, "*If you had a special secret, who would you want to tell it to first?,* and emotion eliciting situation at school e.g., "*Imagine that you are at school and you are upset because you just got in trouble. Who would you want to talk to about this first?"* Children could nominate as many or as few members as they liked for each question, and could also nominate 'nobody'.

Validity and Reliability

Due to the type of measure, no internal consistency or inter-rater reliability could be determined. Instead the measure allowed identification of situations that elicited attachment behaviour and who children would use as attachment figures in these situations. Problems identified within the measure included social desirability and the difficulty of children not wanting to nominate 'nobody' for the situations. The measure reduced the reliance on the need for expressive language, unlike some other measures such as doll play story stems. Therefore, the AFI is easy to use and open to the wider school population. Future research would benefit from looking at associations with concurrent measures of attachment patterns, test-retest reliability and discriminant validity.

1.4 Discussion

Attachment and its impact on educationally relevant outcomes has been established by research (Granot & Mayseless, 2001; Moss & St-Laurent, 2001). In order to promote positive social, emotional and educational outcomes for children and young people in educational psychology, it is important to understand the changing quality of relationship, networks and patterns of attachments in children. The wealth of measures available to assess ‘attachment’ in middle childhood can be confusing particularly when on closer inspection these tap into different constructs and utilise different assessment methods. To understand what is available, reliable and usable across middle childhood, a systematic review was conducted of the available literature.

Attachment Patterns

Measures that assessed attachment patterns comprised the majority of those found within the literature search. Studies in the current review often stemmed from classical attachment theory, where children were classified into ‘types’ of attachment using traditional ABCD patterns. Now, there is more emphasis on considering attachment as a dimensional rather than categorical approach (Bartholomew & Shaver, 1998; Fraley & Shaver, 2000) and the more recently developed or adapted measures appear to reflect this change (Zachrisson et al., 2011).

Within attachment patterns, measures that used behavioural observation techniques were limited. This may be due to the difficulties in achieving the 'moderate stress' level needed to activate attachment systems in the age range of children investigated (Bick et al., 2012). Additionally, there are changes in attachment behaviour seen in this age range, moving away from needing physical proximity of the caregiver to seeking their psychological availability instead (Shmueli-Goetz et al., 2008). The ability to represent parents' psychological availability during stressful situations when physical proximity is blocked is thought to be through a child's internal working models. These appear to have an increasingly important role in children's adaptive functioning, particularly within late childhood (O'Connor et al., 2012). This would suggest that although attachment behaviour seen through proximity seeking in young children is a particularly helpful indicator of attachment behaviour, this may not be a useful way of observing attachment behaviour in older children. The behavioural measure within the current review did demonstrate good construct validity and inter-rater reliability with the youngest school aged children. However, there appears to be a lack of research utilising behavioural measures with older children and therefore difficulties arise in identifying measures that can be used effectively for longitudinal research.

Representational measures such as the doll play story stem, photographs, pictures, interviews and drawings also demonstrated good inter-rater reliability and good construct validity, however there were some difficulties with discriminant validity for some of the doll play story stems (Goldwyn et al., 2000; Green et al., 2000; Minnis et al., 2006) and drawing tasks (Pianta et al., 1999). When using these techniques with school aged children, a number of more practical considerations need to be taken into account. This includes the resources required for training in the delivery and coding of children's narratives and pictures, also consideration of the verbal ability of the child. The ability to generalise findings within populations of different verbal abilities may have an impact on the findings. The development of a number of procedures into computer based programs has demonstrated a promising direction in research given the reduced need for training in the accurate delivery of narrative based assessments. This adaptation is likely to enable researchers to deliver assessment methods more reliably and efficiently.

Finally, self-report measures available to identify attachment patterns and dimensions in children, require limited resources and time in order to assess a large

population. The AQ-C reported some difficulties with over representation of secure attachment which maybe a defence against self-devaluation by presenting a positive self-view (Bartholomew, 1990).Therefore, there may be implications for reliably using self-report to identify classification types. However, the ECR-RC (Brenning et al., 2011) appears to be a promising self-reporting tool for understanding attachment patterns in childhood populations over a larger age range. This demonstrated high levels of internal consistency and construct validity and stability over ages. The ECR-RC would benefit from further research on its predictive value of attachment quality over time.

In summary, representational measures are most likely to be used to assess attachment patterns in primary-aged children, particularly with the younger school-aged population. Difficulties associated with their delivery and effects of increasing age on their reliability means that they have less stability in their use over a larger age range. There does not appear to be one measure that is useful across the whole age range investigated in the current review and therefore appears to be an area for future development.

Quality of Attachment Relationships

As with attachment patterns, behavioural measures of quality of attachments were limited, and only one paper using behavioural measures was retrieved from the systematic search. The Snack-Time Dyadic Coding (STDC) measure was used to determine parental attachment quality. Although identified as a potentially useful behavioural measure of attachment in older children, caution should be given to the modest inter-rater reliability for some scales. The STDC would benefit from further research attempting to determine its test-retest stability and usability with a wider age range of children before more general conclusions can be drawn. The Friends and Family Interview (FFI) was the only representational method to assess quality of attachments. It had good discriminant validity but lacked information about the inter-rater reliability.

Self-report measures are the most likely method to assess quality of attachment relationships in primary school aged children. The measures reviewed were valid and reliable, quick and easy to deliver to a large number of children. Furthermore, those which were downward adaptations of adult measures (e.g., IPPA-R and PIML) appear

to provide a useful solution to the difficulties in assessing quality of attachment relationships across childhood, adolescence and adulthood. Difficulties exist in using these measures with the youngest aged children (6 – 8 years) and therefore cannot be used reliably with children in their earliest school years.

Attachment Networks

Only one measure of attachment networks was included and this provided information on the type of function provided by social network members. The measure discriminated between figures in children's social networks used for companionship situations and those used for physical proximity in attachment situations as secure base and safe haven functions. This allows exploration of the larger social influences in middle childhood who may act as attachment figures, such as friends, extended family and teachers. Furthermore, the measure is quick and easy to use, and requires no training. Future research would benefit from examining associations with concurrent measures of attachment patterns, test-retest reliability and discriminant validity.

1.5 Conclusion

There are educational and future research implications in using attachment measures to understand children's attachments more fully. There are a number of reliable and valid measures available to assess attachment patterns and quality of attachment relationships, but few that investigate attachment networks in primary aged children. Middle childhood is a significant period of developmental change and measures which have been demonstrated as useful and reliable for those at the beginning of their school career (aged 6) are not necessarily practical for use with children at the end of their primary education (and vice versa). This poses difficulties in not only assessing attachment within this period, but also over distinct developmental periods such as childhood, adolescence and adulthood. Development of a useful tool in exploring attachment patterns, quality and networks with children, in an accessible, child-friendly way and over a large age range would be beneficial, and would provide information not available through using existing methods.

A Hierarchical Mapping Technique (HMT) has been used in adult and adolescent research to represent multiple attachment network relationships through a semi-projective diagrammatic representation (or 'bulls eye model') (Rowe & Carnelley,

2005). This technique has little reliance on verbal ability, and does not require training to deliver and code. The HMT identified network differences between people of different attachment styles in the number and placement of network members using a bull's eye model. Using this model, participants were asked to place important relationships in a way that was meaningful to them with themselves at the centre. In both adult and adolescent populations, secure individuals as assessed by a measure of attachment anxiety and avoidance, were more likely to place more relationships, nearer to their 'core self' than insecure relationships. As age increased, so did the use peers as close attachment figures. Potentially, this is a useful measure in identifying attachment patterns in different ages and consequently understanding changes in attachment networks over time. The HMT however has not yet been investigated for use with primary aged children.

Chapter 2: The function and placement of children's attachment relationships within a hierarchical mapping technique

2.1 Introduction

The current empirical paper looks to identify the extent to which attachment anxiety and avoidance impact on children's attachment networks, specifically the number and placement of their most important relationships using a hierarchical mapping technique. Furthermore, it is interested in the function of these network members and the extent of the teacher's role. This has implications for educational psychology given the associations between secure attachment and successful educational and social outcomes (Commodari, 2013; Kerns et al., 1996; Moss & St-Laurent, 2001).

An attachment relationship has been described as an enduring emotional bond between two people; the attachment figure acting as a safe haven during times of distress and secure base from which to explore the environment around them (Ainsworth, 1979). Therefore, attachment networks can be described as important relationships to within which the child demonstrates attachment behaviours. As discussed in Chapter 1, all children, who are typically developing, attach to adults who take care of them. However the quality of this attachment can vary. Arguably, this attachment is most typically referred to as a 'secure' or 'insecure' and can be assessed through a variety of attachment measures including behavioural observations, projective techniques and self-report measures discussed in Chapter 1. Research, particularly involving infants and young children, has generally utilised a categorical model or traditional 'ABCD' patterns of attachment (Main & Solomon, 1990) where children are categorised into one of four attachment types. These patterns are broadly described as Avoidant (A), Secure (B), Ambivalent (also known as resistant) (C), and Disorganised (D). Other models, such as the Dynamic Maturational Model (Crittenden et al., 2010), emphasise the role of the adaptive function to an extended range of classifications. More recently, self-report measures have attempted to place children and adults along a continuum of attachment anxiety and attachment avoidance; two key dimensions which are felt to be underlying constructs of attachment security and are able to explain the

typical attachment patterns seen in both adults and children (Brenning et al., 2011). Attachment Anxiety has been described as a preoccupation with social support and worries about abandonment and rejection, whereas attachment avoidance is associated with difficulties with closeness and higher levels of self-reliance (Brenning et al., 2011).

Aside from the classification and quality of attachment, research has also focussed on the role of subsidiary or secondary figures as attachment relationships and Bowlby (1982) recognised a 'hierarchy' of preferred figures. These relationships are important to understand, considering recent theoretical models which suggest secondary or subsidiary figures may have a specific role in particular areas of children's development, such as the father's role in developing children's emotional security (Grossmann, Grossmann, Fremmer-Bombik, Kindler, & Scheuerer-Englisch, 2002) . In addition, children's experiences from multiple attachment relationships are likely to influence a single internal working model in which the young person attempts to understand him or herself (Thompson, 2008). To appreciate the influence of such subsidiary figures more fully, Marvin and Britner (1999) highlighted that it is 'important to include procedures gathering information about children's attachments to non-parental figures, including both adults and other children' (p.288).

Measurement of Attachment

As discussed in Chapter 1, the measurement of attachment across ages has been complicated by the variation in constructs measured and the type of measurement utilised. The assessment of attachment behaviour in middle childhood has been highlighted as particularly difficult to observe, given the change to more subtle secure base behaviour. This explains the limited use and availability of observation measures with this age group (Borelli, Crowley, et al., 2010; Kerns et al., 2007; Main & Cassidy, 1988). However, previous research has suggested that several measurements should ideally be included when investigating attachment relationships with this age range. Both self-report and projective techniques have been demonstrated as reliable and valid possibilities (Kerns et al., 2007; Kerns et al., 2000; Solomon & George, 2008). Self-reports have been used successfully in middle childhood to determine quality of attachment relationships (Finnegan et al., 1996; Kerns et al., 1996) whereas, projective techniques are thought to reveal information unconscious to the participant, which they

are unable to bring to the conscious even when responding to questions truthfully (Kerns et al., 2000).

A Hierarchical Mapping Technique (HMT) has been used in previous research to represent such multiple relationships through a semi-projective diagrammatic representation or 'bulls eye model'. The HMT obtains information on the content and structure of attachment networks (Rowe & Carnelley, 2005) and provides additional information over other hierarchical methods by identifying the distance at which relationships are placed from each other. This specific model has not yet been used with children under the age of 14, however, interventions such as Circle of Friends (Newton, Taylor, & Wilson, 1996; Pearpoint & Forest, 1992) and measures such as the Four Field Map (Sturgess, Dunn, & Davies, 2001) have utilised a similar approach to explore children's relationships with others. This would suggest that even young children are able to engage with this visual format.

The HMT has previously been used to investigate the association between placement of relationships with attachment classifications. Adults and adolescents with secure attachment styles were more likely to place more relationships nearer to their 'core self', than participants classified as insecure avoidant (Rowe & Carnelley, 2005). To determine whether the HMT is a useful way of exploring attachment in children similar associations between attachment, placement and number of network members will be explored in the current study. It is therefore expected that children who are rated low (versus high) in attachment anxiety and/or avoidance would place attachment network members nearer to the 'core self' (*Hypothesis 1*). In addition children with low (versus high) anxiety and low avoidance would report a larger number of network members (*Hypothesis 2*).

Subsidiary Attachment Figures

Middle childhood is recognised as an age where there is gradual change in attachments with a shift towards friends to fulfil attachment needs (Allen, 2008). This coincides with a number of contextual changes as well as developmental changes experienced by the young person. During this period, children are exposed to a number of other figures outside of the home such as friends, peers and teachers, and spend more time away from parents and more time in school. Previous research has sought to understand the qualitatively and quantitatively different ways in which these subsidiary

figures are utilised (Furman & Buhrmester, 1985; Gullone & Robinson, 2005; Seibert & Kerns, 2009). To determine whether these figures could be determined as attachment relationships, Seibert and Kerns (2009) sought to identify whether these figures are utilised for secure base behaviour through proximity maintenance using the Attachment Figure Interview (AFI).This provided a way of distinguishing the difference between proximity seeking for attachment needs (hurt, upset) compared to more general companionship needs (sharing a secret or activity). This research identified that proximity maintenance in peers is primarily for companionship needs, whereas, children still prefer to go to their parents to meet attachment needs. The current study therefore hypothesised that children will continue to seek out parents more often and rank them more highly for attachment situations (*Hypothesis 4*) and peers will be sought more often and ranked more highly for and companionship situations (*Hypothesis 5*).

Previous research with adults and adolescents has found associations between the distance the network members are placed from the core self of the HMT and hierarchical measures of who individuals will go to first to meet their attachment needs (Rowe & Carnelley, 2005). The current study, therefore, predicts that the placement of individual relationships on the HMT will be positively associated with the hierarchal rankings of the same individuals on the AFI, i.e. the closer the network members are to the core self of the HMT, the higher the ranked members will be in response to attachment behaviour eliciting situations (*Hypothesis 3*).

