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Assessing the impact of school nurture groups: do they change `children's attachment representations of their parents?

Netali Levi

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Overview

Part 1 of this thesis is a literature review which explores the use of narrative measures of attachment in 4 to 7 year old children. The review considers the concept of attachment and overlapping internal processes. Narrative measures of attachment are reviewed to ascertain the extent to which they measure attachment in this age group. The review indicates theoretically consistent relationships between narratives and other indicators of attachment. However, narrative measures need further validation as well as development to assess wider attachment related processes. Part 2 is an empirical paper which assesses the impact of school nurture group interventions on young children's functioning and attachment representations of their parents. Firstly, it is hypothesised that children's social, emotional and behavioural functioning will improve following 1.5 school terms of a nurture group. Secondly, as nurture groups are proposed to facilitate change through the development of the teacher-child attachment relationship, it is hypothesised that increased security in children's attachment representations of parents mediates change following the intervention. Results largely support the first hypothesis, with significant improvements in children's prosocial behaviour and peer problems, in contrast to a comparison group. Very little support for the second hypothesis was found as there were no significant changes in attachment representations. However, there was very slight evidence for attachment mediating changes in functioning. Part 3 is a critical appraisal. The strengths and limitations of the research are considered and the process of carrying out the research is reflected on. The clinical and scientific implications of the findings are discussed, concluding with suggestions for future research.

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Part 1 : Literature Review

How well do narrative measures assess attachment in children of 4 to 7 years of age?

Abstract

This review considers the concept of attachment and the range of processes it influences such as mentalisation, affect regulation and attentional control. Narrative measures of attachment for 4 to 7 year old children are reviewed to examine the extent to which they appear to measure attachment and overlapping processes. Wider issues in the use of narrative assessments in this age group are also reflected on. It appears that different measures are appropriate for exploring different kinds of research questions. Narrative measures of attachment representations for this age group vary in their ability to assess attachment, but findings together indicate theoretically consistent relationships between narratives and other indicators of attachment. However, in order to gain a wider sense of a child's internal world, measures need to be developed to tap more of the significant processes related to attachment. In their current form, narrative measures of attachment appear most useful in combination with other methods of measurement.

Methods

Literature searches were carried out using the Medline, Psychinfo and Embase search engines (1960 – 2006). The terms 'attachment', 'representations', 'narrative assessment', 'narratives', 'stories', 'doll-play', 'stories' and 'children' were used to generate citations, individually and in combination. The generated list of studies was supplemented by a review of their reference lists. Particular attention was given to seminal articles which had created and validated the various measures. Articles were included in this review on the following grounds:

1. The studies had used a narrative measure to assess children's attachment representations.

2. Measures had been used with children aged 4 to 7 years of age.

Results

A total of 51 studies were identified from searches. However from this number there were only 17 citations to studies which appeared relevant to the review, based on the above criteria. Relevant references from these articles were obtained to generate further articles of interest. Four narrative measures of attachment representations were selected as being of interest related to the above criteria (the Separation Anxiety Test, the Narrative Story Stem Technique, the Manchester Child Attachment Story Task and the Dolls House Play Task). Fourteen key articles were found which were related to the

Separation Anxiety Test (SAT). Articles employing a variation of the 'Narrative Story Stem Technique' (NSST) were too numerous to examine. Therefore, studies which had used the measures were reviewed if they had tested reasonably high numbers of participants and appeared to be regarded in the field as particularly relevant, as reflected by frequent citations. Studies using the NSST have examined a wide range of phenomena, so only those examining representations which were most relevant to attachment status were selected. In total 39 articles utilising the NSST were reviewed. Only two relevant articles were found which were related to the Manchester Child Attachment Story Task (MCAST) due to the recency of its creation. Two articles were found which were related to the Dolls House Play Task (DHPT), however one of these was not related to the measurement of attachment. Three literature reviews were examined, however none provided a comprehensive review of all measures (Cassidy & Shaver, 1999, Oppenheim & Waters, 1995; Woolgar, 1999).

Section One – What is Attachment?

Background to Attachment Theory

Attachment theory proposes that the infant's social understanding develops through repeated interactions with primary caregivers (Bowlby, 1969, 1982). Through these experiences 'representational mental schemata' or 'internal working models' (IWMs) of self and others are formed which guide expectation and planning of behaviour in attachment related situations. Repeated experiences and interactions create schemas or scripts guiding expectations of interactions with others and their behaviour, which are organised into a hierarchical structure of episodic and semantic memories. These models are conceptualised as being comprised of specific content including affect, and information processing rules that integrate and organise memory and perception (Bowlby, 1969/1982; Main, Kaplan & Cassidy, 1985). Bowlby (1973) hypothesised that internal working models of attachment relationships develop over time and have a need to be flexible, as well as a bias to stability and resistance to change.

IWM's include representations of a caregiver's responsiveness, as well as the child's worthiness of receiving care. (Bowlby, 1982) theorised that a child's expectations of the availability of a caregiver and their responsivity in times of distress is a function of the quality of communication in attachment relationship, particularly about the caregiver's whereabouts during temporary separations. Through trust, a child can increasingly rely on an IWM of the relationship with the caregiver to maintain a sense of security rather than requiring their actual presence.

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Bowlby's ethological attachment theory (1969/1982) conceptualised attachment representations as observable in infancy through behaviour, with the infant seeking to increase proximity to the attachment figure or maintain contact to obtain protection, physical closeness or felt security. Ainsworth (1978) developed a system for classifying attachment behaviours in infants aged 12 to 20 months with the 'Strange Situation.' This assessment measure of attachment behaviour activates the infant's attachment system with a stress inducing separation-reunion procedure. The behavioural coding system developed from this measure (Ainsworth, Blehar, Waters & Walls, 1978; Main & Solomon, 1986) has been extensively validated and categorises attachment behaviour into secure (B), insecure-avoidant (A), insecure-ambivalent/resistant (C) and disorganised attachment (D).

Infants rated as securely attached on this measure, seek psychological or physical proximity to caregiver and can be easily soothed following separation, related to the expectation of sensitive and responsive caregiving. Avoidant insecure attachment behaviour involves an avoidance of expression of attachment needs related to the infant's expectation that their needs will not be met by the caregiver. The category of ambivalent insecure attachment has been linked to inconsistent caregiving (Cassidy & Shaver, 1999). Infants in this group amplify expression of their attachment needs and are ambivalent in their use of attachment strategies, attempting proximity as well as demonstrating angry behaviour or prolonged distress. Finally, infants classified as having disorganised attachment lack a coherent attachment strategy, using contradictory strategies or demonstrating odd behaviours such as freezing and headbanging. This classification has been linked to incoherent, frightening or frightened ways of parenting

(Main & Hesse, 1990; Main & Solomon, 1986).

Attachment and developmental outcomes

Secure attachment has been linked to numerous positive developmental outcomes, including higher sociability with adults and children, more effective emotional regulation and higher academic attainment (Bretherton, 1985; Richters & Waters, 1991) In contrast, insecure attachment has been linked to emotional and behavioural problems, lower sociability and poor peer relations (Carlson & Sroufe, 1993), with disorganised attachment having a particularly strong relationship to later psychopathology (Lyons-Ruth & Jacobvitz, 1999).

Mentalisation

Fonagy (1999) highlights the central role of attachment organisation and its relationship to other internal processes to explain the detrimental impact of insecure attachment on development. Mentalisation, which is the ability to understand both one's own and others' behaviour as consequences of mental states, is one process which appears to bear a significant relationship to attachment organisation (Bateman & Fonagy, 2004; Fonagy, 1999). High reflective function in a caregiver has been found to facilitate both mentalisation skills (Fonagy, Steele, Steele, Leigh, Kennedy, Matoon & Target, 1995) and attachment security in their child (Fonagy, Steele, Moran, Steele & Higgitt, 1991). A reciprocal relationship between attachment and mentalisation ability appears to exist, with secure attachment aiding the development of mentalising capacity. This occurs through the child obtaining an understanding of the caregiver's mind with a sensitive

and reflective caregiver understanding and 'containing' the child's own internal states. Secure attachment is also likely to facilitate the development of mentalisation skills by giving a child freedom from worries and an attachment organization which is resilient enough in times of stress to allow the child to reflect upon the internal states of others.

Affect regulation

Children who are insecurely attached have been shown to demonstrate deficits in emotional self regulation (Cicchetti & Barnett, 1991). Caregivers of a securely attached child are likely to help their child to understand frightening affective experiences and learn to manage negative emotional states, thus maintaining their attachment organisation in times of stress. In contrast, anxious-avoidant children are theorised not to have had such restabilising experiences and consequently over-regulate affect by avoidance situations of emotional stress. Anxious-resistant children are hypothesised to under-regulate emotions, amplifying distress to elicit their caregiver's attention, with the threshold at which they perceive threat being low (Fonagy, 1999).

Fonagy (1999) emphasises the role which mentalisation appears to play in facilitating a higher order strategy of affect regulation. This is theorised to occur through the development of 'second order representations' of mental states in the child. In the context of an attachment relationship where a sensitive caregiver helps the child to identify and label affective experiences, second order representations of affect can develop into an organised and 'symbolically bound' structure. The caregiver facilitates this process by mirroring and reflecting back modified and thus less anxiety provoking representations of the child's negative emotions. These can then be internalised as

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second order integrated representations of mental states from which internal reflective structures are developed. Research indicates that second order mentalisation abilities are related to security of attachment, with parental reflective function predicting attachment security which subsequently predicts performance on theory of mind tasks (Fonagy et al., 1995).

Attentional control

Attentional control, a process which underpins emotional and cognitive functioning has also been found to be influenced by attachment organisation. The role of secure attachment in regulating stress has been supported by psychophysiological research. For example, insecurely attached infants, particularly those categorised as disorganised, have been found to show increased levels of the stress hormone Cortisol following the 'Strange Situation' procedure (Hertsgaard, Gunnar, Erickson & Nachmias, 1995; Spangler & Grossman, 1993). It is widely accepted that stress impacts on cognitive functioning, in particular attention and memory (Mendl, 1999) and insecure children experience higher levels of stress compared to their securely attached counterparts. This is related both to a lack of responsive caregiving in stressful situations to help the child modulate their distress, as well to less developed affect regulation skills. This phenomena has been supported by research indicating that securely attached children are less vulnerable to identified risk factors on their attentional performance than insecure children and are more able to use effective attentional control strategies to cope with frustrating stimuli (Fearon & Belsky, 2004). This is likely to impact on attention related behavioural problems such as ADHD (Anderson, Dover, Yang, Holahan, Shaywitz, & Marchione, 2000), as well as influence neurodevelopmental outcomes (Hofer, 2003).

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Capacity to manage aggressive impulses is also influenced by attentional control ability, with secure attachment being a protective factor in the development of behavioural problems and progression to trajectories of aggression (Cassidy & Shaver, 1999).

Issues in the measurement of attachment

The assessment of attachment organisation has also been well established in adults with the development of the Adult Attachment Interview (George, Kaplan & Main, 1985). This narrative measure assesses attachment in adulthood through language and representations and has been extensively validated (Hesse, 1999). The coherence rather than the content of responses on this measure have been shown to differentiate between secure (autonomous) and insecure (preoccupied, detached or enmeshed) adults.

However, although measuring attachment has been well validated in infancy and adulthood, the measurement of attachment in early and middle childhood has been less conclusive (Target, Fonagy & Schmueli-Goetz, 2003). The measurement of attachment behaviours depends on the degree to which the attachment system is activated, with the stress induced by the Strange Situation's separation procedure becoming less marked as the child gets older and more used to separations. The accessibility of the caregiver rather than their proximity becomes more important to the child. Developmental changes also make it difficult to understand the increasing complexity of attachment organisation in an older child through purely behavioural observation. These changes include the wider range of behaviours an older child may display, as well as their increased cognitive capacity to understand and predict caregiver behaviour.

Narrative assessment of attachment representations

However, the development of language and symbolic representations with age makes it possible to assess attachment by eliciting internal working models of attachment through narrative assessment. Rationale for the use of narrative assessment developed from research on young children's increasing emotional, social and moral understanding as well as an awareness of the relative sophistication of preschoolers' symbolic play, story schemas, memory and scripts (Bretherton & Oppenheim, 1999; Main et al., 1985). This demonstrated that preschoolers' narrative ability and understanding of self and other relationships were more developed then had been previously theorised. Narrative assessment has been used with children in early and middle childhood to elicit generic representations of relationships with parents and others (Bretherton, Ridgeway & Cassidy, 1990; Hodges & Steele, 2000; Target et al., 2003), as it has been recognised that children's narratives can be important sources of information about attachment security and IWMs.

Narrative assessment can elicit attachment representations through the content of a child's narrative, with conceptual representations evident from scripts for events. However, similarly to findings with adults (George, Kaplan & Main, 1985; Hesse, 1999), the form of a child's narrative has also been demonstrated to reflect attachment organisation. Narratives are not pure reflections of representations of self and other, but are instead influenced by the information processing rules which facilitate access to attachment information and regulate affect and behaviour (Oppenheim & Waters, 1995).

Different categories of insecure attachment have been shown to correspond to specific information processing biases (Shouldice & Stevenson-Hinde, 1992). Secure attachment is characterised by flexible and open access to attachment affect, cognition and memories. Thus, secure children's narratives are theoretically likely to be open, coherent and emotionally regulated, with research findings indicating that narrative coherence in young children is linked to secure attachment in infancy (George, Kaplan & Main, 1985). In contrast, insecurely attached children's access to the same information can be distorted, biased or inaccessible to consciousness. For example, avoidant attachment is linked to the use of 'defensive exclusion' of attachment experiences to avert the anxiety they may evoke. This reduces the accessibility of IWMs to modification from novel, positive experiences. Caregivers of ambivalent children may be viewed as inconsistently unavailable, which may bias information processing regarding the degree of fright the environment evokes, resulting in increased negative emotional expression (Bretherton & Munholland, 1999). Furthermore, disorganised children have been described as having "fragile" IWMs which collapse under stress (Cassidy, 1988; Solomon & George, 1999).

Narrative assessments of attachment representations which have been used with children tend to involve either the interpretation of pictured situations (Shouldice & Stevenson-Hinde, 1992; Slough & Greenberg, 1990) or more open-ended tasks such as doll play, either in isolation (Murray et al., 1999) or to facilitate story-stem completion (Bretherton & Ridgeway, 1990; Green, Stanley, Smith & Goldwyn, 2000). The systems for scoring measures vary in their classificatory systems but may include the coding of attachment related behaviours, cognitive constructs such as coherence and social/emotional constructs such as the interactive style of the child.

Section 2 – The use of narrative measures of attachment representations in 4 to 7 year old children

This section will look at the main variations on the three broad narrative techniques used to assess attachment – responses to pictured scenarios (Separation Anxiety Test), structured doll play story completions (Narrative Story Stem Technique, Manchester Child Attachment Story Task) and doll's house play (Dolls House Play Task). This review will examine the use of narrative measures with 4 to 7 year old children and the issues this involves. This particular focus is of interest because it corresponds to the age group studied and the method of assessment used in the thesis study entitled 'Assessing the impact of school nurture groups: do they change children's attachment representations of their parents?'

Measures will be considered individually for validity and reliability, as well as the extent to which they relate to different aspects of attachment. These include attachment classifications, attachment outcomes and reflection of the parent-child relationship. The processes of mentalisation, affect regulation, attentional control and narrative coherence all also appear to bear systematic relationships to attachment organisation. This will also be reflected on to provide an overview of how well narrative measures assess attachment in this age group. Finally, consideration will be given to which measures are most appropriate for answering which kinds of research questions.

Measures using responses to pictured scenarios

<u>Separation Anxiety Test (SAT)</u>

The Separation Anxiety Test is a narrative assessment of children's responses to pictured scenarios of attachment-related separations and rates responses for attachment, self-reliance, avoidance and coherence. Main et al. (1985) adapted Klagsbrun and Bowlby's (1976) version of the SAT (originally developed by Hans, 1972) in a 6 year longitudinal study. Revised versions of this measure have since been used with 3 to 7 old children (Fonagy, Redfern & Charman, 1997; Shouldice & Stevenson-Hinde, 1992; Slough & Greenberg, 1990). See Table 1 in Appendix A for details of the main studies which developed this measure.