It has been debated whether the teacher-pupil relationship is that of an attachment bond or something qualitatively different. Positive teacher-child relationships are linked with good behavioural and academic outcomes (Bergin & Bergin, 2009; Birch & Ladd, 1997; Hughes, 2012; Verschueren, Doumen, & Buyse, 2012) and, therefore, have particular implications for educational psychology. Child care providers have been observed in early years settings to serve as attachment figures for children by acting as a secure base in which children can explore their surroundings (Howes, 1999). Recent research has suggested that teachers can be used as a safe haven in addition to a secure base and have been described as 'ad-hoc attachment figures' (Verschueren & Koomen, 2012). This would suggest that children use temporary attachment figures (Ainsworth, 1991) to meet their attachment needs of proximity, secure base and safe haven when availability to their primary attachment figure is reduced or blocked (Granot & Mayseless, 2001). This is further supported by Seibert and Kerns (2009) who found that teachers are sought out to meet attachment needs of children in response to emotion

eliciting situations at schools. Therefore, it is expected in the current study that teachers may be used as attachment figures when proximity to parent is blocked, for example during attachment eliciting situations at school (*Hypothesis 6*) (Seibert & Kerns, 2009).

Investigation into attachment styles has suggested a distinctive pattern of teacher-pupil interaction. Geddes (2006) suggests children with an anxious attachment are more likely to be preoccupied with maintaining attention and proximity of the teacher. This is supported by Sroufe (2005), who found that children with anxious attachments are more highly dependent on teachers and less self-reliant. No research to date however has investigated the association of children's levels of attachment anxiety and avoidance on a child's nomination of non-parental figures (i.e. teachers). Given the links between attachment security with good behavioural and academic outcomes (Kerns et al., 2007; Kerns et al., 2000; Sroufe et al., 1990), this may provide valuable information on whether specific input by parents, schools and/or professionals is needed to promote the teacher-child relationship. Therefore, using a measure of attachment anxiety and avoidance, the current research hypothesises that teachers' presence within networks will be positively associated with high attachment anxiety (*Hypothesis 7*).

Other contextual issues which may impact on this age range include parental marital status. Currently, 26% of dependent children are living in single parent families in which approximately half of these children have lived in families where parents are separated, divorced or widowed (ONS, 2012). Previous research indicates that adolescents exposed to parental separation (compared to those who have not) perceive themselves as less closely attached to their parents. Additionally, children who experience separation aged 10 years or younger, score lower on parental attachment security and bonding scales than those aged 10 – 15 years (Woodward, Fergusson, & Belsky, 2000). Thus, the current study hypothesises that children who have experienced parental divorce are more likely to be insecurely attached (score higher on measures of anxiety/avoidance) than those who have not (*Hypothesis 8*). Furthermore, it was expected that the distance between parents on the HMT would be further for divorced (versus non-divorced) parents as found in previous research (*Hypothesis 9)* (Rowe & Carnelley, 2005).

Previous research has found mixed evidence for varying distributions of attachment patterns over gender. In a meta-analysis of attachment patterns in preschool children (Pierrehumbert et al., 2009), girls were found to have higher attachment security than boys. Furthermore, Del Giudice (2008) reported boys were more likely to

be classified as avoidant and girls as ambivalent. Within adult research, there is more agreement over the limited impact of gender on distributions of attachment patterns with evidence from large meta-analyses (Bakermans-Kranenburg & van Ijzendoorn, 2009). Given the mixed evidence for the role of gender on attachment anxiety and avoidance, the current study will also investigate this area.

Finally, the mother-child role is well documented whereas father-child attachment is a more recent area of research (Bretherton, 2010). Fearon et al. (2010) identify that due to a lack of studies investigating father-child security "there is clearly an urgent need for further research into the contribution of father–child attachment security and insecurity to children's development" (p. 448). The research that is available appears to demonstrate that a child's attachment security with their father has different and complementary influence compared to mother-child attachment on child outcomes (Bretherton, 2010; Grossmann et al., 2002). The current study will therefore investigate whether father attachment anxiety and avoidance has a unique contribution on the placement and number of attachment networks.

To summarise, the current study aimed to answer two research questions. Firstly, to what extent does attachment anxiety and avoidance in primary aged pupils predict the placement and number of people included within attachment networks using a hierarchical mapping technique? Secondly, what is the function of these relationships, and what is the extent of the teacher's role within these networks?

2.2 Method

Participants

Participants were recruited from two primary schools, School A (n = 47) and B (n = 46) from one Local Authority in an urban area of the UK. School A and B differed in socio-economic status as measured by free school meals (12.9%, 30.5%, respectively), but were comparable on measures of pupils with English as an additional language (6.3%, 7.5%) and pupils with Special Educational Needs (SEN) (6.5%, 10.2%). All participants were in Year 5, aged between 9 and 10 years (mean 9.46). There was an even distribution of females (n = 46) and males (n = 44) (3 did not assign a gender). Seventeen percent of pupils had parents who had divorced (n = 17), 63% lived with their mother and father (n = 53), 31% lived with their mother (n = 29), 5% lived in other

family arrangements. The percentage of single parent families was just over the national average (26%) (ONS, 2012). A chi-square test was conducted to determine any differences between schools based on children's experience of divorce and family composition (one and two parent families). There was no significant differences between School A and B for experience of divorce (χ^2 (1) =.014, p = .906) and family composition (χ^2 (1) = 2.06, p = .151). There were no exclusion criteria, and pupils requiring support with literacy had a researcher or Teaching Assistant (TA) available to act as a reader.

Sample size, Power and Design

The study used a correlational design. Statistical analysis was performed using SPSS v21 and the power of the study was calculated using G*Power version 3.1 (Faul, Erdfelder, Buchner, & Lang, 2009). With five predictors within a regression model, and to achieve a medium effect size (f^2 = .15), a sample size of 92 was calculated with 80% power and 5% significance level. Of the original 150 approached, 93 children participated. Reasons for attrition in the original number approached were the time limits imposed on data collection resulting in fewer participants completing the study and parental decline for their child to participate in the study.

Measures

Attachment Networks. *The Hierarchical Mapping Technique* (HMT) (Rowe & Carnelley, 2005) is a 'bulls eye' measure which maps attachment relationships. It is adapted from Kahn and Antonucci (1980) social network mapping technique and has previously been used in research with older adolescents and adults (Rowe & Carnelley, 2005). The core self is at the centre of three concentric circles which represent an increase in closeness or intimacy towards the core (see Appendix F). Participants were given instructions to generate a list of up to 10 people who are important to them and place them on the model in a way that shows how close and important those people are to them. The nature of the relationships was recorded, for example, mother, father, sibling etc. The relationship's distance from the core self and the distance from each member to other network members were recorded. The HMT was completed online via a computer.

Attachment Anxiety and Avoidance. *The Experiences of Close Relationships – Revised* (ECR-RC) is a self-report questionnaire which measures attachment anxiety and avoidance in children and adolescents (Brenning et al., 2011). It is a 36 item questionnaire adapted from a measure used with adolescents and adults (ECR; Brennan, Clark & Shaver, 1998) and has been validated for use with children aged 8 to 13 years. Participants are to picture their mother and father as vividly as possible and asked to what degree they agree with each statements using the rating scale. Each item is rated on a 7 point scale from "1 = strongly agree" to "7 = strongly disagree". An example item for anxiety is "*I am worried that my mother might want to leave me"* and for avoidance *"I prefer not to get too close to my mother"*. Separate mother and father anxiety and avoidance score were generated. A mean 'parental' attachment anxiety and avoidance score was calculated by taking the mean of mother and father scores for anxiety and avoidance respectively. In previous studies, the ECR-RC has achieved high internal consistency, construct, and predictive validity (Brenning et al., 2011). In the current study it achieved a good level of consistency for mother anxiety and avoidance (α = .81 and .86) and father anxiety and avoidance (α = .89 and .87). The ECR-RC was completed online via a computer.

Attachment Figure Interview. *The Attachment Figure Interview* (AFI) (Seibert & Kerns, 2009) is a semi-structured interview validated for use with children aged 7 - 12 years and developed into a computer program for the current study. It distinguishes between proximity seeking as a safe haven function or for companionship. There are 18 questions which are categorised into general and context specific situations by attachment and companionship, and emotion-eliciting situation. The following are examples of each question type; general attachment "*If you felt really sad, who would you go to first?*", general companionship "*If you had a special secret, who would you want to tell it to first?*", context-specific attachment "*Imagine that you are getting ready to go to a new school and you are a little bit worried. Who would you most want to talk to about how you feel about going to this new school?",* context-specific companionship *"Imagine that you have a really funny joke or story you want to tell someone. Who would you most want to tell your joke or story to?*" and emotion eliciting situation at school "*Imagine that you are at school and you are upset because you just got in trouble. Who would you want to talk to about this first?".* Interviewees are asked to nominate people who they would go to in each situation using a generated list from their previously completed HMT. Participants were able to nominate as many people or as

few (including no-one) as they would like in a hierarchical fashion until the participant had either used all the names from their attachment networks or there was no-one else they would go to.

As with previous research (Seibert & Kerns, 2009), relationships within the AFI were categorised as parents, peers, siblings, grandparents and teacher. A further extended family category was created due to the number of aunts, uncles and cousins that were included within children's nominations. The sum (total number of nominations for groups of attachment figures), mean nominations and mean ranks (mean ranked place of group members) were calculated for each set of questions.

Pilot

Piloting of the study was completed at two points. An initial pilot was completed with a 10 year old to determine functionality of the computer program, and accessibility of language. Feedback from this enabled the researcher to make some content and aesthetic adaptations (language and font size). A second pilot was completed with five pupils (aged 9 to 10 years) in School A. This allowed the researcher to identify any further difficulties accessing the program, ambiguous or difficult language, and technological issues. Several small changes were made to the program (simplification of language, changes to scaling) and procedures, which included the decision to read out/demonstrate the HMT instructions.

Procedure

Data were collected in participating schools during term time. Letters were distributed to parents of participants through the school. All pupils were given verbal and written information about the aim of the study before agreeing to participate. Each participant sat at an individual computer and accessed all questionnaires through a computer program on 'isurvey' (an online survey hosted by the server at University of Southampton). Group size varied between 10-16 pupils with two researchers present. In School B, a Teacher or TA was also present given the larger group sizes with the school. This was to eliminate conferring and looking between participants' screen, and to support any pupil with literacy difficulties. Participants were first asked to complete the HMT, followed by the AFI and ECR-RC. At each stage, the instructions were read aloud. Finally, demographics were obtained and participants completed a positive mood

enhancing tasks before being debriefed. The study took approximately 45 minutes to complete.

Ethics

Ethical and Research Governance approval was sought from the University of Southampton Psychology Ethics and Research Governance Committee (Appendix G). In the recruitment phase, the researcher sought written consent from the school to conduct research. The option of opt-in or opt-out consent was given to schools prior to a letter being sent out to parents of Year 5 pupils. Both School A and School B consequently agreed to opt-out consent and a letter to parents outlining the study, procedure, and measures was distributed via the school (Appendix H). Opt-out consent was agreed via the Ethics and Research Governance Committee and resulted in a more diverse sample of participants. The researchers read information about the study to children and then sought written assent of participants prior to their taking part in the research (Appendix J).

Since this is a potentially sensitive topic, participants were given a named person to contact after completing the questionnaires in the event they should experience strong emotions at a later stage as a result of the questions asked as part of the measures[1]. Every participant completed a positive mood activity at the end of the study and was debriefed (see Appendix K). Researchers did not have access to any personal data of interviewees beyond their age, gender and family status. At the point of recording data electronically, children were assigned a number and therefore data was fully anonymised. All data were saved in password protected files on a University of Southampton computer and fully anonymised.

[1] However, a small study (n=50) completed by the developer of the ECR-RC on the impact of the measure on mood change found it to have no significant effects on self-reported mood (Bosmans, personal communication, October 4, 2013, unpublished data, University of Leuven, Belgium).

2.3 Results

Data Analysis

Prior to conducting statistical analyses frequencies, histograms and scatterplots were run to check distribution of data. These suggested anxiety and avoidance data was normally distributed across gender and schools. To determine whether the assumptions of homogeneity of variance were compromised for data, the Levene's test was reported. For anxiety and avoidance totals the variances were equal for schools and gender (*ns*). To detect possible outliers, standardized scores were computed for total scores of each variable. Scores in excess of ±3.29 were identified as outliers and deleted ($n = 4$). Two cases for ECR-RC data were also deleted due to incorrect completion of questions. Means were imputed for missing data and analyses were re-run. All the results obtained with the imputed datasets were highly similar to those obtained with the non-imputed dataset. For clarity, only the results for imputed analyses are presented.

Descriptive Statistics

Descriptive statistics (*M* and *SD*s) showing attachment anxiety and avoidance scores and distance and network members by can be seen in Tables 1 and 2. Correlations between distance and network members with attachment anxiety and avoidance can be seen in Table 3. Correlations found between attachment anxiety and avoidance scales were similar to that found in Brenning et al. (2011) with participants of a similar age range ($r = .56$ for mother-child attachment; $r = .61$ for father-child attachment).

The distribution of the types of network members were as follows; peers 29%, parents 25%, siblings 18%, extended family (e.g., cousins, aunts and uncles) 16%, grandparents 11% and teachers 1 %. This confirmed that teachers were included within children's networks, however the number was relatively low ($n = 9$).

Table 1. *Mean Attachment Anxiety and Avoidance Score by Gender and School*

		Mother Anxiety	Mother Avoidance	Father Anxiety	Father Avoidance	Parental Anxiety	Parental Avoidance
School		M (SD)	M (SD)	M (SD)	M (SD)	M (SD)	M (SD)
A	Boys	1.89 (0.72)	2.7 (1.16)	1.88 (0.58)	2.52 (0.78)	1.89 (0.57)	2.61 (0.67)
	Girls	2.25 (0.96)	2.55 (0.95)	1.91 (0.56)	2.67 (1.07	2.10 (0.68)	2.61 (0.80)
B	Boys	2.21 (0.79)	2.91 (1.17)	2.44 (1.31)	3.24 (1.10)	2.32 (0.90)	3.07 (1.03)
	Girls	1.89 (0.81)	2.16 (0.99)	2.00 (0.61)	2.58 (0.92)	1.95 (0.63)	2.37 (0.82)

Table 2. *Mean Number of Network Members, and Distances from Core-self by Gender and School*

		Network members	Overall Distance	Mother Distance	Father Distance	Peer Distance	Sibling Distance	Extended Family Distance
School		M (SD)	M (SD)	M (SD)	M (SD)	M (SD)	M (SD)	M (SD)
A	Boys	6.05 (3.41)	0.94 (0.53)	0.50 (0.42)	0.65 (0.43)	1.27 (0.70)	0.76 (0.35)	1.39 (0.50)
	Girls	7.81 (2.45)	1.19 (0.25)	0.76 (0.21)	0.72 (0.35)	1.49 (0.45)	1.06 (0.49)	1.55 (0.58)
B	Boys	5.79 (2.96)	1.13 (0.34)	0.80 (0.33)	0.88 (0.43)	1.37 (0.56)	1.20 (0.47)	1.19 (0.55)
	Girls	8.47 (1.84)	1.25 (0.40)	0.91 (0.73)	1.11 (0.67)	1.40 (0.82)	1.43 (0.77)	1.66 (1.00)

Table 3. *Correlations of Mother and Father Anxiety and Avoidance scores with Distances from the HMT.*

	Mother Anxiety	Mother Avoidance	Father Anxiety	Father Avoidance	Parent Anxiety	Parent Avoidance	Distance Overall	Mother Distance	Father Distance	Parent Distance	Network Members
Mother Anxiety	1										
Mother Avoidance	**.510****	1									
Father Anxiety	**.478****	**.493****	1								
Father Avoidance	**.286****	**.374****	**.568****	1							
Parent Anxiety	**.848****	**.583****	**.870****	**.502****	1						
Parent Avoidance	**.485****	**.844****	**.638****	**.813****	**.657****	1					
Distance Overall	.135	.092	.072	-.071	.119	.017	1				
Mother Distance	.191	.182	.150	.077	.192	.158	**.485****	1			
Father Distance	**.305****	.203	**.559****	.141	**.479****	.206	**.550****	**.572****	1		
Parent Distance	**.270***	**.229***	**.385****	.094	**.368****	.196	**.601****	**.846****	**.938****	1	
Network Members	.054	-.116	-.132	-.112	-.049	-.138	**.476****	.172	.082	0.16	1

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

School and Gender

A two way MANOVA was conducted with gender and school as independent variables and mother, father and parental attachment anxiety and avoidance as dependent variables. There were no significant differences in attachment anxiety and avoidance based on gender, F (4, 81) = 1.37, p = .252, η_p^2 = .07, or school, F (4, 81) = 1.47, p = .220, η_p^2 = .06 (see Table 2). Furthermore, there were no significant interactions between school and gender on scores of anxiety and avoidance, F (4, 81) = 1.38, p = .247, η_p^2 = .06.

A MANOVA was conducted with gender and school as independent variables and number of network members in HMT and overall distance of members from the core-self as dependent variables. There was no significant difference in the number of or distance of network members by school, F (2, 84) = 1.29, p = .281, η_p^2 = .03, and no significant interaction between school and gender, F (2, 84) = 1.25, p = .292, η_p^2 = .03. There was however a significant effect of gender on the distance and number of members, F (2, 84) = 7.09, p = .001, η_p^2 = .14. Follow up ANOVAs determined a significant effect of gender on both distance of network members, F (1, 87) = 4.46, p = .039, with females placing members further away from the core-self (M = 1. 22) than boys (M = 1. 04, SD = .31), and number of network members (F (1, 77.4) = 4.42, p = .039[2], with girls having a larger number of network members (M = 8.09) than males (M = 5.91). To determine whether the difference was due to the larger number of members found in girls' attachment networks, a one way ANOVA was conducted, with gender as the independent variable, and the distance of primary caregivers placed from the core self as the dependent variable. The results of the ANOVA found there were no significant differences in the placement of mothers, F (1, 78) = 2.41, p = .124, or fathers, F (1, 69) = .626, p = .431 in girls' or boys' networks.

A MANOVA was conducted with gender and school as independent variable, and the mean rank on AFI questions for parents, peers, siblings, grandparents, and extended family as dependent variables. This indicated there were no significant differences of AFI ranks by gender, F (5, 8) = 2.52, p = .118, η_p^2 = .61, or school, F (5, 8) = 1.93, p =

[2] Welch's F reported due to the homogeneity of variance being violated for number of network members.

.194, η_p^2 = .55. Furthermore, there was no interaction between school and gender, *F* (5, 8) = .210, *p* = .949, η_p^2 = .12. As school did not have a significant effect on attachment dimensions, distance, number of network members and rankings, it was not included in further statistical analysis.

Attachment Networks and Attachment Anxiety and Avoidance

Number of network members. A regression was conducted to investigate whether children with low parental anxiety and avoidance will report a larger number of network members than those with high parental anxiety and avoidance (*Hypothesis 2*). Parental anxiety, avoidance and gender were included as predictors and number of network members as the criterion. The results of the regression indicated only one predictor explained 37.6% of the variance (R^2 = .14, *F* (3, 87) = 4.624, *p* = .005) with gender significantly predicting number of network members (β = .356, *p* = .001)(see Table 4).

Table 4. *Regression Coefficients for Predictor Variables for Criterions: Network Members and Distance of Father from Core-self*

	Unstandardized Coefficients		Standardised Coefficients		
	B	SE	Beta	t	Sig.
Dependent variable: Number of network members					
Gender	2.073	0.603	.356	3.438	.001
Parental Anxiety	0.126	0.550	.031	0.229	.819
Parental Avoidance	-0.285	0.464	-.085	-0.614	.541
Dependent variable: Distance of father from core self					
Gender	0.089	0.112	.094	0.796	.429
Father Anxiety	0.248	0.093	.394	2.668	.010
Father Avoidance	-0.025	0.073	-.052	-0.347	.730

Distance. A regression with parental anxiety, avoidance and gender as predictors and distance of members placed from the core self as the criterion, was conducted to investigate whether children rated low in anxiety and avoidance would place their attachment network members nearer to the core self (*Hypothesis 1*). The results of the regression were non-significant, suggesting that none of the variables

accounted for a significant amount of the variation in distances of network members, r^2 = .05, F (3, 83) = 1.40, p = .246.

Regressions were conducted to investigate whether distances of mothers and fathers from the core self were related to the anxiety or avoidance score for that particular relationship. To investigate mother relationships, mother attachment anxiety, attachment avoidance and the gender were included as predictors and distance of mother from the core self was the criterion. The results of the regression found that none of the predictors could account for a significant proportion of variance in the placement of mothers within the HMT, r^2 = .07, F (3, 74) = 1.97, p = .126.

The same analysis was repeated for fathers with anxiety and avoidance as predictor variables and distance of father as the criterion. The results of the regression indicated only father anxiety was significant (β = .248, p = .010) which explained 36.6% of the variance in distances at which fathers are placed from the core self (r^2 = .13, F (3, 65) = 3.35, p = .024) (see Table 5).

Finally, it was hypothesised that children who had experienced parental divorce would have higher parental anxiety and/or avoidance (*Hypothesis 8)* and would place their mother and father further away from each other than children whose parents had not divorced (*Hypothesis 9*). A Mann Whitney test was conducted due to the unequal variance in groups of children who had (n = 17) and hadn't (n = 74) experienced parental divorce. There was no significant difference in attachment anxiety for either parent (mother, U = 603.5, p = .929; father U = 536.5, p = .430), and attachment avoidance for mothers (U = 476.5, p = .148). There was however a significant difference in the level of father avoidance (U = 397.5, p = .022), with children who had experienced divorce having higher reported attachment avoidance with fathers (M = 3.36, SD = 1.24) then those who had not (M = 2.64, SD = .90). No significant effect of divorce was found on the placement of mother and fathers within the HMT (U = 278, p = .712*)* suggesting children whose parents divorced, placed their parents at a similar distance from each other.

Attachment Figure Interview

Overall number of nominations. Descriptive statistics for the mean number of nominations for each situation (general attachment, general companionship, context-specific attachment, context specific companionship and emotion-eliciting situations at

school) and for each group (parents, peers, siblings, grandparents, and extended family) can be seen in Table 5. To investigate whether there were differences in the number of nominations between groups and contexts, a repeated measures within-subjects ANOVA was conducted with two independent variables; group and context[3]. This determined there was a significant main effect of group, F (2.62, 44.58) = 7.65, p = .001, η_p^2 = .31, and context, F (2.54, 43.25) = 5.05, p = .006, η_p^2 = .22, on the number of nominations. Furthermore, there was a significant interaction between groups and context, F (4.74, 80.63) = 6.01, p = .000, η_p^2 = .26. This effect indicates the mean number of nominations differed over contexts and group (see Figure 1).

Repeated measures pairwise comparisons identified that parents, peers and siblings were significantly more likely to be nominated than grandparents or extended family (see Table 6). Additionally, the fewest nominations were in context specific companionship situations and emotion eliciting situations at school (See Table 6). To determine whether parents were chosen more often in response to general attachment situations than peers (*Hypothesis 4*) and peers chosen more often in response to companionship questions, dependent t-tests were conducted. As expected, these found, as expected, parents were more likely to be chosen for attachment situations than any other group and for companionship questions, peers and siblings were more likely to be chosen than any other group (Table 7).

[3] The Mauchly's test of sphericity was violated for both group (χ^2 (9) = 17.43, p = .044 and context χ^2 (9) = 22.31, p = .008), therefore a Greenhouse-Geisser correction was reported to reduce likelihood of a type II error.

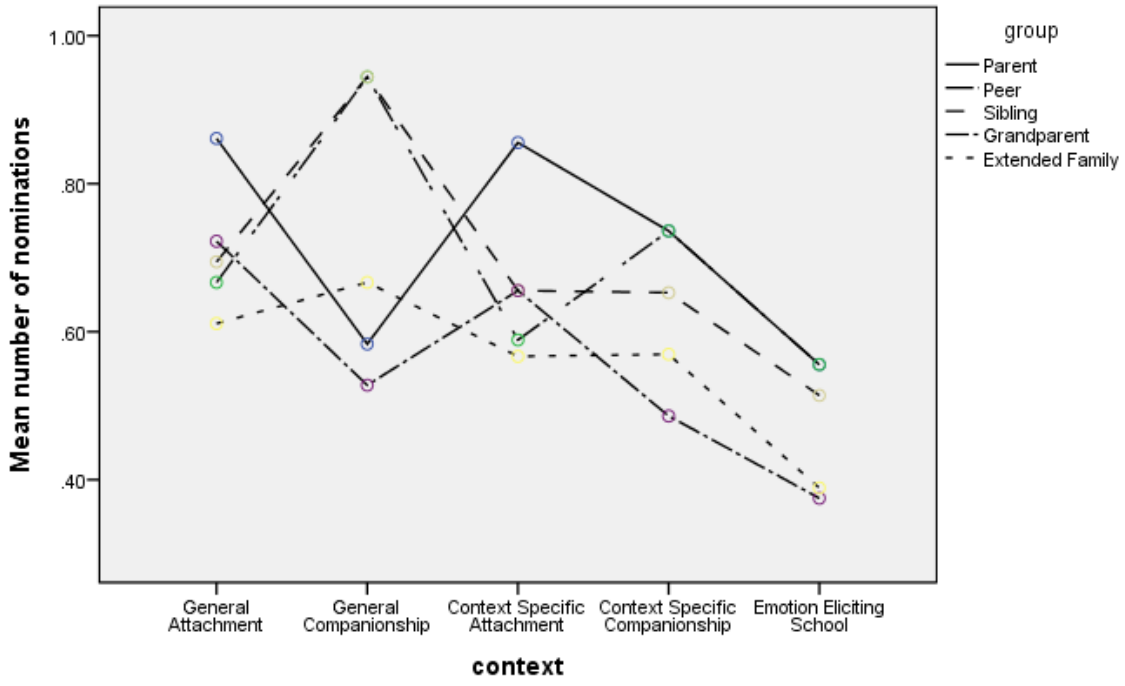


Figure 2. Mean Number of Nominations for each Group over AFI Contexts

Table 5. *Mean Nominations on AFI by Group and Context*

Group	M (*SD*)	Context	M (*SD*)
Parent	0.79 (0.22)	General Attachment	0.82 (0.27)
Peer	0.80 (0.22)	General Companionship	0.80 (0.26)
Sibling	0.79 (0.33)	Context Specific Attachment	0.79 (0.25)
Grandparent	$0.64\ (0.34)_a$	Context Specific Companionship	$0.72\ (0.30)_a$
Extended Family	$0.63\ (0.35)_a$	Emotion Eliciting Situation at school	$0.61\ (0.36)_b$

Note. Column means sharing a common subscript are not statistically different at p = .05 (dependent t-test).

Rank. Ranks for each person (parent, peer, sibling, grandparent, extended family and teachers[4]), were averaged across attachment (general and context specific),

[4] Means for teachers are present in table but excluded from further statistical analysis due to the small number of endorsements.

companionship (general and context specific) and emotional eliciting questions (See Table 6). Correlations between ranks on general attachment on the AFI and distances of network members can be seen in Table 7[5]. To investigate whether the closeness of the network member to the core self was associated with ranking of that member in attachment situations (*Hypothesis 3*), a Pearson's correlation was conducted between distances and attachment ranks for specific relationships (i.e., mother, father, sister, brother, grandmother, grandfather and peer). There were significant associations between ranks for specific relationships on attachment questions and distances for mother, r (82) =.29, p = .008, grandmother, r (28) = .54, p = .003, and grandfather, r (22) = .56, p = .007. This demonstrates for mother, grandmother and grandfather the higher their rank, the closer the distance at which they were placed to the core self.

For attachment situations, as expected there was a significant main effect of group on rank (F (1, 20) = 23.31, p = .000). Repeated measures dependent t-test pairwise comparisons of groups over context determined parents were ranked higher than peer, siblings, grandparents and extended family for general attachment questions as predicted (*Hypothesis 4*) (see Table 7). Furthermore, parents, peers and siblings were rated higher in response to companionship questions than grandparents and/or extended family (see Table 7).

[5] Correlations between rank order data (AFI) and continuous data (distances of significant others from the core self) were deemed appropriate, as the number of assigned ranks was reasonably large (Tabachnick & Fidell, 1996).