<u>Studies using the Separation Anxiety Test</u>

<u>Attachment classifications</u>

Correlations have been found between infant attachment security and later responses on the SAT. Children aged four to six year of age who gave constructive and 'emotionally open' solutions to separation scenarios were highly likely to have been rated as securely attached in the Strange Situation (Bar-Haim, Sutton, Fox & Marvin, 2000; Main, et al., 1985). These children were able to describe both positive and negative aspects of their relationships. Security of responses was also related to the coherence and openness of maternal responses on the AAI (Main et al., 1985), perhaps suggestive of theorized links between parental reflective function and a child's ability to regulate emotions. There is also some indication for evidence of specific attachment related information processing biases mediating attachment related responses on the SAT. Findings demonstrated that

less negative affect was expressed by avoidant children and more anger and passive solutions was expressed by children rated as ambivalent on a separation-reunion procedure two years previously (Shouldice & Stevenson-Hinde, 1992). Slough and Greenberg (1990) also found that children who were classified as more secure and less avoidant on a separation-reunion procedure gave responses on the SAT which were rated higher on attachment and self-reliance and lower on avoidance, particularly in relation to 'self' responses. However, categories of insecure attachment were not consistent between the separation-reunion procedure and the SAT. Furthermore no relationship has been found between SAT responses and responses to a longer separation-reunion procedure.

Measurement of mechanisms implicated in attachment theory

Shouldice and Stevenson-Hinde (1992) found that secure children's responses had the highest proportion of appropriate negative responses, with a corresponding lower proportion of inappropriate responses, fewer denials and less over-positive feelings. In line with research with adults (George et al., 1985), incoherent responses on the SAT were also demonstrated to be less prevalent in secure versus insecure combined groups, with children rated as controlling/disorganised demonstrating more narrative incoherence than other groups (Leibowitz, Ramos & Arsenio, 2002; Shouldice & Stevenson-Hinde, 1992). 'Emotional openness' demonstrated a particularly significant relationship between attachment security to mother at both age 12 months and 6 years (Main et al., 1985). Thus, children rated as secure on both the SAT and a separation-reunion procedure appear to manage security distress on this measure with minimal defensiveness and appropriate expression. This suggests that this measure is able to tap

affect regulation skills and provide some markers of narrative coherence.

Furthermore, Slough and Greenberg (1990) found higher correlations between attachment scores for 'self' on the SAT than for ratings of attachment and scores for the 'other' child for insecurely attached children. This suggests that narratives were more related to the child's own attachment status than hypothetical discussion of peers, which could indicate some demonstration of mentalisation ability. Furthermore, evidence of avoidance and defensive processes when discussing the 'self' was found, but not in discussion of another child's perspective. This could be taken to indicate the existence of multiple internal working models, with an IWM of a confident child perhaps being consciously processed by the child to provide an 'expected response' and avoid accessing negative internal representations.

Parent-child relationship quality

Ackerman and Dozier (2005) used the SAT with foster children and found that high caregiver acceptance, which is likely to reflect and mediate a positive parent-child attachment relationship was associated with effective solutions to separation scenarios. Furthermore, Leibowitz et al. (2002) found that coherence as measured by the SAT was positively correlated to parental scaffolding and negatively related to parental and child negativity during an emotion communication task. Children with secure responses on the SAT demonstrated more positive perceptions of the self in the caregiver attachment relationship than children with disorganized responses (McCarthy, 1998). The author also found secure children had significantly more positive views of the way others saw

them than children with avoidant responses. Furthermore, children rated as secure had

parents with more adaptive ways of regulating their own negative affect than children

with ambivalent or disorganized responses.

Longitudinal stability of measure

No longitudinal studies have been carried out using the SAT.

Inter-rater reliability of coding in key studies

Inter-rater agreement of the coding of SAT responses was 85% in the Main et al. study

(1985). Slough and Greenberg (1990) demonstrated inter-rater agreement ratings of

between 50% and 74%. Shouldice and Stevenson-Hinde (1992) describe 84% to 100%

inter-rater agreement on SAT responses, however this study only double coded a

proportion of the sample.

Validity

A significant relationship has been found between attachment responses on the SAT and

a short separation-reunion procedure, however no relationship has been found with a

longer separation (Slough & Greenberg, 1990; Shouldice & Stevenson-Hinde, 1992).

Studies have indicated that security scores on the SAT correlate with secure, avoidant

and bizarre/ambivalent classifications on the NSST and self-esteem measures using

puppet interviews (Verschueren, Marcoen & Schoefs, 1996; Verschueren & Marcoen,

1999). Furthermore, significant correlations between attachment security on the SAT,

theory of mind competence and emotional understanding have been found, even when

the contribution of chronological age and verbal mental age is controlled for (De Rosnay

& Harris, 2002; Fonagy et al., 1997; Repacholi and Trapolini, 2004).

Conclusions

Taken together, these findings suggest that secure attachment on this measure appears to be characterized by emotional openness and narrative coherence of responses. Secure responses incorporated both positive and negative representations, with few idealized representations. These findings indicate that a securely attached child may demonstrate an integrated and robust attachment organization and be able to address potentially anxiety provoking scenarios through the use of effective emotional regulation skills. Studies using the SAT have also demonstrated some evidence of specific attachment related information processing biases related to insecure attachment categories, though not consistently.

Thus, the SAT appears able to elicit responses consistent with attachment classifications, tap affect regulation strategies and measure the coherence of narratives. Some evidence for this measure's ability to elicit mentalisation ability could be considered, however is extremely inconclusive when taken in isolation from other measures. Validity between SAT responses and behaviour in short separation reunion-procedures has been demonstrated, as well as to responses on other narrative measures. Relationships between SAT responses, theory of mind and emotional understanding have also been found, as well as with parent-child relationship qualities.

However, more work needs to be carried out to validate the measure, develop the coding system and establish longitudinal stability. Additionally, although the SAT has been

used to a limited extent with clinical populations, it not been developed for clinical use. It appears to lack the potential to explore multiple internal working models and defensive exclusion processes, which are likely to be present in clinical populations. In addition, the SAT uses scenarios related to both parents but studies have used separation reunion procedures to validate the measure and these are only related to behaviour with mother. The SAT also lacks a non-verbal mode of communication, limiting opportunity to elicit pre-verbal procedural attachment information, which may be necessary with maltreated populations. There are also discrepancies and a lack of predictive ability between responses on the SAT and overall attachment classification rating. Furthermore, the SAT uses different categories of responses to other measures or coding systems, which impacts on comparability with other measures. The SAT appears to be most appropriate for use in studies exploring relationships between overlapping processes of attachment in normal samples, rather than for examining attachment classifications in greater detail.

Measures using doll play story completion

There are a wide range of variations on narrative assessments of attachment representations using doll-play story completion. The rationale for this method was developed from psychoanalytic play therapy ideas that young children's play can reveal their emotional relationships, psychic conflicts and strategies to deal with these conflicts (A Freud, 1946; Winnicott, 1958). Findings from developmental psychology revealing the sophistication of children's play and its relationship to script based relationship representations have also influenced the development of this mode of assessment (Main

et al., 1985; Woolgar, 1999).

1. Narrative Story Stem Technique

The Narrative Story Stem Technique (NSST) is a narrative assessment of children's responses to the presented 'stem' of a story, using doll figures to provide the child with both verbal and non-verbal channels of communication. Stories involve a fictional child in a standard doll family to avoid identificatory themes. A variety of stories have been used to address a wide range of research questions (Woolgar, 1999). However most research has explored the way in which children's narratives are linked to their internal models of attachment, ability to regulate emotions and external behaviour, with the NSST appearing appropriate for use with children aged 3 to 7 years of age. See Table 2 in Appendix A for details of the main studies which developed this measure.

The findings from initial studies using story stems to elicit play narratives with preschool children demonstrated links between children's representations, coded from their story responses and their attachment experiences (Bretherton, Ridgeway & Cassidy, 1990; Cassidy, 1988). Following this, the story stems were developed into a more comprehensive battery of stories assessing a range of themes including attachment, moral development and family relationships. These were used in a number of longitudinal studies to create the MacArthur Story Stem Battery (Bretherton et al., 1990; Oppenheim & Waters, 1995). Research using the MSSB as a measure has been extensive, with many variations on the coding and stories used, from which further story stem batteries have evolved (Hodges & Steele, 2000; Oppenheim, 1997) The term Narrative Story Stem Technique will be used as an umbrella term to refer to studies using story stems completions (Page, 2001).As most research on narrative measurement of attachment has centred on using narrative story stems techniques, this will form the greatest part of the review. Due to the large number of studies using this as a measure,

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only the most relevant and/or validated studies will be considered for the purposes of this review.

Studies using the Narrative Story Stem Technique

Attachment classifications

Numerous studies have shown evidence of associations between NSST responses and the degree of attachment security (Bretherton et al., 1990; Gloger-Tipplet, Gomille, Koenig & Vetter, 2002), though no consistent relationship between attachment subcategories and story responses has been found (Woolgar, 1999). Gloger-Tipplet, et al. (2002) found significant continuity between 6 year olds' attachment representations on the NSST and attachment measured with the Strange Situation in infancy. Bretherton et al. (1990) found a relationship between responses and observational measures of attachment and maternal Q-sort responses, though no significant association between story responses and specific attachment patterns. Oppenheim (1997) using story stems related to separation and reunion with 3 to 5 year old children, demonstrated concordance between story responses and ratings of emotional openness and positive emotional tone during mother-child separation and reunions, but no prediction of Q-sort attachment security measures.

Secure children have been found to provide 'open' responses, which include both negative and positive descriptions and avoidant children to provide 'perfect' responses (Cassidy, 1988). Solomon, George and De Jong (1995) also defined four narrative styles in dealing with separation-reunion scenarios on the NSST and found that 'confident,'

frightened' and 'busy' styles correlated with theoretically consistent attachment classifications, although the predicted pattern of 'casual' responses for avoidant children was not found. Patterns have also been found in the content of narratives, with children assessed as secure in infancy giving more competent representations of caregiver and child in managing stress than those with ambivalent attachment or disorganized attachment. However, although some modest associations between story responses and aspects of attachment security have been demonstrated, no consistent relationship between the NSST and attachment classifications has been found.

Attachment outcomes

Research has highlighted the link between insecure attachment and emotional and behavioural difficulties and low self esteem (Cassidy & Shaver, 1999). Studies using the NSST have demonstrated a link between story responses and problems in these domains. Attachment disorganization at age 6 predicted behaviour problems (Solomon et al., 1995). Oppenheim, Emde and Warren (1997) aggregated coding items for parental representations and found it correlated with behaviour problems on the Child Behaviour Checklist (CBCL), with maternal positive and disciplining representations correlating with lower scores and negative maternal representations associated with higher externalising scores. Negative outcomes in stories at age 5 also correlated with parental report of anxiety at age 6 and anxiety symptoms (Warren, Emde & Sroufe, 2000). Themes of destruction and narrative distress have also been linked to behaviour problems (Warren, Oppenheim & Emde, 1996) and anti-social measures (Woolgar, 1999). A relationship between secure, positive attachment representations and self-esteem ratings has also been found (Cassidy, 1988; McCarthy, 1998).

The NSST has also been used to assess adoption outcomes in maltreated children, with a modified version which incorporates animal stories to aid displacement and reduce anxiety in this population (Hodges & Steele, 2000). This battery utilises a coding system which also addresses defensive processes (Hodges, Hillman & Steele, 2004). An increase in positive representations and decrease of negative representations, defensive processes and disorganisation in story responses were found over a 2 year period in a maltreated recently adopted sample. Furthermore, Toth, Cicchetti, Macfie and Emde (1997) used the NSST with a maltreated population and demonstrated effects of subtypes of maltreatment in story responses, with increased negative maternal and self representations in the maltreated group. Positive self representations appeared to be independent of negative self representations, theoretically consistent with forms of abuse experience. However, no NSST studies have been found to predict children's outcomes consistently, in part because studies use different stories, with different stories eliciting different themes.

Measurement of mechanisms implicated in attachment theory

Studies using the NSST have found links between secure attachment, narrative coherence and emotion regulation. Children classified as insecure in infancy and on concurrent attachment classifications demonstrated story responses lacking emotional openness and narrative coherence. They had difficulty in regulating emotions and lacked flexibility in narratives, as well as stressing positive or negative themes (Emde & Warren, 1997; Oppenheim, Nir, Warren & Emde, 1997). Oppenheim and Waters (1995) also found that children who were rated as more secure provided highly scripted, more

detailed and longer stories, further suggesting the ability of this measure to tap some aspects of narrative coherence.

Parent child relationship quality

Cassidy (1988) found that secure children gave more positive descriptions of mother-child interaction. Further studies using the NSST have demonstrated a link between the quality of parent-child co-constructions and narrative coherence and emotional regulation in NSST responses (Oppenheim, Emde & Warren, 1997). Relationships have also been suggested between attachment security and children's positive maternal representations in stories (Oppenheim, 1990; Oppenheim et al., 1997b). Steele, Hodges, Kaniuk, Hillman & Henderson (2003) found that adoptive mothers' joy in parenting and reflective function was related to more positive and fewer negative representations in their adoptive children. Oppenheim (1997) also demonstrated that psychological distress in mothers and children's behavioural problems were both linked to representations of mothers. Children who represented mothers as more positive, less negative and more able to discipline had fewer behavioural problems as reported by their mother. Positive and negative representations were each associated with behaviour, appearing to relate to independent aspects of perceptions of parents.

Longitudinal stability of measure

Page (2001) notes that follow up using the NSST has been limited (Cassidy, 1988; Oppenheim et al., 1997a; Waters, Rodrigues & Ridgeway, 1998). Cassidy (1988) found a significant correlation over a one month period in the classification of responses to one story. Oppenheim et al. (1997a) at one year follow up, using the complete MSSB, found

moderate stability between the two time points in positive and negative maternal representations and maternal discipline. Waters, Rodrigues and Ridgeway (1998) found significant though moderate correlations between NSST story representations at age 3 and 4.5 years. Moderate longitudinal correlations between narrative coherence, interviewer-child interactions and prosocial and aggressive themes on the NSST have also been found (Oppenheim et al. 1997b). Thus, there is some evidence of longitudinal stability, though further evidence of test-retest stability is needed for the NSST.

Inter-rater reliability of coding in key studies

Hodges and Steele (2000) found coding reliability kappas of .45 to .100, with a mean of .78. Oppenheim (1997) calculated inter-rater reliability on 50% of stories administered, with a kappa rating of .85 inter-rater reliability. See Appendix A, Table 2 for details.

Validity

A number of studies using the NSST have explored external validity and found correlations with other measures (Oppenheim et al., 1997b; Warren et al., 1996). The NSST has been validated against established measures such as the Strange Situation and the Adult Attachment Interview (Gloger-Tippelt et al., 2002; Miljkovitch, Pierrehumbert, Bretherton & Halfon, 2002). Some evidence of predictive validity between attachment classifications on the NSST and self esteem (Cassidy, 1988), behavioural difficulties (Oppenheim et al., 1997a) and adoption outcomes (Hodges et al. 2003) has also been demonstrated. Significant concordance between security classification on the story stems and in separation-reunion procedures has also been found (Bretherton et al., 1990, Solomon et al., 1995). Bretherton et al. (1990) found a

relationship between NSST responses and observational measures of attachment and maternal Q-sort responses, though no significant association between story responses and specific attachment patterns. Oppenheim et al. (1997b) demonstrated concordance between story responses and ratings of emotional openness and tone during mother-child separation and reunions, but no prediction of Q-sort attachment security measures. Thus, no consistent relationship between NSST responses and other measures relating to attachment have been found.

Conclusions

Research findings indicative of secure attachment as measured by the NSST are wide and varied. Overall, there seems to be a relationship between the quantity of representations and attachment, with more positive, not idealized representations and fewer negative representations relating to secure attachment. Secure responses, in line with findings on the SAT also appear to be reflected by emotionally open and coherent responses. Some studies have also highlighted the independence of positive and negative representations, a phenomena which appears to be present in secure children on a more integrated basis than for insecure children. Findings have also displayed a clear link between positive and disciplining parental representations and secure attachment. However, no consistent relationship between attachment subcategories and story responses has been found (Woolgar, 1999). The Hodges & Steele (2000) NSST system may be particularly useful in eliciting defensive processes, indicative of affective regulation strategies. Specific codes on this measure highlight the child's capacity to acknowledge affect. The use of displacement with the inclusion of animal stories means this particular version is unlikely to induce significant amounts of distress and thus stress

induced attachment strategies. Instead, it may elicit a combination of wish fulfillments, fantasies and representations of actual experience. This measure may be particularly relevant for sensitive clinical use with maltreated populations and has provided important findings in revealing something of the existence of multiple internal working models.