Table 6. *Number of Nominations and Mean Rank for AFI Contexts by Group*

	General		Context Specific		Emotion Eliciting	Attachment ranks	Companionship ranks	Emotion Eliciting ranks
	Attachment	Companionship	Attachment	Companionship				
	M (SD)	M (SD)	M (SD)	M (SD)	M (SD)	M (SD)	M (SD)	M (SD)
Parent	.92 (.20)	.72 (.37)	.90 (.19)	.74 (.33)	.68 (36)	2.36 (1.20)	3.62 (1.84)	3.03 (1.24)
Peer	.80 (.33)$_{ab}$	.94 (.17)$_{a}$	.75 (.32)	.80 (.27)	.68 (.36)	5.31 (2.31)$_{a}$	3.58 (1.90)	3.43 (2.12)$_{ac}$
Sibling	.77 (.39)$_{ab}$	.94 (.17)$_{a}$	.72 (.36)	.71 (.36)	.52 (.41)	4.53 (1.88)$_{b}$	4.25 (1.93)	4.28 (1.70)$_{a}$
Grandparent	.77 (.39)$_{a}$	.60 (.45)$_{b}$	.71 (.35)	.59 (.41)	.51 (.43)	5.40 (2.37)$_{ab}$	6.15 (2.15)$_{a}$	5.60 (1.72)$_{b}$
Ext. Family	.68 (.41)$_{b}$	.74 (.39)$_{c}$	.64 (.38)	.63 (.39)	.49 (.43)	6.20 (1.93)$_{a}$	5.44 (2.22)$_{a}$	5.88 (2.24)$_{bc}$
Teacher	.71 (.49)	.57 (.53)	.69 (.38)	.36 (.40)	.36 (.35)	4.16 (2.11)	6.77 (1.57)	3.38 (2.38)

Note. Column means sharing a common subscript are not statistically different at p = .05 (dependent t-test).

Table 7. *Correlations between Specific Relationship Distances on HMT and Rank for AFI Attachment Questions*

	Mother Distance	Father Distance	Sister Distance	Brother Distance	Grandmother Distance	Grandfather Distance	Peer Distance
Mother Rank	.291**	-.012	.037	-.176	.008	.068	-.072
Father Rank	-.035	.114	-.170	-.139	-.072	.137	-.058
Sister Rank	.411*	.157	.223	.230	.020	.214	-.007
Brother Rank	.300*	.227	.325*	.422	-.156	.080	-.069
Grandmother	.191	.136	-.175	-.195	.537**	.337	.305
Grandfather	.233	.235	-.408	-.709*	.632**	.560**	.402*
Peer Rank	-.108	-.218	-.059	-.315	-.005	-.318	.099

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

2.4 Discussion

The current study aims were, firstly, to determine the extent to which attachment anxiety and avoidance in primary aged pupils predicted the placement and number of people using a HMT and secondly, to determine the function of these relationships were, and the extent to which teachers were featured within these networks.

As previous research has mixed findings of attachment security distributions between boys and girls (Del Giudice, 2008; Pierrehumbert et al., 2009), gender was initially investigated within the study. There were no significant differences in level of attachment anxiety and avoidance reported in boys and girls for either mothers or fathers. This is similar to findings from research that has used the same self-report measures of attachment security with a comparable aged population (Brenning et al., 2011). However, further longitudinal research would be beneficial to identify whether the reported scores remain stable over time, given that middle childhood is a period of significant change in attachment relationships.

Number of Relationships

There were no effects of attachment anxiety and avoidance on the overall number of network members included in the HMT (*Hypothesis 2*). This may be due to the relatively 'low risk' sample of children used within the study (found in general versus clinical populations). This has been demonstrated in previous research which did not find expected associations of attachment insecurity with externalising and internalizing behaviours in late childhood with 'low risk' populations (Moss, Bureau, Beliveau, Zdebik, & Lepine, 2009; O'Connor et al., 2012). Future research would therefore benefit from the HMT being used with participants with higher attachment anxiety avoidance found in clinical groups or in Looked After Child (LAC) populations.

Unexpectedly, there was a significant effect of gender on the number of network , with girls reporting a larger amount than boys. There is limited research into the size of peer networks during middle childhood. Benenson (1990), reports that males and females appear to have a similar number of best friends although males are generally found to have a higher number of peers within their social networks. It has been suggested that girls appear to form smaller more intimate and probably more exclusive social dyads and triads, whist boys interact in larger, more loosely connected, inclusive

groups (Gifford-Smith & Brownell, 2003). Gullone and Robinson (2005) found girls report more positive attachments (determined through higher scores on trust, communication and lower scores on alienation) with their peers compared with males. Within the current research, children were given instruction to include the most important people to them which may have resulted in females identifying a higher number of peers in which they would categorise as 'important' (i.e., more intimate) and boys identifying less, given their 'loosely connected' networks. However, further clarification would be needed to understand how boys and girls may have interpreted the instructions, and whether their reported network members reflected a subjective or objective reflection of their actual relationships with peers. This could be achieved through qualitative interview of children's understanding of 'important people' and through objective measures of relationship quality through parental or teacher report. In addition, there are possible contextual confounds such as the impact of classroom structure and organisation on the formation of friendship which could not be controlled for in the current research. This includes the formation of 'cliques' which can be impacted through seating arrangements and composition of peers within the classroom (Hallinan & Smith, 1989).

Placement of Relationships

There was an unexpected effect of gender on the distance at which network members were placed from the core self. Girls placed people further away than boys. However, on further analysis, there were no differences found in the placement of primary caregivers (e.g., mother and father). Therefore, it is likely that the increased number of people placed within girls' networks has had an impact of increasing the average distance of which all members are placed although the distance of most significant attachment figures appear to remain similar for both girls and boys.

There were no significant predictive effects of children's parental anxiety and avoidance on the distance of members from the core-self or the number of network members in their attachment networks (*Hypothesis 1*). However, there were a number of significant correlations which demonstrated that as both anxiety and avoidance for mothers and fathers increased so did the distance at which those parents were placed from the core self. Furthermore, higher scores of anxiety in relation to fathers significantly predicted the distance at which fathers were placed from the core self; as

the score for anxiety increased, the distance from the core-self increased. This association has been found with older participants where higher levels of anxiety (preoccupied and fearful) placed network members further away from the core self than those rated low on anxiety and avoidance (Rowe & Carnelley, 2005). Children with high levels of attachment anxiety are generally grouped within the traditional anxious ambivalent attachment pattern. Ambivalent children appear to experience a conflict of emotions; feeling both a desire to be close to the carer and anger regarding the inconsistency in caregiving (Howe, 2011). Although they have a desire for proximity, these children often are more passive, withdrawn and lonely and fail to maintain relationships with others (Cassidy & Berlin, 1994; Howe, 2011). Therefore the placement of attachment network members further away from the core self by children with increased anxiety, could be indicative of these difficult relationships, with increased distance demonstrating the increased level of anger felt towards that parent.

It is interesting that this association was only predictive in relation to father-child. Research with pre-school children has identified a unique variance of father-child attachment quality (demonstrated through the doll play story task) with quality predicting the degree of anxious and withdrawn behaviour that is demonstrated by the child (Verschueren & Marcoen, 1999). In the current study, children with higher father attachment anxiety maybe more likely to demonstrate anxious and withdrawn behaviour captured through the placement of fathers further away from the core self-using the HMT. Further research would benefit from observations or teacher reports to determine objective behavioural assessments over the subjective closeness captured by the HMT.

There was no effect of divorce on the distance at which mothers and fathers were placed from each other (*Hypothesis 9).* Furthermore, there was no association between children whose parents had divorce and their reported levels of parental anxiety or avoidance (*Hypothesis 8).* This is likely to have been influenced by the relatively low level of divorce reported. Future research would, therefore, benefit from the inclusion of information about parents who had also separated as this may be a stronger indication and may be related to the larger number of single parent families represented in the current study.

Function of relationships

The function of network members elicited through the HMT was investigated through the AFI. This confirmed that all groups of network members elicited from the HMT (parents, peers, siblings, grandparents and extended family) were nominated to meet attachment needs i.e. to provide proximity maintenance, a secure base and a safe haven. However, as expected, the number of nominations and the preference or rank of these individuals varied considerably between groups. This would confirm that the HMT appears to be tapping into children's attachment relationships although there are preference for certain relationships over others to fulfil both companionship, and safe haven functions. As predicted, both parents were more likely than any other group to be both nominated and ranked higher in (i.e., be preferred for) attachment situations (*Hypothesis 4*). This suggests that although all network relationships are used in response to attachment eliciting situations, there is a strong preference for primary caregivers to meet attachment needs. This may suggest that other members are used as 'ad-hoc' attachment figures (Verschueren & Koomen, 2012) rather than 'fully fledged' attachment figures (Ainsworth, 1989). These ad-hoc relationships are characterised as not being as durable or exclusive, and appear to be used only in situations where proximity is blocked to the primary attachment relationship (Ainsworth, 1989).

Research has identified there is a gradual shift which begins during middle childhood in the transference of attachments from parents to peers and later to romantic partners (Marvin & Britner, 1999). It appears that in the current study, the attachment needs fulfilled by parents have not yet transferred over to peer relationships. Even within the school context, it appears that participants were more likely to choose to go to parents about difficult situations that had happened at school, although this was closely followed by peers.

As expected, peers were more likely than parents, grandparents and extended family, to be nominated to meet companionship needs (*Hypothesis 5*). However, they were not more likely to be chosen than siblings. The use of siblings to meet companionship needs has also been identified in previous research. Buhrmester and Furman (1990), found that younger children (aged 8 – 9 years), compared to older adolescents, reported significantly higher companionship levels with siblings. This is thought to be due to the increased amount of interaction between siblings in childhood compared to adolescence (Buhrmester & Furman, 1990). Furthermore, when ranks for

companionship were investigated, peers were not rated significantly higher than parents or siblings. This suggests that children within middle childhood are happy to utilise close family members for companionship needs as well as peers.

Previous research has suggested that the HMT is able to provide hierarchical information on attachment figures and therefore similar associations were expected within the current study (*Hypothesis 3)*. In the current study, the distances at which network members were placed from the core-self predicted rankings on an attachment network questionnaire for mothers and grandparents. However, there were no other associations between ranking and placement for any other network members. This suggests the two measures are tapping into different things. This discrepancy between the two methods could be explained by the low correlation found in other studies between self-report measures and projective techniques particularly within childhood populations (Kerns et al., 2000). These low associations between measures are arguably due to the complexities in assessing attachment. As described in Chapter 1, these include the different underlying constructs measured, and differences in measurement technique. Low correlations between self-report and projective measures have similarly been found in attachment studies with adults (Bartholomew & Shaver, 1998).

In addition to those mentioned thus far, a limitation of the study design includes the use of self-report measures, both in the attachment figure interview, ECR-RC, and in the nomination of important people within the HMT. This reliance on similarly delivered measures is likely to create some common-method variance. Future research would benefit from the inclusion of additional measures completed by independent observers.

Inclusion of Teachers in Children's Attachment Networks

Research about teacher-pupil relationships has demonstrated that for very young children, the teacher may serve the role of an attachment figure (Howes, 1999). Furthermore, it is suggested this may be particularly true for more vulnerable pupils as these children's attachment systems are more easily activated, and their capacity for self-regulation is limited (Verschueren & Koomen, 2012). However, within the current study the inclusion of teachers within children's attachment networks was limited to a small percentage. This may be indicative of the low risk sample as previously mentioned and therefore, it may be useful for future research to be conducted with a

sample of higher attachment anxiety and avoidance; for example, with clinical groups or Looked After Child populations. This would allow for exploration of the inclusion of teachers in attachment networks for the most vulnerable children.

Given the very small number of pupils who included teachers overall, further research is needed to identify students' perceptions of their relationships with teachers. Additionally, considering the impact of teachers' sensitivity on the ability of children with insecure attachments to develop close relationships (Buyse et al., 2011), future research would benefit from the inclusion of measures assessing teachers sensitivity. The exploration of teachers own attachment patterns may provide further clarification on the mechanisms which underlie the inclusion of teachers within individual children's networks.

The small number of teachers which were included within networks were ranked lower for meeting emotion eliciting at school than for parents. This was unexpected; however no statistical analysis could be conducted due to the small numbers (*Hypothesis 6*). This finding may suggest that even when parents' physical proximity is blocked, children still prefer parents over others to meet attachment needs in the school environment. This supports similar findings with this age group where there is a move from maintaining physical proximity of an attachment figure to requiring their psychological availability instead (Shmueli-Goetz et al., 2008). Longitudinal research has suggested from this age, to older adolescence, there is an increase in independence from adults, demonstrated through a rise in dismissive attachment representations in this age group (Ammaniti et al., 2000). Therefore, further research with older samples would be beneficial to investigate the inclusion of teachers and parents within attachment networks given the changes of attachment with age. However, it should be noted that due to the small number of teachers included within networks, it is difficult to draw firm conclusions from the sample in the current study.

Finally, it was interesting to note that of the small percentage of children who included teachers within their attachment networks, the majority were girls. Pre-school girls have been found to have more secure relationships with teachers than boys (Ahnert, Pinquart, & Lamb, 2006), and Furman and Buhrmester (1992) found that girls aged 9 and 10 years felt they received more support from teachers than boys. Additionally, the gender role socialization perspective would suggest girls may seek out close relationships with teachers, given that intimacy and affiliation in social relationships are more expected in general of girls than of boys (Maccoby, 2000). This

perceived support, increased security and social expectations, may indicate why girls were more likely to include teachers within their networks.

Implications

Educational Psychologists (EPs) have a role in ensuring positive outcomes for all children and young people. Specifically, the SEN code of practice identifies a role for EPs in intervening in situations where a child is making less than expected progress (DfE, 2014). Given the links between attachment insecurity in children and young people with negative social, emotional and academic outcomes (Kerns et al., 2007; Kerns et al., 1996; Moss & St-Laurent, 2001; NICHD, 2006), this is arguably an important area for intervention. Furthermore, the links between teacher closeness and sensitivity for those pupils with insecure attachment (Buyse et al., 2011) provides an opportunity for EPs to train the wider workforce (DfE, 2014) in both recognising and understanding these difficulties as a potential barrier to social, emotional and academic achievement.

The HMT provides a quick, easy to use tool to identify the most important people in children's lives. This can be used as a tool for identifying and discussing available sources for support in a child's life. There are protective factors, at the family level, which can mediate the relationship between stress and competence, increasing resiliency in children (Armstrong, Birnie-Lefcovitch, & Ungar, 2005). These include children having alternative caretakers who can step in when parents are not present, a network of relatives which span a range of ages and a sibling who can act as a caretaker (Rak & Patterson, 1996). The HMT may provide a useful tool to identify social support areas which can be drawn upon as protective factors for the child or young person. Furthermore, the links between father anxiety and the placement of fathers could provide a possible method of assessing quantitative changes in the relationship following interventions directly used to impact the security of this specific relationship e.g. through video feedback interventions (Fukkink, 2008).

Results gathered regarding the difference in size of networks for boys and girls also has implications for understanding the importance of children's friendships within the age range studied. It would suggest that boys are less likely to define relationships with friends as 'important'. Research has demonstrated the importance of friendships in providing support systems to develop emotional, social and educational adjustment

(Alvord & Grados, 2005) as well as acting as a moderator for adverse family environments (Criss, Pettit, Bates, Dodge, & Lapp, 2002). Consequently, the HMT may be useful to explore supportive friendships particularly in male populations.