The measure generally appears to be tapping some aspects of narrative coherence, though a comprehensive coding system for this has not been developed. The use of displacement makes it less likely than the SAT or MCAST to induce marked evidence of affect regulation strategies. The ability of the NSST to elicit different representations related to security of attachment is most apparent when used with other measures of attachment, developmental outcomes or child-parent communication. In this way, a relationship between secure attachment, quality of parent-child co-constructions, affect regulation skills, narrative coherence and maternal representations has been demonstrated. These findings support the notion of parental reflective function in facilitating mentalisation and secure attachment, however the NSST has no comprehensive rating system for mentalisation.

However, numerous coding issues exist. A range of coding systems are in use which impacts on opportunity for comparison across studies (Robinson, Mantz-Simmons, Macfie & the MacArthur Narrative Working group, 1992; Hodges et al., 2003, Oppenheim, 1997). There are also a number of specific issues within coding systems. Problems with the meaning of the same code over different stories exist, for example, pro-social action may indicate excessive compliance in one story and empathy in

another story. Furthermore, the NSST stories are not coded for agent or recipient unlike the MCAST. Results also suggest the battery generates an over-representation of negative content themes and an under representation of positive content themes, though not in relation to parental representations (Oppenheim, 1997). Further work is needed to develop stories which elicit positive themes and improve positive codes. Few of the NSST coding systems have also developed an attachment classification rating. Page (2001) also notes that some studies using the NSST analyse themes, whilst others use themes as components of larger variables. He also highlights the need to differentiate between the coding and coherence of narratives, with coding systems tending not to differentiate between these two aspects.

Furthermore, the wide variation in use of stories and coding systems has resulted in little opportunity to compare the findings of different studies and research indicates that different stories tap different representations (Oppenheim, 1997). Additionally, lots of studies do not distinguish between attachment related stems and stems about other emotional issues. Thus it is unclear whether NSST findings are specific to attachment issues or wider affective themes. To address this, a standardized battery of stories needs to be developed. In its current form, the NSST seems to be useful for exploring research questions regarding specific representational themes, particularly in clinical groups. However, it does not appear appropriate for generating attachment classifications when used in isolation.

2. The Manchester Child Attachment Story Task

The Manchester Child Attachment Story Task (Green et al., 2000) is another doll-play story completion method of eliciting representations of attachment relationships in young children. The rationale for the MCAST developed from existing doll-play story completion methods such as the MacArthur Story Stem Battery (Bretherton et al., 1990; Oppenheim & Waters, 1995), as well as research highlighting the importance of narrative elaboration and 'prototypical' scripts in narrative assessment coding systems (Waters et al., 1998). However, the MCAST differs from the NSST method by using a dolls house to elicit representational doll play and conversation and by using scenarios which focus on the child and one caregiver to encourage direct identification with the doll figures and induce a certain level of attachment related anxiety. It has been developed for use with a normal population of children aged 5 to 7 years. For details see Appendix A, Table 3.

Attachment classifications

Green et al. (2000) in the first study using this measure, found that the distribution of attachment categories was comprised of 36% avoidant, 29% secure, 21% ambivalent and 14% 'cannot classify.' This is similar to the proportions found in meta-analyses of studies using the Strange Situation (Van IJzendoorn & Kroonberg, 1988).

Attachment outcomes

Ratings of disorganized attachment on the MCAST showed association with independent teacher ratings of classroom behaviour (Goldwyn et al., 2000). However, there was low concordance between the other attachment classifications and these

ratings. No further research using the MCAST has been published.

Measurement of mechanisms implicated in attachment theory

Consistent with NSST research which indicates an association between the content of a child's narrative and its form, a correlation between secure attachment behaviour and narrative coherence has been found on the MCAST. Relationships have also been demonstrated between security and coherence, degree of mentalizing ability and meta-cognitive skills (Green et al., 2000). However, the authors note that the narrative coherence coding system is confounded by age, highlighting the interaction between attachment processes and cognitive development. Of note, age variations were minimal when children over 7 years of age were excluded from the analysis. The way in which the procedure requires a child to identify with doll characters is also likely to induce the expression of affect regulatory strategies in insecurely attached children. However, the studies found no relationships were found between affect regulation and indicators of attachment security.

Parent child relationship quality

Ratings of disorganized attachment on the MCAST showed association with 'unresolved' status on concurrent maternal AAI responses (Goldwyn et al., 2000).

Longitudinal stability of the measure

Green et al. (2000) found attachment representation patterns to be stable over a median 5.5 month period, with a stability level of 76.5% for A, B and C categories and 69% for disorganized categories. Stability was dependent on the number of secure vignettes and

range of attachment strategies a child demonstrated across stories, with insecure attachment appearing to impact on the longitudinal stability of responses.

Inter-rater reliability of coding in key studies

Good inter-rater reliability has been found on the MCAST, with 80% to 94% agreement for categorical attachment classifications. However, only an unspecified proportion of interviews were doubled coded.

Validity

Goldwyn et al. (2000) compared the MCAST with concurrent maternal representations on the Adult Attachment Interview, measures of child temperament and behaviour and concurrent ratings on the Separation Anxiety Test. Ratings of disorganized attachment on the MCAST showed association with 'unresolved' status on the concurrent maternal AAI responses, replicating findings from other studies (van IJzendoorn, 1995; Main, 1995). A relationship between disorganized attachment and independent teacher ratings of classroom behaviour was also found. However, there was low concordance between the other attachment classifications on the AAI and the MCAST. Overall association between attachment security on the MCAST and SAT was 80%. This was significant but demonstrated only moderate kappa. Thus, there is some inconclusive support for the convergent validity of this measure.

Conclusions

The association of disorganised attachment classifications on this measure with maternal 'unresolved' status on the AAI as well as with independent teacher ratings of classroom

behaviour establishes a level of concurrent criterion validity for disorganised classifications. However, associations between other attachment categories with maternal responses on the AAI were not significant, suggesting further development of the A, B and C coding categories is needed. Furthermore, Green et al. (2000) found that interviews classified as using a mixture of different attachment strategies led to lower test-retest stability, suggesting the need to develop more complex coding systems for this phenomena. Although the MCAST attempts to elicit relation specific parental internal working models, it is unclear whether it is tapping more generalised representations of relationships, although it may be doing so for disorganised attachment categories. Further studies exploring child-father relationship representations with concurrent ratings of paternal attachment classifications may help to clarify this issue.

In line with current attachment theories (Fonagy, 1999), the MCAST appears to tap related processes of attachment, with findings indicating that secure attachment, mentalizing ability, meta cognition and narrative coherence were all related. As this is a relatively recent measure, little research has been carried out to explore this further or to ascertain whether it is able to tap affect regulation skills. Its ability to generate attachment classifications and elicit and code for mentalisation ability appears promising. It has acceptable test-retest reliability, good inter-rater reliability and a comprehensive coding useful for hypothesis generation. However, the MCAST requires further validation studies to clarify its use as an attachment measure and establish its longitudinal stability. Furthermore, the coding system used in the MCAST assumes that attachment behaviours described in a child's narrative can be analysed in a similar way to direct behavioural observations. It also presumes that the coherence of the narrative

can be analysed by adapting techniques used in the AAI. This issue needs further clarification. The MCAST has not been used with clinical samples and the anxiety induction procedure it utilises may make it most appropriate for use with normal populations. At present, the MCAST seems most appropriate for exploring whether current ideas from attachment research with infants and adults can be generalized to early childhood, in combination with the use of other measures.

Other doll play measures

<u>Dolls House Play Task</u>

Murray, Woolgar, Briers and Hipwell (1999) adapted the Dolls House Play Task (created by Uddenberg & Englesson, 1978) for use in measuring attachment. The DHPT uses a doll's house and doll family to represent the interviewee's own family and requires the child to enact what happens in their own family in four generic family scenes. The DHPT developed from awareness that the relatively high degree of experimenter control in the NSST could constrain fantasy play and unconscious expression (Woolgar, 1999) and that using duplicatory families resulted in more identificatory themes in the child's responses (Robinson, 1946). Murray et al. (1999) also wanted to address the determination of parental roles in particular NSST stories, which they felt restricted the analysis of mother and father representations. The DHPT was administered to 5 year old children of depressed and non-depressed mothers. For details see Appendix A, Table 4.

Attachment classifications

Representations were not considered in relation to specific attachment classifications, either on the DHPT or by exploring correlations with other attachment measures. Instead, play was rated on dimensions of care, neglect, hostility of parent, caregiving by the child and narrative structure, including coherence.

Attachment outcomes

A relationship was found between dolls house play responses and behavioural and emotional functioning in school in children of depressed mothers. Family adversity interacted with gender, with girls demonstrating internalising and boys providing externalising responses. Performance on theory of mind tasks was weakly related to family adversity and child disturbance but was significantly related to general and verbal intelligence.

Measurement of mechanisms implicated in attachment theory

Of note, children gave accounts of distressing family experiences which were verified by maternal reports. Mothers in this category reported that their child were not aware of these experiences, likely to be indicative of low maternal reflective function. An interaction between experience of family adversity and narrative coherence was found, with gender appearing to play a mediating role, as described below.

Parent child relationship quality

Children's representations were found to be related to maternal depression and parental conflict and these interacted with gender. Girls who had experienced adversity described

particularly harmonious dyadic relationships and showed high narrative structure in accounts. In contrast, boys exposed to adversity depicted poor parenting and were relatively incoherent in their narratives. The influence of gender is in line with previous research (Murray, Kempton, Woolgar & Hooper, 1993) which indicated that depressed mothers were involved and responsive with daughters but insensitive to their sons. Children who had experienced recent maternal depression also showed high levels of parentification in this study.

Dolls house play was also related to the assessment of dyadic interaction, with greater maternal sensitivity related to representations of high maternal care, low levels of maternal neglect and high narrative coherence. Both observed maternal insensitivity and child depictions of maternal neglect were independently related to emotional and behavioural problems in school, thus suggesting direct and indirect links between children's representations and their social adjustment.

Longitudinal stability

No longitudinal studies have been carried out using the DHPT.

Inter-rater reliability of coding in key studies

12% of the transcripts were double coded on this measure, reliability on subscales ranged from .74 to .91 (Kendall's T).

Validity

As described, responses on the DHPT did not correlate with theory of mind measures,

however relationships were found between representations, behavioural and emotional functioning in school, family adversity and dyadic interaction.

Conclusions

The DHPT, when viewed in combination with observations of dyadic interaction demonstrates a link between maternal sensitivity, children's representations of care and narrative coherence. The finding that gender interacted with family adversity is of interest. It is possible that girls may be more likely to experience more positive relationships with depressed mothers due to a daughter taking on a more parentified, caring role to generate involvement from an unengaged parent. Due to a relatively unstructured assessment procedure, the DHPT is more likely to elicit fantasy material than the more structured measures such as the SAT or MCAST. Its coding system is useful in generating parental care representations and measuring narrative coherence, however has no attachment classificatory coding system.

The lack of structure in the DHPT also allows the child more control in determining their narrative, but allows less opportunity to measure defensive manoeuvres. The DHPT does not attempt to measure affect regulation or mentalisation, but does code for the coherence of a narrative. The majority of scenarios used in this task are relatively less anxiety provoking than other measures and thus less likely to elicit evidence of affect regulation strategies. In addition, the measure's lack of structure makes it less appropriate for use as a research tool. The DHPT may be most appropriate for exploring representations in clinical work and appears ill suited to research exploring attachment classifications. It needs extensive validation and standardisation of its coding system to

establish its appropriateness as an attachment measure.

General issues with the use of narrative measures

There are a number of issues inherent in the use of narrative measures. This includes the influence of developmental change on test-retest reliability. Older children's narratives appear more coherent (Green et al., 2000) and complex in their role portrayals, with longer conversations described between the characters (Bretherton et al., 1990). The number of idea units has also been found to increase significantly between 3 and 4.5 years (Waters et al., 1998). Studies have also found an age increase in positive themes (Oppenheim et al., 1997a). An increase in acknowledgement of moral dilemmas has also been linked to developmental changes, as well as to developments in false beliefs causality and role taking awareness (Oppenheim, 1997). Thus, because the coherence and cognitive complexity of narratives increases with age, a developmental analysis of narrative measures is needed. It may be necessary for stimuli to be adapted for older children, particularly those over the age of 7 years (Warren et al., 2000).

Furthermore, gender effects have been found in narrative responses (Murray et al., 1999; Page & Bretherton, 2001), with boys demonstrating more aggressive and avoidant themes and girls expressing more relationship-oriented and prosocial themes (Zahn-Waxler, Cole, Richardson, Friedman, Michel & Belouad, 1994). Cultural differences and child temperament have also been found to influence narratives (Zahn-Waxler, Schmitz, Fulker, Robinson & Emde, 1996).

Conclusion

It appears that all of the narrative measures of attachment discussed in this review are appropriate for use with children aged 4-7 years, though some evidence for the impact of age and development on the validity of these assessments exists. In particular, studies suggest that tasks need adapting extensively for children over 7 years of age. Research has established the congruence of narrative measures of attachment with interaction based measures of attachment, as well as demonstrating some evidence for the impact of attachment relationships on cognition and language. The open ended nature of narrative measures provides rich information, which is particularly good for hypothesis generation. Narrative assessments are also briefer than clinical assessments and offer an insight into children's fantasies and defences and an opportunity to explore various research questions. However, the possibilities for systematic comparison across measures are limited. Narrative measures may be particularly useful for aiding clinical formulation, though some measures such as the SAT or MCAST may be too anxiety provoking for clinical populations.

The narrative measures which use doll play methods appear particularly useful for assessing attachment, with research indicating that enactment is helpful to children generating resolutions to problems (Getz, Goldman & Corisini, 1984; Mize & Ladd, 1988). Doll-play methods provide both verbal and non-verbal channels of communication. This is an important aspect in the assessment of attachment representations because procedural memories of attachment experiences prior to language development may not be accessible to verbal recall. Of the doll play methods,

the MCAST appears to have the most comprehensive coding system for assessing attachment, mentalisation, metacognition, narrative coherence and disorganisation. The Anna Freud adaptation of the NSST (Hodges et al., 2003) also has particular relevance for assessing defensive exclusion, though lacks a rating system for narrative coherence and mentalisation. Of note, no measure attempts to measure attentional control, a process influenced by attachment organisation (Fearon & Belsky, 2004).

When considering the empirical status of these measures, some evidence for the use of the SAT, MCAST and to a limited extent the DHPT exists. Most evidence is available for the use of the NSST in eliciting attachment representations, although more consistency in the use of specific stories and coding systems is needed. However, all of the measures have demonstrated little diagnostic ability in assessing subtypes of attachment difficulties. Longitudinal stability and cross validation of the measures to establish the construct of attachment representations further is needed, particularly in view of the subjective nature of scoring projective measures. Cross culture applicability and administration across contexts needs to be further established, as well as the impact of age and gender on narrative responses.

Furthermore, the question of what narrative assessments are measuring needs to be addressed. Are they a reflection of concrete experience and/or of internal working models? Current and prospective child-caregiver observations are needed to clarify this issue, with further research exploring the interactions which children's narratives represent. More investigation into the influence of the paternal relationship on representations is also needed. The confounding effects of cognitive and language

development on attachment representations also need to be explored. The interaction between cognitive development and the attachment system also means that some stories will activate the attachment system more as a function of development (George & Solomon, 1996). For example, the pre-operational child may not be able to differentiate between fantasy and reality.

Overall, research using narrative measures supports the construct of an internal working model guiding responses to security distress outside of the direct environment with attachment figures. If the research findings are taken as a whole, theoretically consistent relationships are found between narratives and observational assessment of mother-child attachment. However, measures need assess all of the significant processes related to attachment in order to gain a greater sense of a child's internal world. Until more definitive measures of attachment representations in childhood are developed, multiple use of narrative measures in combination with other forms of measurement methods is advisable.

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Part 2: Empirical Paper

Assessing the impact of school nurture groups: do they change children's attachment representations of their parents?

Abstract

This study explored the impact of 1.5 terms of a school nurture group intervention on 4 to 8 year old children's functioning and attachment representations of parents. The study aimed to replicate previous research findings which suggest that nurture group interventions result in improved social, emotional and behavioural functioning. A second research aim was to explore whether changes in attachment representations functioned as causal mechanisms of therapeutic change. Results indicated significant improvements in functioning for children receiving the intervention, in contrast to a comparison group. In particular, specific between group changes in peer relationships and pro-social behaviour were demonstrated. No significant changes to overall attachment classifications were found for children in the nurture group, although there was some slight evidence for nurture group attachment experiences mediating improvements in functioning. The findings are discussed in relation to the study limitations and wider possibilities for causal change.

Introduction

Recent government policy highlights the necessity to provide help to children experiencing difficulties in the settings most appropriate to their needs ('Every Child Matters' green paper, DfES, 2003). There is a growing consensus that the level of emotional and behavioural difficulties (EBD) expressed by children in schools is increasing (Evans, Harden, Thomas & Benefield, 2003). The ways in which these difficulties may be expressed include age-inappropriate behaviour, oppositional behaviour impacting on individual and collective learning, emotional distress and difficulty in forming positive relationships with others (DfEE, 1994). The impact of such difficulties in childhood on later adult functioning has been widely documented, with early developmental psychopathology linked to high rates of later anti-social behaviour and mental health problems (Cassidy & Shaver, 1999; Cicchetti & Lynch, 1995). Difficulties in defining which behaviours constitute EBD and which relate to discipline problems make estimations of prevalence difficult (Evans et al., 2003). However, prevalence rates of mental health problems in children are estimated to be at least 10% (ONS, 2004). The government has acknowledged overlap between children with EBD and those with mental health problems (DfES, 2001), suggesting schools are attempting to manage high numbers of children experiencing marked difficulties.

Research indicates that children with EBD are among the groups of children which schools find most difficult to support (Evans & Lunt, 2002). A significant proportion of pupils excluded to Pupil Referral Units have statements of special educational needs for emotional and behavioural difficulties (Ofsted, 1999). Government policy in England and Wales has increasingly emphasised the inclusion of children with special

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educational needs in mainstream education and a reduction in children excluded from school for oppositional behaviour (DfEE, 1997). Children with EBD are likely to make up a significant proportion of both of these groups. Strategies from a range of pedagogic and psychological paradigms have been used to support schools to facilitate the inclusion of children with EBD (Evans et al., 2003). These include the use of behavioural methods using rewards and sanctions (Broussard & Northrup, 1997; Salend & Gordon, 1987) and the teaching of social skills or cognitive strategies such as self-instruction (Manning, 1988; Shepp & Jensen, 1983). Other projects have emphasised the importance of ecological 'whole school' approaches to addressing children's difficulties (Nelson, 1996). Evidence suggests that behavioural interventions are effective in managing disruptive behaviour in school for as long as the strategy is in place (Evans et al., 2003). It appears that systemic approaches addressing classroom layout can help increase children's attention to task, but to the detriment of developing group skills (Hastings & Schweiso, 1995). Teaching social skills has been found to have a positive effect in the short term, though these skills may develop spontaneously over time (Sawyer & MacMullin, 1997). Bowers (1996) notes that most approaches have targeted addressing disruptive behaviours rather than the underlying emotional difficulties children may experience, which impact so significantly on later development.

An innovative intervention to address the causes of social, emotional and behavioural problems based on psychotherapeutic principles, is the school nurture group (Bennathan & Boxall, 2000). Nurture groups were developed by educational psychologists three decades ago and are currently run in over a hundred primary schools across the UK,

usually with 4 to 6 year old children. They are small classroom based interventions which aim to effect long-term change through recreating processes of adequate parenting to facilitate development. Children's problems are theorised to stem from deficits in children's early care resulting in developmentally important experiences which facilitate an understanding of self, other and the world not being achieved. Bennathan and Boxall (2000) hypothesise that the child-teacher attachment experiences within the nurture group facilitate development in emotionally deprived children. Referral to the group relates to problems in functioning which appear linked to impoverished early years experiences (Boxall, 2000). Children may be referred with wide-ranging problems of aggression, low mood or unresponsivity, with all appearing to require help at a pre-nursery level. Children usually receive a one year intervention before gradual progression back to mainstream teaching. Connections with the child's mainstream class are maintained throughout, as well as some minimal contact with nurture group staff following the intervention.

The limited research which exists on the outcomes of nurture groups appears positive. Iszatt and Wasileska (1997) carried out a retrospective analysis of 308 children placed in nurture groups. Their study indicated that 87% of the children placed in nurture groups were able after a mean placement of less than one year to return to mainstream teaching, with 83% requiring no additional special needs support. A comparison with a small control group of children with similar problems suggested higher levels of enduring difficulties in the control group, although no statistical analysis of the significance of this difference was carried out. The authors note that nurture groups are 10 to 30 times

less expensive than residential school placements and less than a quarter of the cost of SEN statements for pupils with emotional and behavioural difficulties.

Cooper, Arnold and Boyd (2001) studied the effectiveness of nurture groups in a prospective study of 321 children. Research findings indicated that after one year emotional and behavioural functioning significantly improved in children who had received the intervention compared to controls. This was measured by total score on the Strengths and Difficulties Questionnaire (Goodman, 1997) and the Boxall Profile (Bennathan and Boxall, 2000). O'Conner and Colwell (2003) also found significant improvements in nurture group children's functioning as measured by the Boxall Profile, though no control group was tested. However, although attachment is hypothesised to function as the causal mechanism of therapeutic change in the intervention, no research has investigated this issue or whether attachment experiences within the group can be generalised to representations of parents for wider change.

Attachment organisation functions as a key mechanism of emotional and social development. Through interactions with primary caregivers 'representational mental schemata' or 'internal working models' (IWMs) of self and others are formed. These models guide expectation and planning of behaviour in attachment related situations (Bowlby, 1969, 1982), with IWMs including representations of caregiver's responsiveness and a child's worthiness of receiving care. Attachment behaviours are thought to reflect underlying attachment organisation. Categorisation of attachment behaviours into secure (B), insecure-avoidant (A), insecure-ambivalent/resistant (C) and disorganised attachment (D) has been extensively validated in infancy (Ainsworth et al., 1978; Main & Solomon, 1986). There is also increasing evidence for the existence of

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these attachment classifications in young children as measured by eliciting attachment representations through narrative measures (Cassidy, 1988; Goldwyn, Stanley, Smith & Green, 2000).

Early attachment relationships impact significantly on developmental outcomes. Extensive research has linked insecure attachment with emotional and behavioural problems, lower sociability and poor peer relations (Carlson & Sroufe, 1995; Lyons-Ruth, 1996). In contrast, secure attachment is related to improved social skills, effective affect regulation and higher academic attainment (Bretherton, 1985; Richters & Waters, 1991) The far ranging influence of attachment on functioning has been linked to the overlapping relationships between secure attachment, affect regulation, mentalization and theory of mind (Fonagy, 1999). See Literature Review for further details regarding attachment organisation and measurement.

Research suggests that new attachment experiences can act as a mechanism of therapeutic change for insecurely attached children, in line with the proposed function of the nurture group (Bennathan & Boxall, 2000). There is evidence that children may be able to adapt their attachment organization through experiences with new caregivers who respond sensitively to their needs, reflected in attachment representational change (Hodges, Steele, Hillman, Henderson & Kaniuk, 2003; Howes, 1999; Toth, Maughan, Manly, Spagnola, & Cicchetti, 2002; van IJzendoorn et al., 1992). A theoretical basis for changes in attachment representations can also be found in psychotherapy. The success of psychotherapy is dependent on experiences in one relationship being generalized to another. This is particularly evident in work with maltreated children, where a key therapeutic aim is to support a child in externalising negative attachment models to elicit

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therapeutic attachment change and facilitate attachment to adoptive parents (Boston & Szur, 1983; Hopkins, 2000).

Although the significance of the role of attachment in the therapeutic alliance is controversial, it is hypothesised that the therapist can act as an attachment figure to provide a 'secure base' from which the client can explore and adapt internal representations of self and other (Bowlby, 1988; Cunningham & Page, 2001). Long-term psychoanalytic psychotherapy is theorised as being particularly effective in facilitating representational change, however adaptations in IWMs have also been found in cognitive analytic therapy (Sochos, 2005). Thus, children who develop secure attachments to nurture group teachers may be able to generalise these representations to other important relationships, influencing their evolving attachment organisation.

Clarifying the mechanisms of therapeutic change in nurture groups is central to both the development of school interventions and to wider issues of mediators of therapeutic change. Kazdin and Nock (2003) highlight the neglect of this issue within child and adolescent therapy. They emphasise the need to explore specific causal mechanisms in developing effective treatment and gaining an increased understanding of underlying difficulties. For schools attempting to manage high numbers of children with significant difficulties, this information would help them to support children with psychological needs more effectively. Finally, the exploration of new attachment experiences as mediators of change in this intervention could also help clarify their impact on the hierarchical nature of attachment organisation, a neglected but highly important area (Klohnen, Weller, Luo & Choe, 2005).

The aims of this study are to firstly attempt to replicate the findings of previous research studies regarding the outcomes of nurture groups. Secondly, this study aims to explore whether changes in attachment representations are the causal mechanism of change and mediate change in social, emotional and behavioural functioning. The impact of attachment experiences within the nurture group on children's representations of parents will be assessed using a narrative measure of attachment (Hodges & Steele, 2000).

Hypotheses

1. Social, emotional and behavioural functioning will improve following the
    nurture group intervention, in contrast to a comparison group.

2. Changes in behaviour will be mediated by changes in attachment representations
    of parents.

3. An exploratory aim of the study is also to clarify whether attachment
    classifications or lower level representations of adults change.

Methodology

Design

This prospective study examined fulltime nurture groups in Hertfordshire adhering to the 'classic' Nurture group model (Bennathan & Boxall, 2000). A non-randomised between groups design was used, comparing children who attended approximately one and a half school terms of a nurture group with a comparison group of children deemed by their school to meet criteria for a nurture group intervention. As this is part of a wider study (Pratt, 2006; Seth-Smith, 2006), data collection was equally shared between three UCL Trainee Clinical Psychologists, all investigating separate areas of interest and analysing different aspects of the data.

Participants

Selection of nurture groups and comparison schools was non-randomised and based on the willingness of schools to take part. Recruitment of both nurture group and comparison group schools was initially carried out by the Senior Educational Psychologist for the region. Following this, experimenters liaised with headteachers or SENCOs at the identified schools directly. Ten nurture group schools and 5 control schools agreed to take part in the study, see Appendix B for further details of the schools, including numbers of pupils, ranked scores for economic deprivation and overall academic attainment. This information indicates that there were differences between all schools in these domains, however all schools, except for one nurture group school, ranked in the lowest 30 schools out of a total of 123 schools, indicating a high level of need and deprivation for pupils, both economically and academically. All

schools were in either outer-city or semi-rural geographical areas with socially diverse populations. To be funded for a nurture group intervention, a school must have a high percentage of 'Children in Need', based on the Children in Need Survey (2002) and be located in an area of deprivation, defined in the Department of the Environment Index of Conditions and the Child Poverty Index. Please see Appendix C for further details on the stipulations for establishment of a nurture group. All comparison schools met the criteria for nurture group funding by having high levels of need. However, in these schools it had not been possible to set up nurture groups due to factors such as limited space and staff shortages.

Criteria for exclusion from the study were the presence of a Learning Disability and English not being a first language. All children who were referred to a nurture group during the period April 2005 to October 2005 and who met inclusion criteria were included in the study. See Appendices D and E for specific details of criteria for admission to a nurture group intervention and the referral procedures involved in this process.

A group of children were identified in comparison schools with apparent emotional and behavioural difficulties by the Headteacher or SENCO, who would have been referred to a nurture group intervention if the school had this resource. As standard school procedure for children with identified needs, all children in the comparison group were placed on 'School Action' or 'School Action Plus.' Both procedures involve the creation of Individual Education Plans (IEPs) for a pupil with identified needs. However, this does not necessarily result in any extra support for a child. A pupil is placed on 'School

Action' when they are identified by the school as having educational, social or emotional needs. Pupils who are placed on 'School Action Plus' are referred to an external professional from the Local Education Authority, such as an Educational Psychologist. All children in the comparison group had been placed on 'School Action,' except for 5 children on 'School Action Plus.' All had individual education plans and received between 0 to 3 hours of academic support per week. The comparison group children identified as on 'School Action Plus' had received an assessment by an Educational Psychologist or a Behavioural Support teacher. However, comparison children did not receive the same assessment and intervention planning procedures as nurture group children. Most importantly, all support for comparison group children was educational in nature rather than therapeutic. All comparison group children who met the study's inclusion criteria were included in the study.

The two experimental groups were tested concurrently. The total sample was made up of 74 White British and 9 non-White British children. There were 44 Nurture group children in the experimental condition and 39 children in the comparison group. Six children (3 from each group) left their school between testing and could not be traced. Two children left their school following initial testing and were followed up for retesting. The age range of the total sample was 4 to 8 years, with a mean age of 5 years 9 months.

Independent t-tests were carried out to examine whether there were significant demographic differences between children. Table 1 summarises age, academic attainment scores, gender and ethnicity. The frequency of free schools meals is included

as a marker of socio-economic status. Information about numbers of single parent families, children who were fostered and the children who had experienced a life event during the testing period are given. See Appendix F for a list of the types of life events experienced by children in this study. Table 1 indicates that the comparison group was significantly older and had higher levels of academic attainment than children in the nurture group. Consequently, this was statistically controlled for in analysis.

Table 1: Demographic information regarding the two groups

Variable	Nurture group	Comparison group	*t* value	*p* value
Females	16	13	*t* = -.29	*p* > .05, ns
Males	28	26	*t* = -.29	*p* > .05, ns
Mean age	5.6 years	6.0 years	*t* = -2.56	*p* < .05*
Academic attainment score at Time 1	3.68	6.52	*t* = -5.43	*p* < .001*
Number of non-White British children	4	5	*t* = -.54	*p* > .05, ns
Number of children receiving free school meals	23	17	*t* = -.78	*p* > .05, ns
Number of single parent families	17	11	*t* = -.10,	*p* > .05, ns
Number of children fostered	2	2	*t* = .12	*p* > .05, ns
Number of children who experienced a life event during testing period	13	16	*t* = .82	*p* > .05, ns

* Significant group difference

There were 10 nurture group teachers running the nurture groups with 10 assistants. Teachers had been working in the groups for between two months to six years, with a mean of two years. All teachers had received a standard four day training course on the 'theory and practice of nurture group work.' During the timescale of the study, two teachers left the nurture groups on maternity leave. This was covered by a new teacher in one of the groups and represented the end of the intervention for children in the other group.

Intervention

Setting

A classroom with domestic furnishings such as a kitchen, dining table and sofa as well as work and play space is used for the intervention. A nurture group teacher and assistant facilitate the intervention for approximately 10 to 12 children. In a full-time nurture group, children attend the nurture group for four and a half days a week and return to their mainstream classroom for registration and Physical Education. See Appendix G for details of what has been defined as constituting a 'classic' nurture group (Cooper et al., 1999).

Daily activities

A structured daily routine is integral to the intervention. Activities are comprised of both play and basic academic tasks and are based on the child's level of comprehension. Food is an integral part of the daily routine and seen as of symbolic importance to nurturing experiences. Thus, breakfast and 'snack-time' are a daily occurrence. Children are

supported to take an active role in helping with this, similar to in a family routine. On entry to the group, high levels of individual support are initially provided followed by increasing encouragement of children's independence. Physical proximity, eye contact and touch are also used when considered necessary to the development of a 'nurturing' relationship.

Aims of intervention

The core aim of the intervention is to facilitate developmental experiences to address children's problems. The group attempts to develop children's emotion recognition skills, teach self-control and reinforce positive behaviours through behavioural management strategies. The development of empathy and social skills such as turn taking and sharing are also key goals. Nurture groups aim to improve children's functioning through the development of the teacher-child attachment relationship. This is theorised to elicit positive developmental trajectories in insecurely attached children through the provision of a greater understanding of self, other and the world (Bennathan & Boxall, 2000).