2.5 Conclusion

There are implications for educational psychology in identifying a useful tool to investigate attachment networks in primary-aged children, given the impact of attachment difficulties on achievement in school (Bombèr, 2007; Geddes, 2006). The HMT is a quick, easy to use way of mapping attachment networks in children aged 9 – 10 years and demonstrates the hierarchical preferences of some attachment figures (e.g., who children would go to first) in the distance at which mothers, grandmothers and grandfathers were placed. Furthermore, anxious father-child relationships predicted the distance at which fathers were placed from the core self and there was a trend towards higher parental anxiety and avoidance associated with further distances of parents from the core-self. The low inclusion of teachers within networks may be indicative of the quality of attachment relationships assessed by the HMT or due to the demographics of the sample studied. Future research would benefit from inclusion of multiple measures to assess individual differences in the quality of the teacher relationship with children and the inclusion of samples from populations with early disrupted attachments.

Appendices

Appendix A. Systematic literature review articles

	Author	Country	Number	Age range	Measurements	Code	Inter-rater reliability	Internal consistency	test-retest	Long term stability
1	Wright, Binney and Smith (1995)	UK	n = 42	8 - 12 yrs	Separation Anxiety Test (SAT)	CR	k = .58 - .85	α = .42 - .77	r = .17 - .39 (4 weeks)	.
2	Finnegan, Hodges and Perry (1996)	USA	n = 229	8 - 12 yrs	Coping Strategies Questionnaire (CSQ)	QS	NA	α = .84 - .86	α = .76 - .83 (2 weeks)	.
3	Kerns, Klepac and Cole (1996)	USA	n = 74	10 - 12 yrs	Security Scale (SS)	QS	NA	α = .93	r = .75 (2 weeks)	.
4	Fury, Carlson and Sroufe (1997)	USA	n = 171	8 - 9 yrs	Family Drawings (FD)	CR	k = .76	NA	.	.
5	Pianta, Longmaid and Ferguson (1999)	USA	n = 200	5 - 7 yrs	Family Drawings (FD)	CR	k = .82 (4 way)	NA	.	.
6	Duffy and Fell (1999)	Ireland	n = 13	8 - 12 yrs	Separation Anxiety Test (SAT)	CR	90.57% - 100% (3 way)	NA	.	.
7	Green, Stanley, Smith and Goldwyn (2000)	UK	n = 53	5 - 7 yrs	Manchester Child Attachment Story Task (MCAST)	CR	k = .74 (3 way)	NA	76.5% (3 way, 5 months)	.
8	Goldwyn, Stanley, Smith and Green (2000)	UK	n = 53	5 - 7 yrs	Manchester Child Attachment Story Task (MCAST)	CR	See above	NA	See above	.

	Author	Country	Number	Age range	Measurements	Code	Inter-rater reliability	Internal consistency	test-retest	Long term stability
9	Kerns, Tomich, Aspelmeier and Contreras (2000)	USA	n = 176	9 - 12 yrs	Coping Strategies Questionnaire (CSQ)	QS	NA	α = .64 - .87	.	.
					Security Scale (SS)	QS	NA	α = .71 - .89	.	
					Separation Anxiety Test (SAT)	CR	k = .61 (2 way)	NA	.	
10	Ammaniti, Van IJzendoorn, Speranza and Tambelli (2000)	Italy	n = 31	10 - 14 yrs	Child Attachment Interview (CAI)	CR	k = .64 (4 way)	NA	.	k =.48 (4 way, 4 years)
11	Granot and Mayseless (2001)	Israel	n = 113	9 - 11 yrs	Doll play story stem	CR	k = .77 (4 way)	NA	r = .63 - 82 (4 way, 4 weeks) k = .91	
					Security Scale	QS	NA	α = .72	.	
12	Muris, Meesters, Van Melick and Zwambag (2001)	Holland	n = 155	12 - 14 yrs	Attachment Questionnaire for Children (AQC)	CS	NA	NA	.	
13	Target, Fonagy and Shmueli-Goetz (2003)	UK	n = 226	8 - 13 yrs	Child Attachment Interview (CAI)	CR	r = .88	α = .55 - .65	r = .63 (3 months)	r = .40 (1 year)
14	Gullone and Robinson (2005)	Australia	n = 281	9 - 15 yrs	Inventory of Parent and Peer	QS	NA	α = .66 - .84	.	

	Author	Country	Number	Age range	Measurements	Code	Inter-rater reliability	Internal consistency	test-retest	Long term stability
					Attachment – Revised (IPPA-R)					
15	Humber and Moss (2005)	Canada	n = 121	5 - 7 yrs	Separation Reunion Procedure (SRP)	CB	k = .88 (4 way)	NA	.	
					Snack Time Dyadic Coding (STDC)	QB	ICC = .62- .75	NA	.	
16	Ridenour, Greenberg and Cook (2006)	USA	n = 320	10 - 12 yrs	People in My Life (PIML)	QS	NA	α = .88 - .90	.	
17	Minnis, Millward, Sinclair, Kennedy, Grieg, Twolson, Read and Hill (2006)	UK	n = 34	4 - 8 yrs	Computerised MacArthur Story Stem Battery (CMSSB)	CR	Limits of agreement 0.19 - 0.73 ($p < .05$)	NA	.	
18	Kerns, Abraham, Schlegelmilch and Morgan (2007)	USA	n = 52	9 - 11 yrs	Attachment Story Completion Task (ASCT)	CR	k = .54 (4 way)	NA	.	
					Security Scale (SS)	QS	NA	α = .81	.	
19	Shmueli-Goetz, Target, Fonagy and Datta (2008)	UK	n = 227	7 - 12 yrs	Child Attachment Interview (CAI)	CR	k = .80 (4 way)	NA	k = .67 - .71 (4 way, 3 months)	k = .53 - .64 (4 way, 1

	Author	Country	Number	Age range	Measurements	Code	Inter-rater reliability	Internal consistency	test-retest	Long term stability
										year)
20	Seibert and Kerns (2009)	USA	n = 114	7 - 12 yrs	Attachment Figure Interview (AFI)	NR	NA	NA	NA	
21	Bureau and Moss (2010) Cont….	Canada	n = 129	6 - 8 yrs	Separation Reunion Procedure (SRP)	CB	k = .84 (4 way)	NA	.	
					Attachment Story Completion Task (ASCT)	CR	k = .78 (4 way)	NA	.	
22	Minnis, Read, Conolloy, Burston, Schum, Putter-Lareman and Green (2010)	UK	n = 168	5 - 8 yrs	Computerised Manchester Child Attachment Story Task (CMCAST)	CR	MCAST k = .93 and CMCAST K = .91	NA		
23	Crittenden, Kozlowska and Landini (2010)	Australia	n = 91		School-Age Assessment of Attachment (SAA)		k = .57	NA	.	
24	Brenning, Soenens, Braet and Bosmans (2011)	Belgium	n = 872	8 - 14 yrs	Experiences of Close Relationships Scale - Revised for children (ECR-RC)	QS	NA	*r* = .89 - .92	.	

	Author	Country	Number	Age range	Measurements	Code	Inter-rater reliability	Internal consistency	test-retest	Long term stability
25	Kerns, Brumariu and Seibert (2011) Cont….	USA	n = 872	10 - 12 yrs	Attachment Story Completion Task (ASCT)	CR	r = .65 - .92	NA	.	
					Security Scale (SS)	CS	NA	α = .80	.	
					Coping Strategies Questionnaire (CSQ)	QS	NA	α = .75 - .76	.	
26	Zachrisson, Roysamb, Oppedal and Hauser (2011)	Norway	n = 150	9 - 13 yrs	Child Attachment Interview (CAI)	CR/QR	r = .88	NA	.	
27	Steele and Steele (2005)	UK	n = 57	11 -12 yrs	Friends and Family Interview (FFI)		.	*r* = .74 - .88	.	
28	Brenning, Soenens, Braet and Bosmans (2012)	Belgium	n = 1081	8 - 14 years	Experiences of Close Relationships Scale - Revised for children (ECR-RC)	QS	NA	α = .87 - .92	.	
29	Borelli, David, Crowley and Mayes (2010)	USA	n = 97	8 - 12 yrs	Child Attachment Interview (CAI)	CR	k = .86 (4 way)	NA	.	

	Author	Country	Number	Age range	Measurements	Code	Inter-rater reliability	Internal consistency	test-retest	Long term stability
30	Thorell, Rydell and Bohlin (2012)	Sweden	n = 100	5 - 10 yrs	Attachment Story Completion Task (ASCT)	CR	k = .86 (2 way)	NA	.	
31	Stievenart, Casonato, Muntean and Van de Schoot (2012)	Belgium	n = 78	10 - 16 yrs	The Friends and Family Interview (FFI)	QR	None stated	α = .83	.	

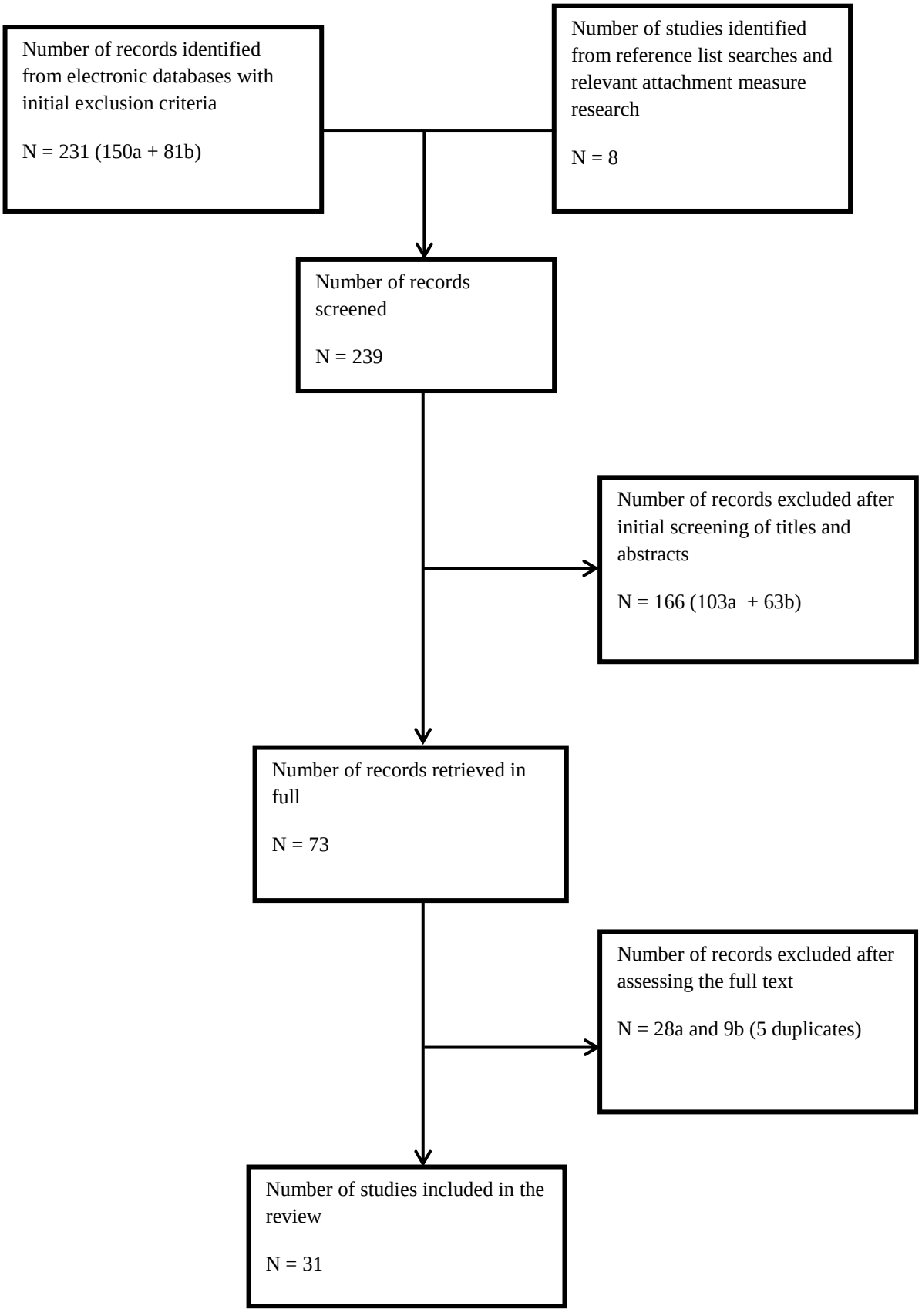
Note C = Classification, Q = Quality, N = Network, R = Representational, S = Self-report, B = Behavioural, α = Cronbach's Alpha, k = Cohen's Kappa coefficient, ICC = Intraclass Correlations

Appendix B. Search terms and exclusion criteria.

The following search terms were used in each database. The search terms included a list of specific keywords generated by the authors of key articles, and related keywords generated in the thesaurus from each database. Search terms were combined with either an **AND** or an **OR**.

PsychInfo (via Ebsco; 2000-2013):	**Web of Science (via Ebsco; 2000-2013)**:
Attachment Behaviour OR Attachment Theory OR Attachment Disorder ***AND*** *Test Reliability OR Test Validity OR Measurement OR Scaling*	*Attachment Behaviour OR Attachment Theory OR Attachment Disorder* ***AND*** *Test Reliability OR Test Validity OR Measurement OR Scaling*
Limiters *English* *Age – 0 – 17* *Exclude dissertations* *Peer reviewed journals/books* *N = 150*	*Limiters* *English* *Childhood or school age* *Exclude dissertations* *Article* *N = 81*
Combined and then excluded by:	
All participants over or under cut off age (6 – 12 years)	*N = 102*
Book Chapters without original research	*N = 35*
Only used clinical populations	*N = 9*
Not relevant attachment study (attachment measure not central to research aims)	*N = 20*
Database error (study not linked to title)	*N = 1*
Literature/Book or lecture reviews	*N = 12*
Duplications	*N = 5*
Single Case Studies or poor quality of reporting (not enough information)	*N = 6*
Not an attachment measure (e.g. school connectedness or attachment to God)	*N = 12*

Appendix C. Systematic review flow diagram.