Procedure

Schools were recruited for the study with the support of the Senior Educational Psychologist for Hertfordshire schools, overseeing the implementation of nurture groups in the region. Following agreement from headteachers, schools were visited prior to testing. Consent for children's participation in the study was sought by schools. Permission was obtained verbally or in writing from parents of nurture group children as

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part of their child's entry to the group. Consent was sought from parents of comparison group children through a blanket letter to all parents. This requested that they contacted the school if they did not give permission for participation in the study.

To clarify the appropriateness of measures, a pilot study was carried out with 10 children who had attended a nurture group for at least 2 terms. Due to limited resources this data was not analysed and coded. However, the appropriateness of the measures for nurture group children was assessed subjectively by the researcher and through teacher feedback. With little exception, children in the study appeared to experience the doll-play assessment method as enjoyable.

For the main study, participants in both groups were assessed on a narrative measure of attachment (Hodges & Steele, 2000) which was repeated a mean 23 weeks later. Nurture group children were tested either just prior to group entry or in the first four weeks of the intervention. Overall, nurture group children had been in the group for a mean 1.2 weeks before being tested at Time 1. As far as possible, children were re-tested by the same interviewer who had assessed them initially. Outcome measures were completed by classroom teachers at the two testing points.

Measures

Measurements of social, emotional, behavioural and academic functioning

Measurement of social, emotional and behavioural functioning was carried out with multiple self-report measures completed by teachers. Academic attainment scores from

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formal academic assessments were used as a marker of educational progress. The measures described below are completed as standard by nurture group teachers during the school term. For this study, they were completed prior to the child entering the nurture group and at re-testing. The measures were also completed by classroom teachers for the comparison group at both testing points.

The Strengths and Difficulties Questionnaire

The teacher version of the Strengths and Difficulties Questionnaire is a 25 item behavioural screening questionnaire, which has been widely used and validated (Goodman, 1997). Research has indicated that it produces results consistent with other widely established behavioural measures (Goodman, 1999). Sub-scales for emotional problems, conduct problems, hyperactivity, peer relationship problems and pro-social behaviour are calculated. A total score can also be calculated and does not include pro-social behaviour. Norms are available to categorise scores into normal, borderline and abnormal ranges. See Appendix H for further details. The SDQ was deemed appropriate for use as a primary outcome measure in the study due to its high rates of reported validity and the availability of normative standards for comparison. It was also a measure which had been used in Cooper et al.'s (2001) study of nurture groups and that teachers in the schools were familiar with.

The Boxall Profile

The Boxall Profile is a normative, diagnostic 68 item questionnaire divided into two sections (Boxall & Bennathan, 1998). This measure has been developed to monitor the functioning of nurture group children and used in studies exploring nurture group

outcomes (Cooper et al., 2001; Iszatt & Wasileska, 1997). The first section assesses developmental factors which may impact on engagement with the learning process. The subsequent section measures aspects of behaviour which may influence social and academic performance. The 68 items are also divided into 5 sub-clusters: organisation of experience, internalisation of controls, self-limiting features, undeveloped behaviour and unsupported development. See Appendix I for details of the sub-sections which make up these clusters. Although, the validity and reliability of the Boxall Profile has not been verified, it was used in the research by Cooper et al. (2001) and thus appeared a useful secondary outcome measure.

A reliability analysis was carried out to examine the inter-item correlations within each Boxall strand. See Appendix J for alpha reliability. The analysis indicated that inter-item correlations for 'internalisation of controls', 'organisation of experience' and 'unsupported development' were all high, with the alpha scores for 'undeveloped behaviours' being moderate. This suggested that it was appropriate to use the strands in the analysis rather than lower level items. However, the standardised item alpha for the two items comprising 'self-limiting features' was very low. Consequently, the two items in this strand (disengaged and self-negating) were analysed separately.

Academic attainment

Academic attainment information was collected from both groups, based on National Curriculum levels. As a range of attainment levels was used across schools and year groups, these were amalgamated into one scoring system through reference to educational norms. As academic attainment was found to be significantly different

between both groups it was not used as an outcome measure. Of note, lack of educational progress is a key indicator for referral to the nurture group (Cooper et al., 2001).

Measurement of attachment

The Story Stem Assessment Profile of attachment representations (SSAP) was used which elicits both verbal and non-verbal modes of representation (Hodges & Steele, 2000). Modified versions of story stem assessment methods have been used extensively and appear to have appropriate levels of validity and longitudinal stability for use in research studies (Oppenheim, Emde & Warren, 1997; Rodrigues & Ridgeway, 1998). Theoretically coherent codes are clustered to create aggregates measuring different aspects of attachment. The assessment measure therefore offers opportunities to examine change in attachment classification as well as in lower level representational codes. The coding system also incorporates ratings of defensive processes, indicative of affect regulation strategies. The coding system was developed by the Anna Freud centre with up to 45 codes for each story (Hodges, Hillman, Steele & Henderson, 2002). See Appendix K for the list of individual codes. Codes are aggregated across stories. Using particular mean codes across stories, four attachment classification composites are calculated: secure, insecure, disorganised and defensive avoidance. For example, the secure composite includes the codes 'child seeks help,' 'siblings/peers help,' 'realistic active mastery,' 'adult provides, comfort, affection and help' and 'acknowledgement of adult and child distress.' See Appendix L for a full summary of the codes which make up these composites.

The SSAP has been designed for use with maltreated children, so that children experience the measure as enjoyable and relatively non-threatening (Hodges & Steele, 2000). The adequate levels of validity and reliability of the measure and its appropriateness for use with disturbed children made the SSAP appear appropriate for use in this study. Its use of continuous rather than categorical measurement categories also increased the possibility of detecting subtle changes in attachment representations.

The battery used in the study was comprised of 13 story stems (three of which were teacher stories and will not be reported here). There were child and parent characters within all 10 stories. Stories were administered in the same order on each testing session. The experimenter used doll and animal figures to demonstrate the opening stem of a story, which the child completed, using toys if they wished. The battery took approximately 30 minutes to an hour to administer. See Appendix M for a full list of the story stems administered.

The story stem assessments were videotaped and transcribed, including relevant non-verbal information. Responses were coded using a manualised rating system (Hodges, Hillman, & Steele, 2004). The coding system gives a 3-point rating to each story related to the presence or absence of the 45 codes. Coders achieve accreditation though reaching a minimum of 85% inter-rater reliability. Coding was carried out by the 3 interviewers in the study and by 2 students undertaking an MSc. in Developmental Psychotherapy. Thus, all coders had some form of psychological background and knowledge. Eleven transcripts were coded by one of the SSAP creators to provide standard ratings with which to assess reliability. The five trained coders coded this sample and achieved 85%

to 90% reliability with the standard ratings and with other coders' ratings. The remaining transcripts were blind coded by all 5 coders.

To explore whether changes in attachment representations were present in lower level representational categories, 5 additional representational clusters most relevant to the hypotheses were amalgamated from individual codes. These were 'positive adult,' 'negative adult' and 'aggression.' See Appendix N for details of the codes which comprise these modified representational clusters. A reliability analysis was carried out to examine the inter-item correlations within each cluster, see Appendix O for the alpha reliability scores. The analysis indicated that inter-item correlations within all clusters ranged from adequate to good, thus appropriate for use in the study.

Ethical considerations

Ethical approval for the study was obtained from the UCL Graduate School ethics committee, see Appendix P. Parents of children in nurture groups were given information about the purpose of the study and permission for their child's participation requested. Due to the expected low response rate in comparison groups, a blanket letter was sent to all parents in the school years being tested, asking them to contact the school if they did not want their child to take part in the study (see Appendix Q). Disruption to children's nurture group routine was minimised, with testing carried out during appropriate periods. Some time was spent with children in the nurture group prior to testing to minimise anxiety, see Appendix R for details of information given verbally to children. Disruption to the routine of children in the comparison group was also minimised, with testing not carried out during break-times or core curriculum lessons.

Statistical analysis

<u>Power Calculation</u>

A wide-scale validation study of the primary outcome variable (teacher version of the SDQ) with a representative sample of 5 to 10 year old children elicited a total mean score of 6.7 and a standard deviation of 5.9 (Meltzer, Gatward, Goodman & Ford, 2000). Research using the SDQ with clinical groups demonstrated a total mean score of 16.3 (Becker, Woerner, Hasselhorn, Banaschewski & Rothenberger, 2003). Thus, the difference between these normal and clinical group means found in the literature is 9.6, with a pooled standard deviation of approximately 6.5. Given it is unlikely that the functioning of nurture group children will reach the level of normal children, a change of approximately 4 points could be considered a significant improvement. Using Cohen's (1992) formula for calculating effect sizes with independent means, for an improvement of 4 points on the SDQ with a population SD of 5.9 to be detected 80% of the time (at p < .05), a sample size of at least 35 is needed (Dupont & Plummer, 1990).

<u>Analysis</u>

Data analysis to assess the impact of the intervention on functioning and attachment status was conducted using a range of statistical analyses. The between-subject factor in this study was Group (nurture group versus control group) and the within subjects factor was Time (testing point 1 versus testing point 2). The following statistical analyses were identified as being appropriate to explore the relevant hypotheses:

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1. The first hypothesis predicted that social, emotional and behavioural functioning would improve in the nurture group children following the intervention. A series of one-way repeated measures ANOVAs were identified as appropriate to analyse differences between the two groups in the primary outcome measure of teacher rated behaviour (SDQ). This analysis will also be carried out to explore group differences in the secondary outcome measure of teacher rated behaviour (Boxall Profile).Significant time by group effects are predicted as the measure of change.

2. The second hypothesis predicted that changes in behaviour would be mediated by changes in attachment representations of parents. If changes in attachment codes and classifications between the two groups are significantly improved in the nurture group, a mediational path analysis has been identified as appropriate to explore whether changes in attachment representations are the mechanism of change for improvements in functioning.

3. The third exploratory hypothesis was to clarify whether changes in attachment related more to the domain of attachment classifications or to lower level representations. It was planned that this would be studied through comparison of findings between composite attachment classifications and aggregated lower level clusters of adult and aggression representations.

Results

Prior to analysis, all important variables were examined through SPSS (Version 11.5) to check for accuracy of data entry, missing values, outliers and normality. Data on all measures was missing from the six cases who had left and could not be traced, with a further two cases missing on the SDQ. Three univariate outliers were detected through z-scores. However, they were included in all subsequent analyses, as having examined the residuals from the ANOVA models in diagnostic plots, it did not appear that they significantly undermined the assumptions of normality. Standard deviations for all the variables were examined and appeared reasonably normally distributed. Standard deviations and means were not correlated, thus there appeared no need for transformational operations. Furthermore, analysis of variance methods were used, which are highly robust to deviations from normality (Box, Hunter & Hunter, 1978).

Due to age and academic attainment being significantly different between the two groups, they were controlled for as covariates in the analysis. Thus a series of one-way repeated measures ANCOVAS were carried out. The significance of change in SDQ normative range was explored using a Hierarchical Log Linear analysis. As no significant changes in attachment composites were found, a path analysis was not carried out as planned, to explore the mediational effect of attachment. However, the relationship between secure attachment and change in SDQ normative range was explored with an independent t-test.

No post hoc corrections of significant results were carried out because increases in security of attachment representations and improvements in functioning as measured by the primary and secondary outcome measures, had been directly hypothesised. Howell (2002) notes that predictions made before the data is collected are not based on any information about the resulting sample means. Thus, the effect on the familywise error rate is ignored and each individual statistical test which is testing these pre-specified predictions is allowed to go forward at alpha = .05.

As the major aim of this study was to explore the impact of being in a nurture group, Time x Group effects are reported first, followed by significant pairwise comparisons within groups. The main effects of time are not reported on as only Time x Group interactions were considered to adequately represent therapeutic change.

Social, emotional and behavioural functioning outcome measures

The Strengths and Difficulties Questionnaire

Total and subscale mean scores on the SDQ for both groups over time are reported in
Table 2. No post hoc corrections of significant results were carried out because
improvements in functioning as measured by the primary outcome measure, had been
directly hypothesised. Baseline SDQ scores for both groups are reported in Table 2.
Independent t-tests indicated no significant differences between these scores.

Analysis of covariance yielded a significant time x group effect for total SDQ score, [Λ
(Wilks'Lambda) = .94, F (1, 69) = 4.62, p < .05, d = .50] with total scores improving
markedly in the nurture group relative to the comparison group. Exploration of this
interaction using a within group contrast (T1 versus T2) revealed an adjusted mean
difference of 4.49 for the nurture group (95% CI: 1.84 - 7.14), significant at p <.001,
with no significant differences for the comparison group.

Analysis of covariance demonstrated no significant time x group effects for scores on
the 'emotional problems' or 'conduct problems' subscales.

Analysis of covariance yielded no significant time x group effects on the 'hyperactivity'
subscale, although improvements in the nurture group were nearing significance, [Λ =
.95, F (1, 69) = 3.45, p = .07, d = .44]. A within group contrast (T1 versus T2) revealed
an adjusted mean difference of 1.49 in nurture groups scores (95% CI: .41 - 2.58),

significant at $p < 0.01$. There were no significant improvements in scores for the comparison group.

Analysis of covariance demonstrated a significant time x group effect on the 'peer problems' subscale, with the scores of nurture group children improving significantly relative to the comparison group, [$\Lambda = .92$, F (1, 69) = 6.08, p < .05, d = .58]. Exploration of this interaction using a within group contrast (T1 versus T2) revealed an adjusted mean difference of 1.52 for the nurture group (95% CI: .57 - 2.47), significant at $p < 0.01$, with no significant differences for the comparison group.

Analysis of covariance also yielded a significant time x group effect on the 'pro-social' subscale, with scores improving markedly in the nurture group in contrast to the comparison group, [$\Lambda = .93$, F (1, 69) = 5.53, p < .05, d = .55]. Exploration of this interaction using a within group contrast (T1 versus T2) revealed an adjusted mean difference of 1.79 for the nurture group (95% CI: .77 and 2.80), significant at $p < .001$, with no significant differences for the comparison group.

Table 2: Mean Strengths and Difficulties Questionnaire scores and standard deviations over time by group

Strengths and Difficulties Questionnaire Subscale	Nurture Group		Comparison Group	
	Time1	Time 2	Time 1	Time 2
Emotional problems	3.87 [4.35] (2.67)	3.54 [3.80] (2.53)	3.50 [3.60] (3.60)	3.50 [3.63] (3.11)
Conduct problems	2.77 [2.77] (2.33)	2.26 [2.16] (1.96)	3.17 [2.89] (2.57)	3.19 [2.96] (2.86)
Hyperactivity	6.46 [6.36] (2.48)	5.31 [4.87] (3.42) *	7.25 [7.14] (2.71)	6.94 [7.28] (2.93)
Peer problems	3.97 [4.20] (2.06)	2.74 [2.68] (2.09) *	2.83 [2.48] (2.27)	2.72 [2.86] (2.13)
Pro-social behaviour	4.10 [4.71] (2.56)	5.69 [6.49] (2.30) **	5.00 [5.07] (2.86)	5.28 [4.92] (3.18)
Total Score	17.46 [17.95] (4.74)	13.85 [13.46] (6.18) **	17.33 [16.89] (6.67)	16.69 [17.01] (8.18)

Note. Means in square parentheses have been adjusted for age and academic attainment.
* A significant Time 1 versus Time 2 effect was found at $p < .01$
** A significant Time 1 versus Time 2 effect was found at $p < .001$

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Percentages scores on the SDQ for both groups over time using the 'normal,' 'borderline' and 'abnormal' categories are reported in Appendix S. The table indicates that the percentage of children in the 'normal' group for all subscale scores increased in the nurture group, with the percentage of children in the 'abnormal' group decreasing. A Chi-Squared analysis was carried out to examine baseline differences between the two experimental groups in their SDQ categorical score ('normal,' 'borderline' & 'abnormal'). No significant differences between the groups in total SDQ score or on the emotional problems, conduct difficulties and hyperactivity subscales were found. However, analysis indicated a significant association between group and peer difficulties at Time 1 ('normal' versus 'borderline/abnormal') ($\chi^2(1) = 5.8$, $p = .016$), with significantly more nurture group children classified as abnormal or borderline. Furthermore, a significant association between group and prosocial behaviour at Time 1 was also found ($\chi^2(1) = 4.7$, $p = .031$), with significantly more nurture group children categorised as being in an abnormal or borderline category.

To investigate the percentages of children in both groups whose total SDQ scores for each SDQ normative range changed between Time 1 and Time 2, children above the 'borderline' cutoff at the two time points were compared in the two groups. A Hierarchical Log Linear Model was fitted to the observed frequencies. These group differences between each SDQ normative range at each time point on the total SDQ score were reflected in a significant Time 1 x Time 2 x Group interaction which needed to be retained in the model to ensure an appropriate fit [Likelihood ratio χ^2 for 3-way interaction = 4.10, df = 1, $p < .01$]. These findings indicate that children who have

received 1.5 school terms of a nurture group intervention are significantly more likely than comparison group children to move out of the abnormal range of the SDQ and into the 'borderline' and 'normal' ranges.

The significant three way interaction between group and clinical status at time 1 and time 2 also indicates that the association was not simply due to time 1 differences and that the change between the two times of testing was not equivalent for the two groups. More children from the nurture group changed categories regardless of the initial differences, though it has to be born in mind that this analysis does not control for regression to the mean effects, with the tendency being for more disturbed groups to improve more. However, categorical analysis does not readily permit control for such initial differences and there were no differences between the two groups in terms of the baseline level of the 'prosocial' and 'peer' subscales when measured on the continuous scale of the SDQ.

The Boxall Profile

Mean scores on the Boxall Profile strands for both groups over time are reported in

Table 3. No post hoc corrections of significant results were carried out because

improvements in functioning, as measured by the secondary outcome measure had been

directly hypothesised. Baseline Boxall Profile scores for both groups are reported in

Table 3. Independent t-tests indicated no significant differences between the scores of

the two groups.

Analysis of covariance yielded a significant time x group effect on the 'organisation of

experience' strand. The scores of nurture group children improved significantly, relative

to the comparison group, [A = .93, F (1, 71) = 5.65, p < .05, d = .55]. Exploration of

this interaction using a within group contrast (T1 versus T2) revealed an adjusted mean

difference of 2.17 for the nurture group (95% CI: 1.41 - 2.93), significant at p < .001,

with no significant differences for the comparison group.

Analysis of covariance also demonstrated a significant time x group effect on the

'internalisation of controls' strand. The nurture group improved significantly more on

this strand than the comparison group, [A = .94, F (1, 71) = 4.77, p < .05, d = .51].

Exploration of this interaction using a within group contrast (T1 versus T2) revealed an

adjusted mean difference of 1.83 for the nurture group (95% CI: 1.16 - 2.50), significant

at p < .001, with no significant differences found for the comparison group.

Analysis of covariance yielded a significant time x group effect on the 'disengaged'

strand, with the scores of nurture group children improving significantly in contrast to the comparison group, [Λ = .94, F (1, 71) = 4.48, p < .05, d = .49]. Exploration of this interaction using a within group contrast (T1 versus T2) revealed an adjusted mean difference of 2.56 for the nurture group (95% CI: 1.31 - 3.81), significant at p < .001, with no significant differences found for the comparison group.

Analysis of covariance demonstrated no significant time x group effects on the 'self-negating,' 'undeveloped behaviour' and 'unsupported development' strands.

Table 3: Mean Boxall cluster strand scores and standard deviations over time by group

Boxall strand	Nurture group		Comparison group	
	Time1	Time 2	Time 1	Time 2
Organisation of experience	8.02 [8.39] (2.23)	10.08 [10.56] (2.64) *	8.94 [8.40] (2.09)	9.63 [9.08] (2.56)
Internalisatio n of controls	7.34 [7.45] (2.23)	9.03 [9.28] (2.65) *	7.91 [8.02] (2.05)	8.57 [8.65] (2.26)
Disengaged	6.10 [5.73] (3.77)	3.51 [3.17] (2.93) *	4.61 [5.41] (3.34)	4.47 [5.02] (3.65)
Self-negating	5.27 [5.64] (3.08)	4.20 [4.43] (2.97)	5.33 [5.06] (3.49)	4.47 [4.11] (3.25)
Undeveloped behaviour	4.11 [3.97] (2.72)	2.83 [2.74] (2.35)	3.72 [3.88] (2.73)	3.46 [3.30] (3.35)
Unsupported development	5.76 [6.03] (3.22)	3.86 [3.83] (2.60)	5.19 [4.98] (3.76)	4.64 [4.25] (4.06)

Note. Means in square parentheses have been adjusted for age and academic attainment
* A significant Time 1 versus Time 2 effect was found at $p < .001$

Attachment representations

Mean codes on the Story Stem Assessment Profile

Changes over time in the mean representational code scores making up the attachment clusters are reported in Tables 4i to 4v. Again, no post hoc corrections were carried out because improvements in security of attachment representations (as indicated by an increase in secure attachment codes and a decrease in negative attachment codes) had been directly hypothesised.

Analysis of covariance demonstrated a significant time x group effect on the affect regulation code 'acknowledgement of child distress,' with nurture group children's representations on this code becoming more secure in contrast to the comparison group, [Λ = .95, F (1, 71) = 4.14, p < .05, d = .47]. Exploration of this interaction using a within group contrast (T1 versus T2) revealed an adjusted mean difference of .13 for the nurture group (95% CI: .02 - .24), significant at p < 0.05 with no significant differences for the comparison group.

Analysis of covariance yielded a significant time x group effect on the 'repetition' code, with nurture group children's representations becoming more secure as compared to the comparison group, [Λ = .91, F (1, 71) = 7.23, p < .01, d = .62]. Exploration of this interaction using a within group contrast (T1 versus T2) revealed an adjusted mean difference of .18 for the nurture group (95% CI: .06 - .30), significant at p < 0.01, with no significant differences for the comparison group.

Analysis of covariance demonstrated no further significant time x group effect on other

codes.

Table 4 (i): Mean codes and standard deviations across the two groups over time for secure cluster

Code	Nurture group		Comparison group	
	Time1	Time 2	Time 1	Time 2
Child seeks help	.24 [.27] (.22)	.23 [.22] (.22)	.33 [.30] (.23)	.27 [.30] (.20)
Siblings, peers help	.08 [.08] (.12)	.09 [.10] (.14)	.13 [.13] (.16)	.12 [.13] (.15)
Realistic active mastery	.12 [.14] (.13)	.18 [.18] (.21)	.14 [.15] (.17)	.24 [.25] (.22)
Adult provides comfort	.18 [.19] (.21)	.16 [.18] (.22)	.19 [.22] (.23)	.18 [.21] (.22)
Adult provides help	.51 [.55] (.31)	.58 [.59] (.31)	.60 [.56] (.37)	.60 [.66] (.38)
Adult provides affection	.21 [.23] (.22)	.22 [.26] (.25)	.27 [.30] (.28)	.29 [.31] (.25)
Limit setting	.33 [.32] (.20)	.38 [.38] (.26)	.34 [.35] (.22)	.31 [.31] (.24)
Acknowledgement of Child distress	.21 [.20] (.22)	.30 [.33] (.26) *	.26 [.29] (.24)	.24 [.24] (.22)
Acknowledgement of Adult distress	.16 [.16] (.19)	.13 [.14] (.14)	.22 [.24] (.16)	.20 [.21] (.19)

Note. Means in square parentheses have been adjusted for age and academic attainment
* A significant Time 1 versus Time 2 effect was found at $p < .05$

Table 4 (ii): Mean codes and standard deviations across the two groups over time for insecure cluster

Code	Nurture group		Comparison group	
	Time1	Time 2	Time 1	Time 2
Child endangered	.24 [.21] (.29)	.22 [.20] (.23)	.28 [.26] (.26)	.23 [.25] (.21)
Child injured, dead	.24 [.23] (.25)	.26 [.25] (.27)	.23 [.19] (.30)	.30 [.26] (.32)
Excessive compliance	.05 [.07] (.09)	.08 [.08] (.10)	.14 [.11] (.17)	.12 [.13] (.14)
Adult unaware	.14 [.13] (.18)	.14 [.14] (.17)	.16 [.19] (.24)	.19 [.20] (.20)
Adult rejects	.089 [.11] (.13)	.07 [.06] (.17)	.14 [.12] (.19)	.09 [.10] (.15)
Adult injured/dead	.18 [.17] (.18)	.22 [.21] (.25)	.26 [.24] (.38)	.20 [.18] (.28)
Neutralisation	.22 [.22] (.29)	.20 [.17] (.30)	.21 [.23] (.28)	.18 [.18] (.28)
Throwing away	.10 [.08] (.21)	.13 [.11] (.22)	.07 [.06] (.15)	.07 [.08] (.14)

Note. Means in square parentheses have been adjusted for age and academic attainment

Table 4 (iii): Mean codes and standard deviations across the two groups over time for disorganised cluster

Code	Nurture group		Comparison group	
	Time1	**Time 2**	**Time 1**	**Time 2**
Child parents/controls	.14 [.13] (.18)	.14 [.14] (.17)	.16 [.19] (.24)	.19 [.20] (.20)
Catastrophic fantasy	.23 [.23] (.28)	.18 [.17] (.28)	.15 [.12] (.28)	.20 [.17] (.31)
Bizarre/atypical	.32 [.32] (.48)	.22 [.20] (.25)	.28 [.27] (.35)	.27 [.25] (.43)
Bad/good shift	.11[.10] (.16)	.07 [.06] (.13)	.11 [.11] (.19)	.08 [.10] (.15)
Magic omnipotence	.14 [.13] (.14)	.15 [.11] (.20)	.15 [.15] (.19)	.09 [.11] (.15)
Extreme aggression	.18 [.16] (.23)	.18 [.16] (.31)	.14 [.13] (.20)	.15 [.14] (.27)

Note. Means in square parentheses have been adjusted for age and academic attainment

Table 4 (iv): Mean codes and standard deviations across the two groups over time for avoidant cluster

Code	Nurture group		Comparison group	
	Time1	Time 2	Time 1	Time 2
No engagement	.05 [.06] (.29)	.02 [.01] (.09)	.02 [.04] (.08)	.02 [.02] (.13)
Disengagement	.13 [.13] (.23)	.08 [.07] (.17)	.06 [.07] (.11)	.04 [.03] (.09)
Initial aversion	.06 [.04] (.14)	.07 [.08] (.31)	.06 [.09] (.10)	.02 [.02] (.05)
Changing narrative constraints	.19 [.20] (.30)	.14 [.14] (.15)	.20 [.22] (.20)	.20 [.19] (.27)
Premature foreclosure	.33 [.31] (.32)	.23 [.28] (.41)	.28 [.27] (.33)	.18 [.18] (.27)
Avoidance in narrative framework	.31 [.32] (.27)	.30 [.27] (.28)	.23 [.19] (.24)	.22 [.23] (.20)
Denial/distortion of affect	.09 [.10] (.15)	.08 [.07] (.13)	.07 [.07] (.10)	.05 [.06] (.10)

Note. Means in square parentheses have been adjusted for age and academic attainment

Table 4 (v): Mean codes and standard deviations across the two groups over time for disorganised cluster

Code	Nurture group		Comparison group	
	Time1	Time 2	Time 1	Time 2
No closure	.27 [.28] (.37)	.13 [.14] (.20)	.20 [.21] (.32)	.25 [.22] (.39)
Physical punishment	.034 [.03] (.12)	.02 [.01] (.056)	.08 [.09] (.16)	.04 [.04] (.14)
Child aggression	.29 [.27] (.33)	.45 [.42] (.38)	.29 [.24] (.41)	.36 [.32] (.43)
Adult aggression	.42 [.42] (.37)	.44 [.38] (.36)	.48 [.43] (.43)	.42 [.40] (.39)
Coherent aggression	.50 [.49] (.44)	.56 [.50] (.44)	.49 [.42] (.48)	.52 [.48] (.41)
Repetition	.30 [.30] (.29)	.14 [.12] (.17) *	.23 [.24] (.25)	.27 [.32] (.30)
Pleasure in domestic life	.14 [.16] (.19)	.15 [.20] (.24)	.23 [.28] (.27)	.34 [.40] (.48)
Parent childlike	.04 [.03] (.09)	.040 [.03] (.07)	.07 [.09] (.12)	.08 [.09] (.15)

Note. Means in square parentheses have been adjusted for age and academic attainment
* A significant Time 1 versus Time 2 effect was found at $p < .01$.

Attachment classifications composites on the Story Stem Assessment Profile

The mean attachment classifications for both groups over time are reported in Table 5. Analysis of covariance yielded no significant time x group effects on the 'secure,' 'insecure,' 'avoidance' or 'disorganised' clusters.

Table 5: Means and standard deviations for the Story Stem Assessment Profile attachment classifications

Classification	Nurture group		Comparison group	
	Time1	**Time 2**	**Time 1**	**Time 2**
Secure cluster	.21 [.22] (.12)	.22 [.24] (.12)	.26 [.28] (.14)	.28 [.30] (.15)
Insecure cluster	.18 [.18] (.11)	.18 [.18] (.11)	.21 [.20] (.14)	.19 [.18] (.13)
Avoidance cluster	.17 [.17] (.10)	.13 [.13] (.08)	.14 [.15] (.08)	.11 [.11] (.10)
Disorganise d cluster	.18 [.18] (.16)	.14 [.13] (.10)	.16 [.16] (.17)	.16 [.16] (.17)

Note. Means in square parentheses have been adjusted for age and academic attainment

Lower level categories of attachment representations

The mean attachment representation categories amalgamated for this study are reported for both groups over time in Table 6.

Analysis of covariance demonstrated no significant time x group effects on the 'positive adult representations,' 'negative adult representations' and 'aggression' clusters.

Table 6: Means and standard deviations for lower level categories of attachment representations

Composite	Nurture group		Comparison group	
	Time1	Time 2	Time 1	Time 2
Positive Adult	.26 [.28] (.17)	.28 [.31] (.18)	.32 [.34] (.22)	.35 [.39] (.24)
Negative adult	.17 [.17] (.11)	.18 [.16] (.10)	.21 [.20] (.14)	.17 [.17] (.14)
Aggression	.25 [.24] (.21)	.26 [.23] (.23)	.21 [.18] (.21)	.23 [.22] (.24)

Note. Means in square parentheses have been adjusted for age and academic attainment

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<u>Analysis of the impact of attachment change on social, emotional and behavioural</u>
<u>functioning</u>

As there were no significant changes in attachment classification clusters or lower level representations, a path analysis was not conducted. However, an attempt was made to explore mediational mechanisms by looking at the association between improvement on the SDQ and changes in security ratings. It was predicted that if the nurture group is an intervention whose change mechanisms entail the attachment system as theorised, those children who improved most in their functioning (as indicated by change in SDQ normative range) would show the greatest increase in their attachment security scores.

To explore this, an independent t-test across the nurture group children examined whether the children whose total SDQ score had improved by at least one normative group (move from disordered to borderline, or borderline to normal) also became more secure, as measured by improvement on the 'security cluster.' A significant relationship was found, indicating that children who improved on the SDQ were more likely to have improved on the 'security' attachment cluster too, [t (1, 37) = 2.05, p < 0.05]. As only one analysis was carried out to explore this issue, no post hoc correction was made.

It is clear that a minimal condition for attachment being the mediator of symptomatic improvement is that the changes should be associated on these two variables. Analysis indicated that the data met this minimal condition. However, as the effects were small there was no indication to undertake a full mediational analysis (Baron & Kenny, 1986). Further analysis would have involved controlling for the possibility of third factor

explanations of the association by using a covariance technique, which could not be

undertaken easily with the existing data.

Discussion

Data analysis indicated some support for the first hypothesis that social, emotional and behavioural functioning would improve in children in the nurture group, compared to a comparison group. There were significant time by group interactions on some subscales of the primary outcome measure (Strengths and Difficulties Questionnaire). Children in the nurture group showed improvements in their peer problems, pro-social and total SDQ scores. They also showed significant improvements in hyperactivity over time, though not compared to the comparison group. However, there were no significant changes on the emotional and conduct problems subscales. Analysis also indicated that when the total SDQ scores of the groups were categorised into normative ranges, significantly more nurture group children improved by at least one normative group. Significant time by group interactions were also found on the secondary outcome measure (Boxall Profile), with nurture group children improving on the organisation of experience, internalisation of controls and disengaged strands. However, these strands are comprised of conceptually different items to the SDQ and thus offer little opportunity for comparison.