Appendix D. Quality checklist for articles

Reporting

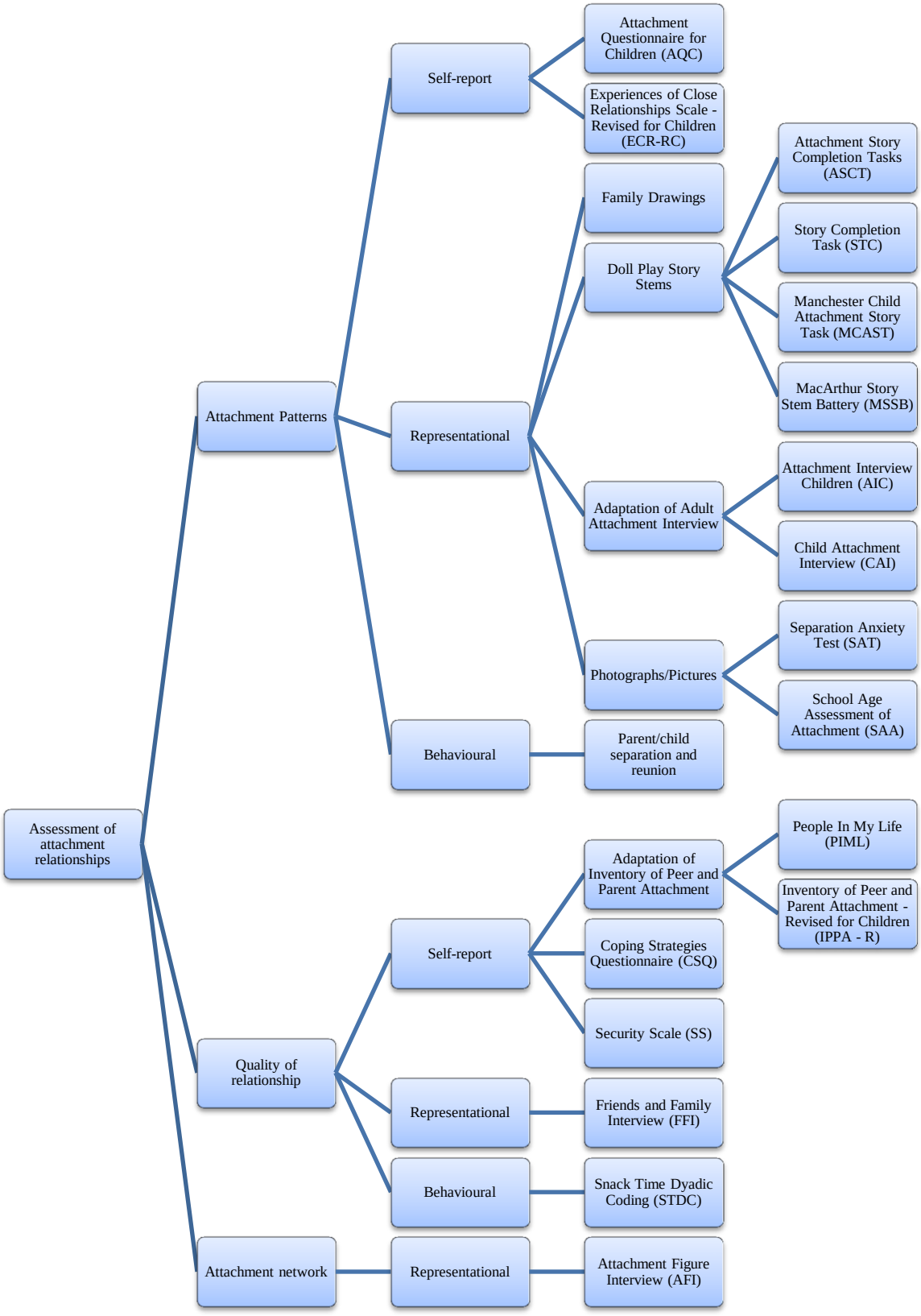
1. Is the hypothesis/aim/objective of the study clearly described? (Yes/No)
2. Are the main outcomes to be measures clearly described in the Introduction or Method section? (Yes/No)
3. Are the characteristics of the participants included in the study clearly described e.g., inclusion and exclusion criteria clearly stated? (Yes/No)
4. Are the main findings of the study clearly described? (Yes/No)
5. Is the estimate of random variability reported e.g. SDs? (Yes/No)
6. Are the characteristics of participants lost to follow-up described? (Yes/No/NA)
7. Have actual probability values been reported? (Yes/No/Partially)

Validity and Reliability

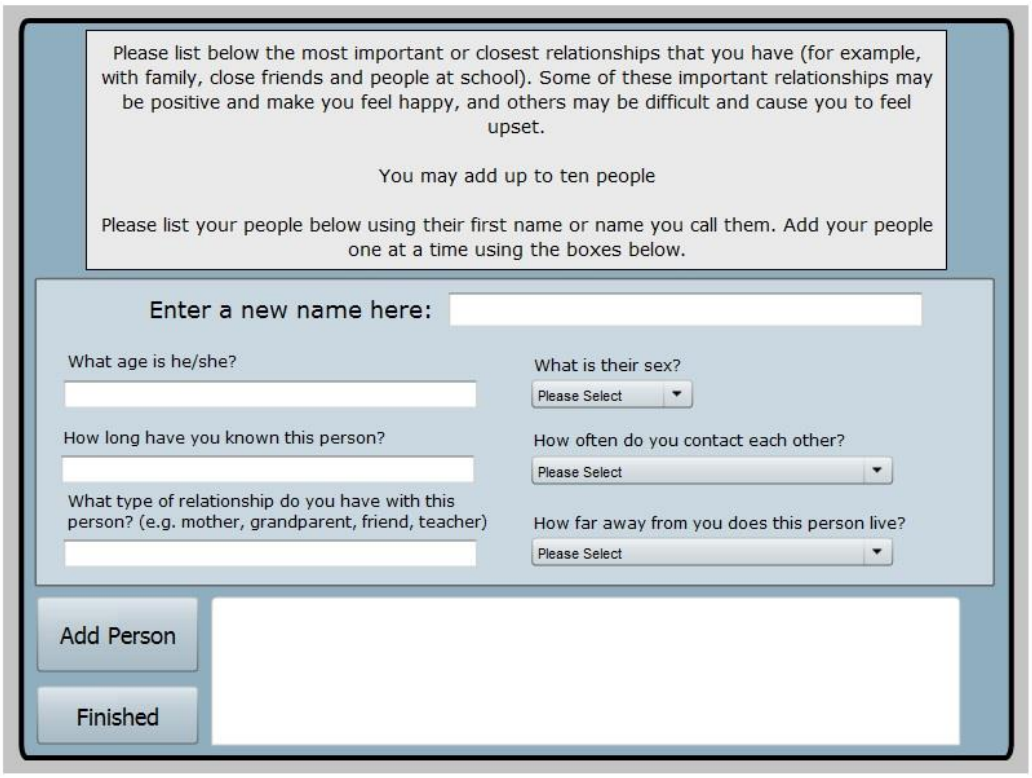
8. Is inter-rater reliability above 80% or internal consistency above .70? (Yes/No/Partially)
9. Is test-retest reported for measure? (Yes/No)
10. Does measure provide stable classifications over time e.g. a year? (Yes/No/Partially)
11. Is construct validity reported e.g. with concurrent measures of attachment? (Yes/No/Partially)
12. Is discriminant validity reported e.g. no associations with verbal ability or IQ? (Yes/No/Partially)
13. Is there coherence of attachment and behavioural observations across developmental e.g. internalizing and externalising behaviours, mother child interactions? (Yes/No/Partially)

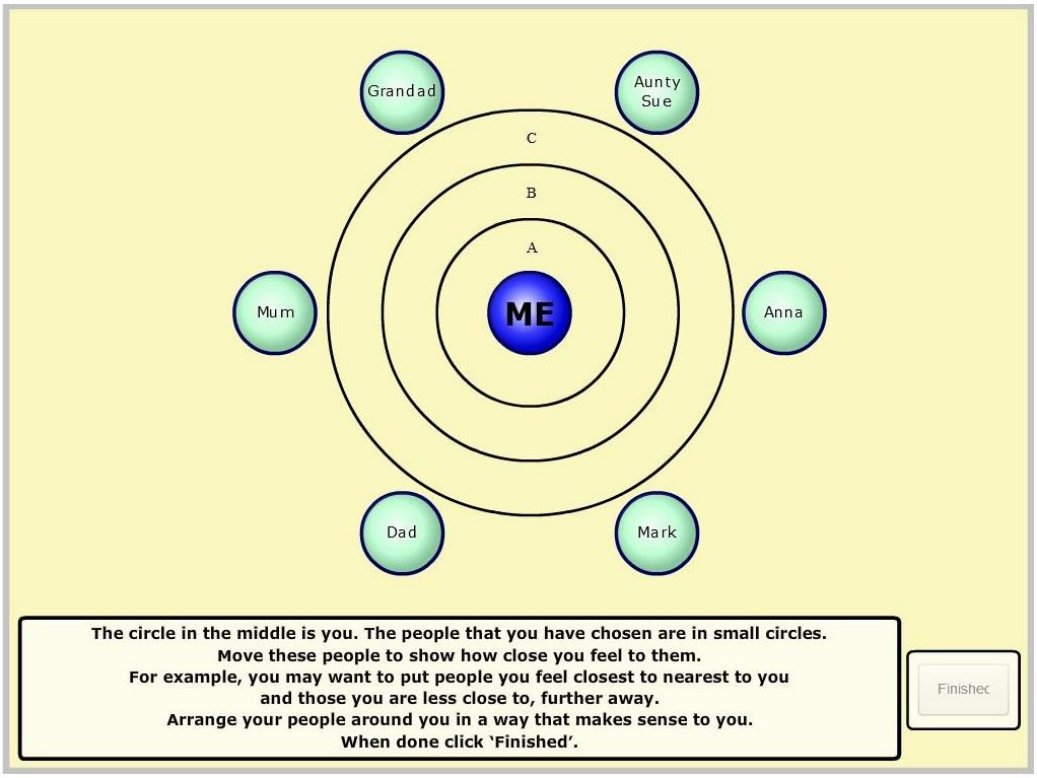
Note: Adapted from "The feasibility of creating a checklist for the assessment of the methodological quality both of randomised and non-randomised studies of health care interventions", by S. H. Downs, and N. Black, 1998, *Journal of epidemiology and community health, 52,* p. 382 – 384, and from "The measurement of attachment security and related constructs in infancy and early childhood" by J. Solomon, and C. George, 2008, In J. Cassidy & P. R. Shaver (Eds.), *Handbook of Attachment; Theory, Research and Clinical Applications*, p. 833 – 856, New York; USA: The Guildford Press.

Appendix E. Hierarchical model of Attachment Measures



Appendix F. Hierarchical Mapping Technique 'Bulls eye' model.





Appendix G. Ethical approval for study.

Research Governance Feedback on your Ethics Submission (Ethics ID:7736)
ERGO [ergo@soton.ac.uk]
Sent:13 November 2013 11:06
To: Picksley P.

Submission Number 7736:
Submission Title Verifying the use of a hierarchical mapping tool in order to examine attachment networks across childhood and adolescence:
The Research Governance Office has reviewed and approved your submission

You can begin your research unless you are still awaiting specific Health and Safety approval (e.g. for a Genetic or Biological Materials Risk Assessment) or external ethics review (e.g. NRES).The following comments have been made:

"
Reviewed and approved by Martina

This is to confirm that the work detailed in your protocol and Ethics Application will be covered by the University of Southampton insurance programme. As Chief or Principle Investigator you are responsible for the conduct of the study and you are expected to:

1. Ensure the study is conducted as described in the protocol/study outline approved by this office
2. Advise this office of any amendment/change to the protocol, methodology, study documents, research team, participant numbers or start/end date of the study
3. Report to this office as soon as possible any concern, complaint or adverse event arising from the study

Failure to do any of the above may invalidate your ethics approval and therefore the insurance agreement, affect funding and/or sponsorship of your study; your study may need to be suspended and disciplinary proceedings may ensue.
On receipt of this letter you may commence your research but please be aware other approvals may be required by the host organisation if your research takes place outside the University. It is your responsibility to check with the host organisation and obtain the appropriate approvals before recruitment is underway in that location.
May I take this opportunity to wish you every success for your research
Submission ID : 7736
Submission Name: Verifying the use of a hierarchical mapping tool in order to examine attachment networks across childhood and adolescence
Date : 13 Nov 2013
Created by :

Appendix H. Consent letter to parents.

Parental Consent Opt-Out [17.10.13 v3]

UNIVERSITY OF Southampton

Dear Parent

Research Project

The children in Year 5 at [School Name] have been chosen to participate in a research project. This project will be conducted by Patience Picksley (Trainee Educational Psychologist), Lucy Howell (Trainee Educational Psychologists) and Laura Dobson (Undergraduate student) and supervised by Dr Kathy Carnelley (Senior Lecturer) at the University of Southampton.

The project examines the important relationships in children's lives and will ask questions about their most important relationships, the closeness of these relationships, who they are likely to go to in difficult situations and how children's relationships develop according to their age. Some of the questions will focus on the quality of children's relationships with their parents and involve questions about love, trust and support. A copy of the measures which are used within the study will be available for you to see on request at [School name] if you so wish.

If you agree for your child to take part, he or she will be asked to complete a 30 minute computer task about these close relationships. This will take place at school during the school day. This research will enhance our understanding of who children feel close to, how they use these relationships in schools, and how this changes over time. This may help us to support young people in school better.

We will explain the nature of the study to you child and he/she will be asked if they want to participate. Your child will be reassured of his or her right to stop at any point and also be reminded they can skip any questions they would like.

Unfortunately the information collected by the computer program will not be available to share with parents/carers. All data will comply with the Data Protection Act and University policy. Data collected will not be connected to any of the children's personal details and will remain confidential and be kept on a password protected computer.

If you **DO NOT** wish your child to take part please return the slip below by [DATE]. If you wish to withdraw your child during the project or have any questions about the use of opt-out consent please ask to speak to the school's SENCo/Head teacher [insert name]. If you have questions about your child's rights as a participant in this research, or if you feel that your child has been placed at risk, you may contact the Chair of the Ethics Committee, Psychology, University of Southampton, Southampton, SO17 1BJ. Phone: +44 (0)23 8059 4663, email slb1n10@soton.ac.uk

Thank you in advance for your support and co-operation.

Yours sincerely,

Patience Picksley
Trainee Educational Psychologist

Lucy Howell
Trainee Educational Psychologist

Laura Dobson
Undergraduate Psychology and Education Student

Kathy Carnelley, PhD
Senior Lecturer

Yr 5 Research Project

Parental Opt Out Form

I DO NOT wish for my child to take part in this project.