The second hypothesis was that changes in behaviour would be mediated by changes in parental attachment representations. Contrary to prediction, there were no significant changes in attachment clusters and lower level representations, although there were significant time by group interactions on particular codes which the nurture group children improved on (acknowledgement of child distress and repetition). The changes on these specific codes were in the direction of secure attachment, but are too few and

not accompanied by changes in other conceptually consistent codes to offer strong support for assuming increased attachment security in association with nurture group participation. However, analysis of changes in the normative ranges of children's total SDQ scores indicated that nurture group children who improved by moving into a less pathological category also showed the most increase in attachment security. This offers only very weak support for the hypothesis that nurture group attachment experiences mediate improvements in functioning as a full mediational analysis controlling for third factor explanations of the association was not carried out.

The third hypothesis was an exploratory one to investigate whether attachment change occurred on the level of attachment classification or in lower level representations of adults. As there were no significant changes in attachment on either, it was not possible to explore the level on which attachment changes occurred.

Thus, results indicate that the intervention does improve children's functioning in line with previous studies of nurture groups (Cooper et al., 2001; Iszatt & Wasileska, 1997). These findings are also comparable to other school interventions which elicit post-intervention changes in behaviour (Broussard & Northrup, 1997; Kam, Greenberg & Kushe, 2004) and social skills (Hemphill & Littlefield, 2001; Sawyer & MacMullin, 1997). Significantly more nurture group children improved by moving into a different SDQ clinical range, which suggests that changes are likely to be of clinical significance. The nurture group elicits both behavioural and social interaction improvements, but impacts most on social functioning. This is in line with one of the core aims of the intervention, which is to improve children's social skills and develop empathy. Some

weak evidence for a mediational effect of nurture group attachment experiences on functioning was found, with the children demonstrating behavioural change also showing the most change in attachment security. However, as no overall changes in attachment representations were found this result should be interpreted with particular caution.

A number of explanations for the findings exist. One possibility is that improvements demonstrated by outcome measures may have been related to the desire of nurture group teachers to see post-intervention change. However, teachers completed the outcome measures without access to pre-testing outcome data. Furthermore, analysis of SDQ changes using clinical ranges indicated that teachers reported some individual children as not improving.

Additionally, the Story Stem Assessment Profile may not actually measure attachment representations of parents, as theorised. One difficulty in examining parental representations using the SSAP is the amalgamation of mother and father representations into overall adult representation codes. Children may have very different relationships with each parent, with research indicating that child-mother attachment is the most reliable predictor of socio-emotional functioning (Schneider, Atkinson & Tardiff, 2001). Furthermore, the meaning of child and adult aggression is also blurred by amalgamation into the same code. In addition, the SSAP does not require direct identification with child characters within the story. This may encourage the expression of fantasies, making it unclear whether a representational system is actually elicited. Other issues related to the battery also include the nature of the coding system, with coding at times seeming extremely subjective. This was especially the case with codes which appeared

to require clinical judgement for interpretation, such as 'magic/omnipotence' or 'neutralisation/diversion anxiety.' The battery also lacks a measure of narrative coherence, a factor which has been extensively related to attachment security (George, Kaplan & Main, 1985; Green, Stanley, Smith & Goldwyn, 2000). Finally, the SSAP was developed for use with a maltreated sample in whom secure attachment is relatively uncommon and rates of disorganised attachment relatively high and may not be sensitive enough to identify representational change in a less disturbed population.

Another possibility is that attachment experiences do mediate functional improvement, but this is reflected by changes in attachment behaviour rather than representations. The literature on internal working models of attachment in this age group is far from conclusive. It may be that a behavioural method of attachment, such as the Attachment Q-sort would have revealed post-intervention change (Waters, 1995). However, a number of studies have found representational change following new attachment experiences (Hodges et al., 2003; Toth et al., 2002). Instead, it is more likely that children were not in the nurture group long enough for significant changes to attachment representations to occur. Iszatt and Wasileska (1997) note that the average stay in a nurture group is 3 school terms, with children in this study only receiving 1.5 school terms of the intervention. Studies which demonstrate changes to internal working models through relationships with new carers suggest that the length of time necessary to elicit change may be considerable. Hodges et al. (2003) found that it took a period of 2 years for late adopted maltreated children's attachment representations to become more secure. Evidence from the psychotherapy literature also suggests that long term therapy is required for far-reaching therapeutic change (Hopkins, 2000).

Another consideration related to the findings is that child-teacher attachment was not studied. Consequently, it is possible that attachment towards the teacher did change but did not generalise to parental representations, as some research suggests that teacher and parent attachment is independent of each other (Howes, 2002). Furthermore, there are numerous reasons why attachment to parents is not likely to be modified by this intervention. A child's relationship with the primary caregiver has been found to have the most impact on functioning (Howes, 2002). Therefore, there is an increasing consensus that to achieve effectiveness in the majority of child psychotherapies with young children, parental involvement in an intervention may be key (Weisz, Huey, & Weersing, 1998). Additionally, very little is known about how multiple attachment models are actually organized and how changes in one relationship may influence representational organisation of another relationship (Thompson, 2000).

Furthermore, there are numerous factors which suggest that even if attachment does mediate change, it is unlikely to do so for all children. Thompson (2000) notes considerable variation in the long term impact of attachment experiences on children's functioning, with temperament and adaptability both extremely influential on capacity to manage difficulties. A child's individual psychopathology will also impact on their ability to experience new attachment relationships as positive. Lynch & Cicchetti (1992) found that children who experienced abusive or neglectful relationships with primary caregivers were vulnerable to attempting to engage teachers in interactions related to their own maladjusted experiences.

A final explanation for change is that the intervention elicits change through the affiliative system, developing generic social skills. The emphasis on developing social

understanding and reinforcing pro-social skills in a small group context is likely to facilitate positive social interactions. Interactions may also be influenced by the nurture group teacher's attitude to children whom in a mainstream class may be perceived as 'disruptive.' Child-teacher relationships have been shown to have the most impact on children's interactions with peers (Howes, Hamilton & Matheson, 1994). Studies have indicated that teachers' perceptions of the teacher-child relationship can impact on peer acceptance, which in turn is likely to facilitate positive peer interactions (Zionts, Anhalt, Devore & Davidson, 2004). This may be facilitated by peers utilising the information generated from teacher-child interactions in interpreting their own interactions with the child (Hymel, 1986). It is also possible that the observed improvements in hyperactivity are related to a reduction in the anxiety provoked by social interactions.

Due to limited numbers of schools and children available to take part in the study, it was not possible to minimise selection bias by using a randomised design, which may have resulted in numerous differences between schools and/or between children confounding study outcomes. Children in the experimental and comparison groups came from schools which differed from each other in various ways, for example in the size of the school, indexes of economic deprivation and the academic attainment levels of the school. This may well have influenced both the selection of children for the study, as well as children's social, emotional and behavioural outcomes. For example, comparison group children seen as 'disruptive' by a school with low tolerance for such behaviour may have been selected for the study, resulting in a comparison group with a high proportion of this presentation. Additionally, some schools may have been more supportive in their interactions with children, resulting in more positive outcomes for children from these

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schools. In this way, observed differences between the two experimental groups such as nurture group children being younger could be accounted for by factors such as nurture group schools being quicker to identify social and emotional difficulties in children at an earlier age. However, as differences existed both between and within the two groups of schools in a range of factors, it is not possible to ascertain what impact this may have had on the study outcomes.

Furthermore, children in the nurture group appeared extremely heterogenous in problem presentation, with no clear referral criteria for group entry. This also appeared the case for comparison group children. Testing was carried out concurrently and all referred children in both groups meeting the study's inclusion criteria were included in the study. This resulted in groups which were clearly not matched on age or academic attainment, as well as on other possible differences such as verbal ability, which are likely to have impacted on results. In particular, differences in age may have influenced findings. Research suggests that older children's attachment narratives are more coherent, have more idea units and express more positive themes (Green et al., 2000; Oppenheim, Emde & Warren, 1997; Waters et al., 1998). Furthermore, changes in a child's developmental capacity can positively impact on their relationships with others, related to increased capacities such as moral understanding and theory of mind ability (Oppenheim et al., 1997). Differences in academic attainment may also have confounded results, with cognitive capacity influencing the coherence and complexity of narratives (Warren, Emde & Sroufe, 2000). Similarly, gender differences may also have impacted on intervention outcome. Finally, although 'blind' coding of story responses was carried out, interviewers were aware of which experimental groups children were

from. This could have had some impact on the way in which an interview was carried out, for example on the length of time a child was given before being prompted to end their story. Finally, the finding that significantly more nurture group children were classified as 'borderline' or 'abnormal' on categorical measurement of the peer and prosocial subscales of the SDQ raises the possibility that the significant differences in group changes on these variables could be in part related to regression of the mean effects.

As children in the nurture group were so heterogenous in problem presentation, attachment difficulties are unlikely to have been the underlying cause for all of the children's problems. The use of mean outcome and attachment scores may have masked such differences. Furthermore, it became apparent during testing that the nurture groups varied considerably in their environment or timetable focus. They also differed in the length of time for which they had been running. Research indicates that groups need to operate for a minimum of 2 years to be fully effective (Cooper & Tiknaz, 2005). Additionally, teacher's emotional investment in the group may have varied, which this being a clear necessity for the development of a secure attachment relationship (Ackerman & Dozier, 2005; Howes, 2002). Therefore, variation within groups and between teachers may have influenced the extent to which positive attachment experiences were facilitated. Lastly, a considerable proportion of the total sample (28%) experienced a life event. Although there were no significant group differences in this, the severity of the event was not explored and may well have impacted on outcomes.

The clinical implications of the findings are important, indicating that nurture group

interventions are effective in ameliorating some of children's difficulties after just 1.5 school terms. Improvement appears to be related to the development of prosocial behaviour and to reductions in hyperactivity. This suggests that being part of a small peer group led by an affectionate and supportive adult is helpful for children with psychological difficulties struggling in a mainstream class environment. It is important to consider this positive outcome when carrying out a costs-benefits analysis of the intervention as the disadvantages for a child in being separated from mainstream peers have been raised (Howes, Emanuel & Farrell, 2003). The key issue is whether the changes observed in the nurture group can be maintained and seen in the more socially demanding mainstream class environment as most other school interventions have not yet been able to demonstrate long term change (Evans et al., 2003). This question needs to be addressed by monitoring children's transition back to mainstream class and longer term outcomes.

Furthermore, the findings indicate that nurture groups do not seem to address children's emotional and conduct problems effectively, at least in the short term. This suggests the intervention may need modifying to put greater emphasis on treatment components such as affect regulation (Landy, Menna & Sockett-Demarcio, 1997) and anger management (Humphrey & Brooks, 2006). Additionally, the cost to academic development from inclusion in the intervention needs to be considered. In order to the address the psychological difficulties which are impacting on learning, children receive significantly less academic input than their mainstream peers. As it is not clear that all of the emotional and behavioural problems which may impact on learning do improve following the intervention, this is an important concern. As research indicates found that

a full-time intervention is most effective (Cooper & Tiknaz, 2005), spending more time in the mainstream class to target academic development does not seem an effective solution. This issue needs careful consideration and evaluation by schools.

In order to target children's needs effectively, the causal mechanism of therapeutic change in the intervention needs to be explored. Although the study found a slight indication that attachment may mediate change, there was no clear evidence to support the notion of attachment providing the intervention's theoretical basis and treatment focus. The complex relationship between theory and intervention outcome makes the investigation of therapeutic change mechanisms extremely complex (Kazdin & Nock, 2003). However, this finding is of concern and needs further exploration through assessment and post-intervention evaluation of referred children's attachment difficulties. If attachment difficulties do underlie the high rates of social, emotional and behavioural difficulties which schools contend with, parent-child interaction therapy based on attachment theory is likely to be a more effective treatment (Bakermans, Marian, van IJzendoorn & Juffer, 2006). More research is needed to explore the mediators of therapeutic change in nurture groups and the intervention's impact on subgroups of presenting problems.

To conclude, this study suggests that nurture groups are an effective school intervention for children with social, emotional and behavioural difficulties. However, they do not appear to impact consistently on all aspects of functioning, having a particular influence on social functioning. Previous studies of nurture groups have only examined outcomes in a limited number of domains, thus further research is needed to explore whether the

improvements demonstrated in this study can be replicated. To ascertain the usefulness of this treatment, longer term follow up is needed to explore whether improvements are maintained and how they influence future developmental pathways. This study found only very limited evidence for the hypothesis that nurture group attachment experiences mediate change. This may be related to the short time period studied, individual differences between nurture groups and teachers, academic and age differences between experimental groups and issues of measurement of attachment. More extensive and rigorous investigation is needed to clarify the ability of nurture groups to address children's social, emotional and behavioural problems effectively.

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Critical appraisal

Introduction

This appraisal considers some of the issues raised by the study of the impact of nurture groups on children's representations of parents. It considers the strengths and limitations of the research as well as the clinical and scientific implications of the findings. The ways in which the study could have been improved are also reflected on. This appraisal concludes by considering future directions for research.

Strengths and limitations of the research

This outcome study investigated changes in children's functioning and attachment representations following a 1.5 term school nurture group intervention. Evaluation of different domains of functioning had not previously been carried out using a validated measure, with research reporting just Strengths and Difficulties total scores (Cooper, Arnold & Boyd, 2001). Furthermore, despite attachment being hypothesised as the underlying basis to the intervention (Boxall & Bennathan, 2000), no investigation of its role in the intervention had been undertaken. Thus, this study explored important unanswered questions regarding the nurture group intervention's impact on wider functioning and the mechanisms mediating change. Another strength of the study was the relatively large sample size, which allowed reasonable opportunity for detection of effects. Furthermore, measures from both child and teacher sources were used, with individual assessment of children carried out in combination with teacher ratings. Additionally, a well validated measure of attachment was employed (Story Stem Assessment Profile, Hodges & Steele, 2000). Importantly, this narrative assessment of

attachment included a rating system of defensive processes. This was particularly relevant in exploring an intervention which aims to use teacher-child interaction to facilitate change, as the defensive strategies employed by disturbed children are likely to impact on interpersonal interactions.

Extended consideration was also given to the minimisation of experimenter effects. The three interviewers tested equal numbers of children and the SSAP battery was administered in a routine order. Interviews were transcribed for greater accuracy, rather than coded from videotape. Blind coding strategies were used and interviewers did not code the responses of participants they had tested. A proportion of the narratives were coded by one of the developers of the SSAP and high rates of inter-rater reliability on this sample were achieved. A pilot study phase was also carried out which offered some opportunity to address a number of issues involved in testing, before the main study commenced. Care was taken to minimise any disruption to children's school routine and relationships were developed with teachers to facilitate the process of testing.

However, there were considerable limitations with the study which are likely to have influenced findings. Limitations were related to both the time constraints of the study and a lack of available children in both groups. One key issue is that children did not receive the intervention for the average three school terms, thus the full impact of the intervention on functioning and attachment organisation could not be explored (Iszatt & Wasileska, 1997). This is a particular issue in the exploration of attachment change as research indicates considerable time may be needed to facilitate representational change (Hodges, Steele, Hillman, Henderson & Kaniuk, 2003; Hopkins, 2000). Additionally,

age and academic attainment differences between the experimental and comparison group are also likely to have had some bearing on results. One issue is that the relatively wide age range within the groups of 4 to 8 years may have confounded mean group attachment change, as changes in attachment are theorized to be enhanced in developmentally sensitive periods (Thompson, 2000).

Another issue is the ways in which individual nurture groups differed and the impact of this on outcome was not explored. This may have particularly been the case in the two groups in which a nurture group teacher left. The length of time groups had been running for was not controlled for, a factor which has been shown to influence effectiveness (Cooper & Tiknaz, 2005). Moreover, differences in the presenting problems between nurture group children were not explored. There are likely to have been subgroups of children with different problems, whom the intervention would have influenced differently. Another possible confounding factor which was not controlled was interviewer differences. Interpersonal style and the point at which prompts were given to facilitate the ending of stories are likely to have differed across the three interviewers. This may have influenced engagement with the child and their subsequent narrative, in particular the quantity of information provided by the child to be coded, increasing the presence of particular codes for some children.