Child's Name ……

Parents signature …… Date ……

Appendix J. Assent form for pupils.

Primary Assent [18.10.13 v3]

UNIVERSITY OF Southampton

Study title: Using a bulls-eye to explore children's relationships
Researcher names: Lucy Howell, Patience Picksley, Lauren Dobson and Kathy Carnelley
Ethics reference: 7736

I would like to ask you to take part in a study about relationships and how close you feel to different people in your lives. Researchers really want to find out more about who children of your age feel close to and how this changes over time. This may help us to support young people better.

You will be asked to complete 4 things:

1. A questionnaire: this questionnaire will ask you about the **quality of your relationship with your parents**. It will ask you to think about issues such as **love, support and trust**. Please note that you can skip any items you feel uncomfortable answering.

2. A bulls eye diagram: You will be asked to think about **how close you feel to different people** and to put them into a bulls eye diagram.

3. Another questionnaire: this questionnaire will ask you about the close people you have already mentioned, and **who you would go to first** in different situations.

4. You will be asked some questions about **your age** and **who you live with at home**.

You will complete all of these tasks on the computer and they will be anonymous – this means that you will be given a log-on number so that you cannot be identified. Your answers will not be shared with others (e.g. teacher or parents).

It is up to you to decide if you would like to be a part of this session. If you feel uncomfortable or decide you don't want to take part anymore, please let me know. You can also change your mind at any point and this is ok.

If you are happy to be a part of this, please write your name below.

Name ……

Date ……

Appendix K. Participant debrief.

Thank you for helping us with our project. We hope you have enjoyed taking part.

The purpose of our study was to find a way of measuring how close children your age feel to different people. There is already a tool that we know works for use with adults but we want to see if this tool can also be used with children.

We also want to find out more about your relationships with other people and we are particularly interested in how close you feel to your parents, your teachers and your friends, who you choose to go to in different situations and how this might look different from year 5 pupils to year 8 pupils.

If you have any questions about the project please talk to or you can email us at lh24g11@soton.ac.uk or pp10g11@soton.ac.uk.

If you would like to talk to someone about how it felt to take part or if you want to talk about any of the questions you answered, you can talk to She will be really happy to talk to you.

Thank you,

Patience Picksley, Lucy Howell, Lauren Dobson and Kathy Carnelley

List of references

Ahnert, L., Pinquart, M., & Lamb, M. (2006). Security of children's relationships with nonparental care providers: A meta-analysis. *Child Development, 77*(3), 664-679. doi: 10.1111/j.1467-8624.2006.00896.x

Ainsworth, M. (1979). Infant–mother attachment. *American Psychologist, 34*(10), 932-937. doi: 10.1037/0003-066X.34.10.932

Ainsworth, M. (1985). Attachments across the life span. *Bulletin of the New York Academy of Medicine, 61*(9), 792. retrieved from http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1911889/pdf/bullnyacadmed00065-0026.pdf

Ainsworth, M. (1989). Attachments beyond infancy. *American psychologist, 44*(4), 709.

Allen, J. (2008). The attachment system in adolescence. In J. Cassidy & P. R. Shaver (Eds.), *Handbook of Attachment; Theory, Research and Clinical Applications* (Second ed., pp. 419 - 435). New York; USA: The Guildford Press.

Alvord, M., & Grados, J. (2005). Enhancing Resilience in Children: A Proactive Approach. *Professional Psychology: Research and Practice, 36*(3), 238-245. doi: 10.1037/0735-7028.36.3.238

Ammaniti, M., Van Ijzendoorn, M., Speranza, A., & Tambelli, R. (2000). Internal working models of attachment during late childhood and early adolescence: An exploration of stability and change. *Attachment & Human Development, 2*(3), 328-346. doi: 10.1080/14616730010001587

Armsden, G., & Greenberg, M. (1987). The inventory of parent and peer attachment: Individual differences and their relationship to psychological well-being in adolescence. *Journal of Youth and Adolescence, 16*(5), 427-454.

Armstrong, M., Birnie-Lefcovitch, S., & Ungar, M. (2005). Pathways between social support, family well being, quality of parenting, and child resilience: What we know. *Journal of Child and Family Studies, 14*(2), 269-281.

Baker, J., Grant, S., & Morlock, L. (2008). The teacher-student relationship as a developmental context for children with internalizing or externalizing behavior problems. *School Psychology Quarterly, 23*(1), 3-15. doi: 10.1037/1045-3830.23.1.3

Bakermans-Kranenburg, M., & van Ijzendoorn, M. (2009). No reliable gender differences in attachment across the lifespan. *Behavioral and Brain Sciences, 32*(1), 22-23. doi: 10.1017/S0140525X09000843

Bartholomew, K. (1990). Avoidance of intimacy: An attachment perspective. *Journal of Social and Personal Relationships, 7*(2), 147-178. doi: 10.1177/0265407590072001

Bartholomew, K., & Shaver, P. (1998). Methods of assessing adult attachment. In J.A. Simpson & W.S. Rholes (Eds), *Attachment theory and close relationships*, (pp. 25-45). New York, USA: The Guildford Press. retrieved from http://moemesto.ru/rorschach_club/file/14257751/display/bartholomew98.pdf

Benenson, J. (1990). Gender differences in social networks. *The Journal of Early Adolescence, 10*(4), 472-495. doi: 10.1177/0272431690104004

Benoit, D., & Kevin, C. (1994). Stability and transmission of attachment across three generations, *65*, 1444-1456. doi: 10.2307/1131510

Bergin, C., & Bergin, D. (2009). Attachment in the classroom. *Educational Psychology Review, 21*(2), 141-170. doi: 10.1007/s10648-009-9104-0

Bick, J., Dozier, M., & Perkins, E. (2012). Convergence between attachment classifications and natural reunion behavior among children and parents in a child care setting. *Attachment & Human Development, 14*(1), 1-10. doi: 10.1080/14616734.2012.636645

Birch, S., & Ladd, G. (1997). The teacher-child relationship and children's early school adjustment. *Journal of school psychology, 35*(1), 61-79. doi: 10.1016/S0022-4405(96)00029-5

Bombèr, L. (2007). *Inside I'm hurting: practical strategies for supporting children with attachment difficulties in schools*. London: Worth Publishing.

Borelli, J., Crowley, M., David, D., Sbarra, D., Anderson, G., & Mayes, L. (2010). Attachment and emotion in school-aged children. *Emotion, 10*(4), 475-485. doi: 10.1037/a0018490

Borelli, J., David, D., Crowley, M., & Mayes, L. (2010). Links between disorganized attachment classification and clinical symptoms in school-aged children. *Journal of Child and Family Studies, 19*(3), 243-256. doi: 10.1007/s10826-009-9292-8

Bowlby, J. (1982). Attachment and loss: Retrospect and prospect. *American Journal of Orthopsychiatry, 52*(4), 664-678. doi: 10.1111/j.1939-0025.1982.tb01456.x

Brennan, K., Clark, C., & Shaver, P. (1998). Self-report measurement of adult attachment. In J.A. Simpson & W.S. Rholes (Eds), *Attachment theory and close relationships*, (pp.46 - 76). New York, USA: The Guildford Press.

Brennan, P., Le Brocque, R., & Hammen, C. (2003). Maternal depression, parent–child relationships, and resilient outcomes in adolescence. *Journal of the American Academy of Child & Adolescent Psychiatry, 42*(12), 1469-1477. doi: 10.1097/00004583-200312000-00014

Brenning, K., Soenens, B., Braet, C., & Bosmans, G. (2011). An adaptation of the experiences in Close Relationships Scale-Revised for use with children and adolescents. *Journal of Social and Personal Relationships, 28*(8), 1048-1072. doi: 10.1177/0265407511402418

Brenning, K., Soenens, B., Braet, C., & Bosmans, G. (2012). Attachment and depressive symptoms in middle childhood and early adolescence: Testing the validity of the emotion regulation model of attachment. *Personal Relationships, 19*(3), 445-464. doi: 10.1111/j.1475-6811.2011.01372.x

Bretherton, I. (2010). Fathers in attachment theory and research: a review. *Early Child Development and Care, 180*(1-2), 9-23. doi: 10.1080/03004430903414661

Bretherton, I., & Oppenheim, D. (2003). The MacArthur Story Stem Battery: development, administration, reliability, validity, and reflections about meaning. *Revealing the inner worlds of young children: The MacArthur Story Stem Battery and parent-child narratives*, 55-89.

Bretherton, I., Ridgeway, D., & Cassidy, J. (1990). Assessing internal working models of the attachment relationship. *Attachment in the preschool years: Theory, research, and intervention*, 273-308.

Buhrmester, D., & Furman, W. (1990). Perceptions of sibling relationships during middle childhood and adolescence. *Child Development, 61*(5), 1387-1398.

Bureau, J., & Moss, E. (2010). Behavioural precursors of attachment representations in middle childhood and links with child social adaptation. *British Journal of Developmental Psychology, 28*(3), 657-677. doi: 10.1348/026151009x468062

Buyse, E., Verschueren, K., & Doumen, S. (2011). Preschoolers' attachment to mother and risk for adjustment problems in kindergarten: Can teachers make a difference? *Social Development, 20*(1), 33-50.

Cassidy, J., & Berlin, L. J. (1994). The insecure/ ambivalent pattern of attachment: theory and research. *Child Development, 65*(4), 971-991. doi: 10.1111/1467-8624.ep7252617

Cassidy, J., & Marvin, R.. (1992). Attachment organization in preschool children: Procedures and coding manual. *Unpublished manuscript, University of Virginia*.

Commodari, E. (2013). Preschool teacher attachment, school readiness and risk of learning difficulties. *Early Childhood Research Quarterly, 28*(1), 123-133. doi: 10.1016/j.ecresq.2012.03.004

Criss, M., Pettit, G., Bates, J., Dodge, K., & Lapp, A. (2002). Family adversity, positive peer relationships, and children's externalizing behavior: A longitudinal perspective on risk and resilience. *Child Development, 73*(4), 1220-1237.

Crittenden, P., Kozlowska, K., & Landini, A. (2010). Assessing attachment in school-age children. *Clinical Child Psychology and Psychiatry, 15*(2), 185-208. doi: 10.1177/1359104509356741

Crittenden, P. M. (2000). A dynamic-maturational exploration of the meaning of security and adaptation: Empirical, cultural, and theoretical considerations. In P. M. Crittenden & A. H. Claussen (Eds.), *The organization of attachment relationships: Maturation, culture, and context.* (pp. 358-383). New York, US: Cambridge University Press.

De Wolff, M. S., & Van IJzendoorn, M. (1997). Sensitivity and attachment: A meta-analysis on parental antecedents of infant attachment. *Child Development, 68*(4), 571-591. doi: 10.1111/j.1467-8624.1997.tb04218.x

Del Giudice, M. (2008). Sex-biased ratio of avoidant/ambivalent attachment in middle childhood. *British Journal of Developmental Psychology, 26*, 369-379. doi: 10.1348/026151007x243289

Downs, S., & Black, N. (1998). The feasibility of creating a checklist for the assessment of the methodological quality both of randomised and non-randomised studies of health care interventions. *Journal of epidemiology and community health, 52*(6), 377-384. doi: 10.1136/jech.52.6.377

Duffy, B., & Fell, M. (1999). Patterns of attachment: Further use of the Separation Anxiety Test. *The Irish Journal of Psychology, 20*(2-4), 159-171. doi: 10.1080/03033910.1999.10558232

Faul, F., Erdfelder, E., Buchner, A., & Lang, A. (2009). G* power. Version 3.1. 2 [computer program].

Fearon, R., Bakerman-Kranenburg, M., Van IJzendoorn, M., Lapsley, A., & Roisman, G. (2010). The significance of insecure attachment and disorganization in the development of children's externalizing behavior: a meta-analytic study. *Child Development, 81*(2), 435-456. doi: 10.1111/j.1467-8624.2009.01405.x

Finnegan, R., Hodges, E., & Perry, D. (1996). Preoccupied and avoidant coping during middle childhood. *Child Development, 67*(4), 1318-1328. doi: 10.1111/j.1467-8624.1996.tb01798.x

Fraley, R. (2002). Attachment stability from infancy to adulthood: Meta-analysis and dynamic modeling of developmental mechanisms. *Personality and Social Psychology Review, 6*(2), 123-151. doi: 10.1207/S15327957PSPR0602_03

Fraley, R., & Davis, K. (1997). Attachment formation and transfer in young adults' close friendships and romantic relationships. *Personal Relationships, 4*(2), 131-144. doi: 10.1111/j.1475-6811.1997.tb00135.x

Fraley, R., & Shaver, P. (2000). Adult romantic attachment: Theoretical developments, emerging controversies, and unanswered questions. Review of general psychology, 4(2), 132. doi: 10.1037/1089-2680.4.2.132

Fraley, R., & Spieker, S. (2003). Are infant attachment patterns continuously or categorically distributed? A taxometric analysis of strange situation behavior. *Developmental Psychology, 39*(3), 387. doi: 10.1037/0012-1649.39.3.387

Fukkink, R. G. (2008). Video feedback in widescreen: A meta-analysis of family programs. *Clinical psychology review, 28*(6), 904-916. doi: 10.1016/j.cpr.2008.01.003

Furman, W., & Buhrmester, D. (1985). Children's perceptions of the personal relationships in their social networks. *Developmental Psychology, 21*(6), doi: 10.1037/0012-1649.21.6.1016

Furman, W., & Buhrmester, D. (1992). Age and sex differences in perceptions of networks of personal relationships. *Child Development, 63*(1), 103-115. doi: 10.2307/1130905

Fury, G., Carlson, E., & Sroufe, A. (1997). Children's representations of attachment relationships in family drawings. *Child Development 68*(6), 1154 - 1164. doi: DOI: 10.1111/j.1467-8624.1997.tb01991.x

Geddes, H. (2006). Attachment in the Classroom. Bath, UK: Worth Publishing.

Gifford-Smith, M., & Brownell, C. (2003). Childhood peer relationships: Social acceptance, friendships, and peer networks. *Journal of school psychology*, *41*(4), 235-284. doi: 10.1016/S0022-4405(03)00048-7

Goldwyn, R., Stanley, C., Smith, V., & Green, J. (2000). The Manchester Child Attachment Story Task: Relationship with parental AAI, SAT and child behaviour. *Attachment & Human Development, 2*(1), 71-84. doi: 10.1080/146167300361327

Granot, D., & Mayseless, O. (2001). Attachment security and adjustment to school in middle childhood. *International Journal of Behavioral Development, 25*(6), 530-541. doi: 10.1080/01650250042000366

Green, J., Stanley, C., Smith, V., & Goldwyn, R. (2000). A new method of evaluating attachment representations in the young school-age children: The Manchester Child Attachment Story Task (MCAST). *Attachment & Human Development, 2*(1), 48-70. doi: 10.1080/146167300361318

Grossmann, K., Grossmann, K. E., Fremmer‐Bombik, E., Kindler, H., & Scheuerer‐Englisch, H. (2002). The uniqueness of the child‐father attachment relationship: Fathers sensitive and challenging play as a pivotal variable in a 16-year longitudinal study. *Social Development, 11*(3), 301-337. doi: 10.1111/1467-9507.00202

Gullone, E., & Robinson, K. (2005). The Inventory of Parent and Peer Attachment--Revised (IPPA-R) for Children: A psychometric investigation. *Clinical Psychology & Psychotherapy, 12*(1), 67-79. doi: 10.1002/cpp.433

Guttmann-Steinmetz, S., & Crowell, J. A. (2006). Attachment and externalizing disorders: A developmental psychopathology perspective. *Journal of the American Academy of Child & Adolescent Psychiatry, 45*(4), 440-451. doi: 10.1097/01.chi.0000196422.42599.63

Hallinan, M. T., & Smith, S. S. (1989). Classroom characteristics and student friendship cliques. *Social forces, 67*(4), 898-919. doi: 10.2307/2579707

Haskett, M., Nears, K., Sabourin Ward, C., & McPherson, A. (2006). Diversity in adjustment of maltreated children: Factors associated with resilient functioning. *Clinical psychology review, 26*(6), 796-812. doi: 10.1016/j.cpr.2006.03.005

Howe, D. (2011). *Attachment across the lifecourse: A brief introduction*. Basignstoke, UK: Palgrave Macmillan.

Howes, C. (1999). Attachment relationships in the context of multiple caregivers. In J. Cassidy & P. R. Shaver (Eds.), Handbook of Attachment; Theory, Research and Clinical Applications (Second ed., pp. 671-687). New York; USA: The Guildford Press.

Hughes, J. N. (2012). Teacher–student relationships and school adjustment: Progress and remaining challenges. *Attachment & Human Development, 14*(3), 319-327. doi: 10.1080/14616734.2012.672288

Humber, N., & Moss, E. (2005). The Relationship of Preschool and Early School Age Attachment to Mother-Child Interaction. *American Journal of Orthopsychiatry, 75*(1), 128-141. doi: 10.1037/0002-9432.75.1.128

Kahn, D., & Antonucci, T. (1980). The hierarchical mapping technique. *Generations, 13*, 10-12.

Kerns, K., Abraham, M., Schlegelmilch, A., & Morgan, T. (2007). Mother-child attachment in later middle childhood: Assessment approaches and associations with mood and emotion regulation. *Attachment & Human Development, 9*(1), 33-53. doi: 10.1080/14616730601151441

Kerns, K., Brumariu, L., & Seibert, A. (2011). Multi-method assessment of mother-child attachment: Links to parenting and child depressive symptoms in middle childhood. *Attachment & Human Development, 13*(4), 315-333. doi: 10.1080/14616734.2011.584398

Kerns, K., Klepac, L., & Cole, A. (1996). Peer relationships and preadolescents' perceptions of security in the child-mother relationship. *Developmental Psychology, 32*(3), 457 - 466. doi: 10.1037/0012-1649.32.3.457

Kerns, K. A., & Richardson, R. A. (2005). *Attachment in middle childhood*. New York, US: Guilford press.

Kerns, K., Schlegelmilch, A., Morgan, T., & Abraham, M. (2005). Assessing attachment in middle childhood. In K. Kerns & R. Richardson (Eds.), Attachment in middle childhood (pp. 46-71). New York; Guilford press.

Kerns, K., Tomich, P., Aspelmeier, J., & Contreras, J. (2000). Attachment-based assessments of parent–child relationships in middle childhood. *Developmental Psychology, 36*(5), 614-626. doi: 10.1037/0012-1649.36.5.614

Kerns, K., Tomich, P., & Kim, P. (2006). Normative trends in children's perceptions of availability and utilization of attachment figures in middle childhood. *Social Development, 15*(1), 1-22. doi: 10.1111/j.1467-9507.2006.00327.x

Klagsbrun, M., & Bowlby, J. (1976). Responses to separation from parents: A clinical test for young children. *British Journal of Projective Psychology & Personality Study*.

Kobak, R., Rosenthal, N., & Serwik, A. (2005). The Attachment Hierarchy in Middle Childhood: Conceptual and Methodological Issues. In K. Kerns & R. Richardson (Eds.), Attachment in middle childhood (pp. 71-88). New York; Guilford press.

Lieberman, A. (1992). Infant-parent psychotherapy with toddlers. *Development and Psychopathology, 4*(04), 559-574. doi: 10.1017/S0954579400004879

Maccoby, E. E. (2000). Perspectives on gender development. *International Journal of Behavioral Development, 24*(4), 398-406. doi: 10.1080/016502500750037946

Main, M., & Cassidy, J. (1988). Categories of response to reunion with the parent at age 6: predictable from infant attachment classifications and stable over a 1-month period. *Developmental Psychology, 24*(3), 415. doi: 10.1037/0012-1649.24.3.415

Main, M., Kaplan, N., & Cassidy, J. (1985). Security in infancy, childhood, and adulthood: A move to the level of representation. *Monographs of the society for research in child development*, 66-104.

Main, M., & Solomon, J. (1990). Procedures for identifying infants as disorganized/disoriented during the Ainsworth Strange Situation. *Attachment in the preschool years: Theory, research, and intervention, 1*, 121-160.

Marvin, R. S., & Britner, P. A. (1999). Normative development: The ontogeny of attachment. In J. Cassidy & P. Shaver (Eds.), Handbook of attachment; Theory, research and clinical applications, (pp. 44 - 67). New York, US: Guilford Press

Minnis, H., Millward, R., Sinclair, C., Kennedy, E., Greig, A., Towlson, K., Hill, J. (2006). The Computerized MacArthur Story Stem Battery--A pilot study of a novel medium for assessing children's representations of relationships. *International Journal of Methods in Psychiatric Research, 15*(4), 207-214. doi: 10.1002/mpr.198

Minnis, H., Read, W., Connolly, B., Burston, A., Schumm, T.-S., Putter-Lareman, S., & Green, J. (2010). The Computerised Manchester Child Attachment Story Task: A novel medium for assessing attachment patterns. *International Journal of Methods in Psychiatric Research, 19*(4), 233-242. doi: 10.1002/mpr.324

Moss, E., Bureau, J. F., Beliveau, M. J., Zdebik, M., & Lepine, S. (2009). Links between children's attachment behavior at early school-age, their attachment-related representations, and behavior problems in middle childhood. *International Journal of Behavioral Development, 33*(2), 155-166. doi: 10.1177/0165025408098012

Moss, E., & St-Laurent, D. (2001). Attachment at school age and academic performance. *Developmental Psychology, 37*(6), 863-874. doi: 10.1037/0012-1649.37.6.863

Muris, P., Meesters, C., van Melick, M., & Zwambag, L. (2001). Self-reported attachment style, attachment quality, and symptoms of anxiety and depression in young adolescents. *Personality and Individual Differences, 30*(5), 809-818. doi: http://dx.doi.org/10.1016/S0191-8869(00)00074-X

Muscetta, S., Dazzi, N., Decoro, A., Ortu, F., & Speranza, A. (1999). States of mind with respect to attachment and change in a psychotherapeutic relationship: A study of the coherence of transcript in a short‐term psychotherapy with an adolescent. *Psychoanalytic Inquiry, 19*(5), 885-921.

Newton, C., Taylor, G., & Wilson, D. (1996). Circles of friends: an inclusive approach to meeting emotional and behavioural needs. *Educational Psychology in Practice, 11*(4), 41-48.

NICHD (2006). Infant-mother attachment classification: risk and protection in relation to changing maternal caregiving quality. *Developmental Psychology, 42*(1), 38. retrieved from http://www.ncbi.nlm.nih.gov/pubmed/16420117

O'Connor, E., Collins, B., & Supplee, L. (2012). Behavior problems in late childhood: the roles of early maternal attachment and teacher-child relationship trajectories. *Attachment & Human Development, 14*(3), 265-288. doi: 10.1080/14616734.2012.672280

Pearpoint, J., & Forest, M. (1992). Kick ‘em out or keep ‘em in. Exclusion or Inclusion. *The inclusion papers*, 80-88.

Pianta, R. C., Longmaid, K., & Ferguson, J. E. (1999). Attachment-based classifications of children's family drawings: Psychometric properties and relations with children's adjustment in kindergarten. *Journal of Clinical Child Psychology, 28*(2), 244-255. doi: 10.1207/s15374424jccp2802_11

Pierrehumbert, B., Santelices, M. P., Ibáñez, M., Alberdi, M., Ongari, B., Roskam, I., Borghini, A. (2009). Gender and attachment representations in the preschool

years: Comparisons between five countries. *Journal of Cross-Cultural Psychology, 40*(4), 543-566. doi: 10.1177/0022022109335181

Rak, C. F., & Patterson, L. E. (1996). Promoting resilience in at ‐ risk children. *Journal of Counseling & Development, 74*(4), 368-373. doi: 10.1002/j.1556-6676.1996.tb01881.x

Ridenour, T., Greenberg, M., & Cook, E. (2006). Structure and validity of People in My Life: A self-report measure of attachment in late childhood. *Journal of Youth and Adolescence, 35*(6), 1037-1053. doi: 10.1007/s10964-006-9070-5

Rowe, A., & Carnelley, K. (2005). Preliminary support for the use of a hierarchical mapping technique to examine attachment networks. *Personal Relationships, 12*(4), 499-519. doi: 10.1111/j.1475-6811.2005.00128.x

Ruby, P., & Decety, J. (2004). How would you feel versus how do you think she would feel? A neuroimaging study of perspective-taking with social emotions. *Cognitive Neuroscience, Journal of, 16*(6), 988-999. doi:10.1162/0898929041502661

Seibert, A. C., & Kerns, K. A. (2009). Attachment figures in middle childhood. *International Journal of Behavioral Development, 33*(4), 347-355. doi: 10.1177/0165025409103872

Shah, P. E., Fonagy, P., & Strathearn, L. (2010). Is attachment transmitted across generations? The plot thickens. *Clinical Child Psychology & Psychiatry, 15*(3), 329-345. doi: 10.1177/1359104510365449

Shmueli-Goetz, Y., Target, M., Fonagy, P., & Datta, A. (2008). The Child Attachment Interview: A psychometric study of reliability and discriminant validity. *Developmental Psychology, 44*(4), 939-956. doi: 10.1037/0012-1649.44.4.939

Solomon, J., & George, C. (2008). The measurement of attachment security and related constructs in infancy and early childhood. In J. Cassidy & P. R. Shaver (Eds.), *Handbook of Attachment; Theory, Research and Clinical Applications* (Second ed., pp. 833 - 856). New York; USA: The Guildford Press.

Sroufe, L. A. (2005). Attachment and development: A prospective, longitudinal study from birth to adulthood. *Attachment & Human Development, 7*(4), 349-367. doi: 10.1080/14616730500365928

Sroufe, L. A., Egeland, B., & Kreutzer, T. (1990). The fate of early experience following developmental change: Longitudinal approaches to individual

adaptation in childhood. *Child Development, 61*(5), 1363-1373. doi: 10.1111/j.1467-8624.1990.tb02867.x

Steele, H., & Steele, M. (2005). The construct of coherence as an indicator of attachment security in middle childhood: The Friends and Family Interview. In K. Kerns & R. Richardson (Eds.), Attachment in middle childhood (pp.137-160). New York: Guildford Press.

Sturgess, W., Dunn, J., & Davies, L. (2001). Young children's perceptions of their relationships with family members: Links with family setting, friendships, and adjustment. *International Journal of Behavioral Development, 25*(6), 521-529.

Target, M., Fonagy, P., & Shmueli-Goetz, Y. (2003). Attachment representations in school-age children: The development of the child attachment interview (CAI). *Journal of Child Psychotherapy, 29*(2), 171-186. doi: 10.1080/0075417031000138433

Thompson, R. A. (2008). Early attachment and later development: Familiar questions, new answers. In J. Cassidy & P. R. Shaver (Eds.), Handbook of Attachment; Theory, Research and Clinical Applications (pp. 348-365). New York; USA: The Guildford Press.

Van IJzendoorn, M. (1990). Developments in cross-cultural research on attachment: Some methodological notes. *Human Development, 33*(1), 3-9.

Van IJzendoorn, M., & Kroonenberg, P. (1988). Cross-cultural patterns of attachment: A meta-analysis of the strange situation. *Child Development*, 147-156.

Van Ijzendoorn, M. H., & Sagi-Schwartz, A. (2008). Cross-cultural patterns of attachment: Universal and contextual dimensions.

Verschueren, K., Doumen, S., & Buyse, E. (2012). Relationships with mother, teacher, and peers: Unique and joint effects on young children's self-concept. *Attachment & Human Development, 14*(3), 233-248. doi: 10.1080/14616734.2012.672263

Verschueren, K., & Koomen, H. M. (2012). Teacher–child relationships from an attachment perspective. *Attachment & Human Development, 14*(3), 205-211. doi: 10.1080/14616734.2012.672260

Verschueren, 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. doi: 10.1111/1467-8624.00014

Waters, E., Merrick, S., Treboux, D., Crowell, J., & Albersheim, L. (2000). Attachment security in infancy and early adulthood: a twenty‐year longitudinal study. *Child Development, 71*(3), 684-689.

Woodward, L., Fergusson, D. M., & Belsky, J. (2000). Timing of parental separation and attachment to parents in adolescence: Results of a prospective study from birth to age 16. *Journal of Marriage and Family, 62*(1), 162-174. doi: 10.1111/j.1741-3737.2000.00162.x

Wright, J., Binney, V., & Smith, P. (1995). Security of attachment in 8–12-year-olds: A revised version of the Separation Anxiety Test, its psychometric properties and clinical interpretation. *Child Psychology & Psychiatry & Allied Disciplines, 36*(5), 757-774. doi: 10.1111/j.1469-7610.1995.tb01327.x

Zachrisson, H. D., Roysamb, E., Oppedal, B., & Hauser, S. T. (2011). Factor structure of the Child Attachment Interview. *European Journal of Developmental Psychology, 8*(6), 744-759. doi: 10.1080/17405629.2011.631293