A further limitation of the research relates to the measurement of outcomes in the study. The primary outcome measure (SDQ) used to measure changes in functioning was completed by nurture group teachers, with responses perhaps reflecting some bias to see positive outcomes. Furthermore, outcome measures were not completed by other

informants to ascertain if changes in functioning were also present in other contexts. Another issue is that the secondary outcome measure used in the study (Boxall Profile) has not been validated. The items comprising individual strands do not appear conceptually consistent with one another, which did not allow comparison across outcome measures. Various issues relating to the attachment measure used (SSAP) also became apparent during the study. In particular, these related to the sensitivity and reliability of the coding system in conceptualising representations of parents. Finally, wider issues exist in the narrative assessment of attachment per se and multiple measures of attachment are likely to have provided more accurate findings in this domain (see Literature Review for further information).

Clinical and scientific implications of the research

The clinical implications of the research suggest that nurture group interventions are effective in addressing some of children's difficulties and elicit particular improvements in pro-social behaviour and peer relations. It seems likely that social understanding facilitated by teaching social skills and reinforcing pro-social behaviour can be internalised by children in the 'safe' small group context of the intervention. This may facilitate positive social interactions, which in turn improves self-esteem and further develops social skills (Booth-Laforce, Rubin, Rose-Krasnor & Burgess, 2005). It is also possible that the observed within-group improvement in nurture group children's levels of hyperactivity is also related to the safe, nurturing environment. Less anxiety may be provoked by interactions with others and reflected in more settled behaviour. The findings also suggest that although nurture groups do appear to ameliorate some of the

children's difficulties, they do not impact on all problem domains. The study demonstrated only extremely limited evidence for the notion that it is attachment experiences within the intervention which mediate change. Although measurement of attachment may have been influenced by a range of factors, extensive exploration of this issue is needed as attachment theory is a key component of the intervention focus.

In considering the scientific implications of these findings, there is some hint that attachment may elicit improvements in functioning. However, it is possible that attachment change may not be evident on a representational level. Instead, it may be apparent in attachment behaviour or in a related attachment domain. For example, social functioning may be linked to changes in social understanding which do not influence attachment organisation. However, it may be that representational change is not evident because changes in the teacher-child relationship do not occur or are not generalised to wider representations of the parent-child relationship. The exploration of multiple attachment representations is a relatively unresearched area (Klohnen, Weller, Luo & Choe, 2005). Studies have suggested that general and relationship specific models are related (Cozzarelli et al., 2000), with relationship specific models influential in shaping generalized models (Pierce & Lydon, 2001). However, the findings of this study do not support the notion that a specific relationship will facilitate broader changes to attachment organisation. It is questionable whether a child would be able to generalise any new experiences to their internal working models if their most primary relationship remained the same.

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Personal reflection on the research process

The main difficulty which resulted in some of the study limitations was the relatively short time period available for testing and the limited data collection resources. As the majority of children were commencing the nurture group intervention at the start of the project, the testing had to be carried out very quickly, with not much time for reflection or intensive piloting of measures. Time constraints meant that comparison group children had to be tested concurrently with nurture group children and this combined with limited numbers of referred children resulted in a comparison group which was not adequately matched in all areas. Ideally, a better matched comparison group as well as a non-problem matched group would have been helpful in exploring functioning and attachment between groups over time. Another issue which resulted in less opportunity to examine issues such as the variation between different nurture groups was the significant amount of work generated by the transcribing and coding of a large number of assessments. Testing a smaller number of participants may have allowed more time to standardise other aspects of the study or double code responses, but may not have generated enough power to detect group differences.

Other difficulties related to the limited time teachers had available to support testing and to complete measures. Building relationships with teachers to facilitate testing took some time and by the second testing point this process had become a lot easier. Although individual researchers met with nurture group teachers prior to testing, it may have been helpful to have spent more time in nurture groups to allay teachers' concerns

about children's experience of the change to their routine. In addition, obtaining completed outcome measures from teachers was initially difficult, but sending these prior to testing helped to increase punctual response rates. It would have been useful to have also collected parental reports of children's functioning to explore whether behavioural improvements were present at home. Using measures of peer relations and popularity ratings in combination with observational measurement of children's interactions with teachers and peers would also have more extensively investigated changes in social functioning. It would also have been interesting to explore whether attachment to mother or father was linked to outcomes in children's peer relationship functioning, as attachment security to mothers has been suggested to be more related to functioning in small group interactions and attachment to father to interactions within larger groups (Schneider, Atkinson & Tardiff, 2001).

In hindsight, a different measure of attachment may have been more useful in exploring change. The subjective nature of the SSAP coding system and the aggregation of parent and aggression codes are likely to have impacted on the validity and clarity of findings. Furthermore, it is unclear how much statistical validity there is for the aggregated attachment clusters. The SSAP was developed for use with maltreated populations who are likely to express more marked patterns of insecurity and disorganization, thus a more sensitive measure for detecting attachment may have been useful. Measurement of attachment in early to middle childhood entails numerous difficulties (see Literature Review, for further information). The Manchester Child Attachment Story Task (Green, Stanley, Smith & Goldwyn, 2000) was the preferred choice for measurement of attachment, as although this measure has not been extensively validated, it was

developed for use with normal children and has a comprehensive coding system which codes constructs which overlap with attachment, such as mentalisation and narrative coherence. However, it was not possible to obtain the necessary funding to be trained in the use of this measure.

As well as the issues discussed, there are numerous other aspects useful to investigate in exploring how nurture groups function. Testing children after 3 to 4 terms of the intervention is one key issue. Individual case studies would also have been an interesting way to consider issues such the interaction between family life and representational models of family. Assessment of the level of involvement parents had with the nurture group would also have been interesting, as this is likely to have resulted in parents feeling more supported and more accepting of children's problems. Interviewing children about their experience in the nurture group may have elicited some idea about what they gain from the intervention. Exploring how the whole school philosophy impacted on group outcomes is also of interest, as both nurture group schools and control schools differed widely in the way they viewed children's difficulties. Furthermore, it was difficult to ascertain which referrals to both groups were more related to discipline problems rather than psychological difficulties, which would have been useful to explore. Assessing children's self-esteem and perceptions of themselves within the class would also have contributed important information about the intervention's impact on child 'self' representations. For example, there were some instances where a comparison group child viewed as 'disruptive' by teachers spontaneously reported not concentrating in class because they did not understand the work, so were "stupid" and might as well "mess around." Children are likely to be

keenly aware of a teacher's view of them and the emphatic attitude of the nurture group teacher could mediate behaviour change through increasing self-esteem.

One informal observation of the testing process is that many of the children's representations of particular parental figures within the story stems were often surprisingly consistent with teacher's informal descriptions of a child's home life. For example, children who regularly witnessed domestic violence tended to express this in their stories. It would have been interesting to have developed a way of assessing and classifying teacher's perceptions of parent-child interaction and family. Interestingly, many of the children reported to have difficult home lives often presented with stories which seemed 'pseudo-secure,' lacking affect and giving a sense of providing socially expected responses. The narratives of these children would often break down towards the end of the battery and degenerate into incoherent themes of extreme aggression and catastrophic fantasy. Hodges et al. (2003) suggest that new attachment experiences allow children to develop new positive representations which overlay but do not extinguish old negative representations. Thus, a child who has experienced emotional deprivation may have multiple internal working models IWMs, with insecure IWMs being evoked by the emotional demands of certain situations. In this way, the demands inherent in the story dilemmas may have resulted in children who initially attempted to provide 'pseudo positive' responses reverting to underlying negative IWMS during the course of the battery.

Future directions for research

This study highlights how complex it is to measure the construct of attachment in this age group. To explore attachment organisation and change more meaningfully in the nurture group intervention, research examining related constructs such as affect regulation, mentalisation, theory of mind and attentional control is needed. Exploring whether a teacher's reflective function (Fonagy, 1999) and their ability to provide a 'secure base' for children is related to their own attachment organisation would also be of interest, with secure adults more able to provide this base for others related to better care giving and listening skills (Posada, Waters, Crowell & Lay, 1995). No research has currently been carried out investigating the attachment status of teachers and its impact on relationships with children (Zionts, 2005). Furthermore, exploring the influence of the intervention on self-representations is an area of interest. Self-esteem has been highlighted as an important mediator of a child's relationship with others, influencing responses to a child and their opportunities for positive interactions (Cassidy, 1999; Hodges et al., 2003). Secure children seek more positive feedback than insecure children (Cassidy, Ziv, Mehta & Feeney, 2003) which may develop positive self-views, associated with a range of advantageous developmental outcomes (Harter, 1998).

It is clear that nurture groups need much more extensive evaluation of their efficacy and function. Cooper and Tiknaz (2005) have highlighted key variables which impact on the intervention's effectiveness. These included replacement of a nurture group or headteacher, quality of teaching in the school as a whole, length of time the nurture group has been in existence and the proportion of school time spent in group. The

distribution of age, gender and presenting problems within a nurture group has also been linked to the intervention's efficacy. Gender differences in particular may be an issue, with boys and girls differing widely in their expression of problems and the extent to which they may internalise or externalize distress (Murray, Woolgar, Briers & Hipwell, 1999; Page & Bretherton, 2001).

These factors all need further exploration to ensure standardisation between groups and comparability of outcomes. Nurture groups clearly provide a range of benefits for children and attempt to intervene in developmentally sensitive periods, in line with current government initiatives (Department of Health, 2004). However, they do not appear to impact consistently on functioning or to mediate change through attachment experiences, as hypothesised. The possible costs elicited by the intervention include loss of contact with mainstream peers, stigma and academic disadvantage, as well as the financial implications for schools. Therefore, nurture groups need to be rigorously evaluated and compared to other school and parent-child interventions to ascertain whether they are beneficial in the long-term for both children and schools.

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Appendices

Appendix A – Details of the main studies developing the narrative measures in the Literature Review

Table 1 - The Separation Anxiety Test

Authors	Version used	Sample	Procedure	Coding system	Validity	Test-retest reliability	Inter-rater reliability	Findings
Main, Kaplan and Cassidy (1985)	Drawings used, based on Klagsbrun & Bowlby's (1976) photographs.	Normal sample of 12 month olds and 6 year olds (n = 43)	Pictures of separations from parent shown to interviewee. Interviewee asked questions related to the child depicted in the photo.	SAT responses were rated for emotional openness, constructiveness of problem solving abilities. Separation re-union procedure scored for security of attachment.	Significant relationship between emotionally open responses on the SAT and security of attachment to mother in the Strange Situation 12-18 months of age.	No longitudinal data.	Inter-rater agreement of 85%.	Infants classified as secure in the separation-reunion procedure gave 'elaborated, coherent and open' responses to the SAT. Insecure responses reflected by incoherent or 'odd' responses and avoidance of the story conflict. Infants who could not resolve the story conflict were classified as insecure/avoidant on the separation-reunion procedure. Infants who gave silent, irrational or bizarre responses on the SAT were classified as disorganized on the separation-reunion procedure.
Slough & Greenberg (1990)	6 new photographs of separations from parent used, based based on the original Klagsbrun & Bowlby's (1976) photographs.	Normal sample of 5 year olds (n=60)	Pictures of separations from parent shown to interviewee. Interviewee asked questions related to own feelings and those of child depicted.	Scoring on 4 and 3 point scale ratings of attachment, self-reliance and avoidance. Nine point emotional openness scale. Separation re-union procedure scored for security of attachment and avoidance.	Significant relationship between both 'self' and 'other' responses with a 3 minute separation re-union procedure.	No longitudinal data.	Inter-rater agreement of between 50% to 74% on SAT responses.	Children classified as more secure and less avoidant on separation-reunion rated higher on attachment and self-reliance and lower on avoidance on the SAT. This was particularly in relation to 'self' responses. However, categories of insecure attachment not consistent between separation-reunion and the SAT, or between SAT responses and long separation re-union procedure.

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Table 1 - The Separation Anxiety Test (continued)

Authors	Version used	Sample	Procedure	Coding system	Validity	Test-retest reliability	Inter-rater reliability	Findings
Shouldice & Stevenson-Hinde (1992).	Photographs by Greenberg (1985) were used in Klagsbrun & Bowlby's (1976) version of the SAT. The coding of the distress attributed to pictures was altered.	Normal sample of age 4.5 year olds (n=74).	Pictures of separations from parent shown to interviewee. Interviewee asked questions related to the feelings of the child depicted.	Responses were coded for appropriateness, avoidance, denial, the nature of expression of emotions, nature of solution and incoherence. Separation-reunion procedure scored with Cassidy & Marvin's, (1989) attachment classifications for separation-reunion.	Significant relationships between security and avoidance on separation re-union procedure with child at age 2.5 years	No longitudinal data.	Inter-rater reliability on 1/6 pictures in 25/74 sample showed 84 – 100% agreement Inter-rater reliabilities on 12/74 videotapes of reunion behaviour. 83% showed agreement on 10/12 cases.	More expression of appropriate negative responses in secure children, along with fewer inappropriate responses, denials and demonstration of over-positive feelings. Less expression of negative affect expressed in children rated as avoidant on separation-reunion. More anger and passive solutions expressed in children rated as ambivalent on separation-reunion. Incoherent responses on the SAT were less likely in secure versus insecure combined groups. Children rated as controlling/disorganised demonstrated more narrative incoherence than other groups.

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Table 2 - The Narrative Story Stem Technique

Authors	Version used	Sample	Procedure	Coding system	Validity	Test-retest reliability	Inter-rater reliability	Findings
Cassidy (1988)	Incomplete Doll Story Procedure 6 stories with doll family	Normal population of 6 year olds (n=52).	Participants seen twice, one month apart. Separation-reunion procedure used to assess mother-child attachment. Story completion task used to elicit child's view of self	Initially developed classification system based on doll play responses. 3 categories: secure, avoidant and hostile/negative	Significant relationships between security of responses and separation-reunion procedure	r=.63 for attachment classifications for one story over a one month period.	50% of stories were double coded. Agreement was within one point for 98% of cases. Agreement on attachment classifications was 90%.	Children rated on secure on separation-reunion procedure provided 'open' responses, which include both negative and positive descriptions and avoidant children provided 'perfect' responses. A relationship between secure, positive attachment representations and self-esteem ratings also found.

Table 2 - The Narrative Story Stem Technique (continued)

Authors	Version used	Sample	Procedure	Coding system	Validity	Test-retest reliability	Inter-rater reliability	Findings
Bretherton and Ridgeway (1990)	5 scenarios, each on a different attachment related themes, including departure/reunion stories.	Normal sample of 3 year olds (n = 25)	Stories administered. Separation-reunion procedure used to assess mother-child attachment.	Developed a coding system classifying attachment security on a 4 scale. Story coherence versus disjointedness, constructive versus bizarre/chaotic resolutions and avoidance of the story issue.	Significant relationships between security of responses, parent attachment interview, separation-reunion procedures and Q-sort	No re-testing carried out using the story stems	No statistics provided.	Children more secure on story responses, were also more secure on separation-reunion with their mothers at the same age, on the Q sort (Waters & Dean, 1985) and on the Strange Situation (Ainsworth, 1989) at 18 months. Security of story responses also correlated to insight-sensitivity of mothers on parent attachment interview when child was 25 months old and maternal reports of family adaptability/cohesion.

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Table 2 - The Narrative Story Stem Technique (continued)

Authors	Version used	Sample	Procedure	Coding system	Validity	Test-retest reliability	Inter-rater reliability	Findings
Hodges and Steele (2000)	13 stories stems, 8 from MSSB. 5 created	Maltreated late adopted and infancy sample aged 4-8 years (n = 33) Control groups of matched non-abused disadvantaged children and non-disadvantaged and non-abused children	2 year study, testing prior to late adoption and at 1 and 2 year follow up.	Anna Freud Coding Scheme developed assessing reflective functioning, intentionality, affect regulation, self-agency and defensive processes in story responses. Composite codes: attachment security, quality of engagement, disorganization, aggression, child and adult representations and positive adaptation.	Studies with mothers narratives, parenting interview	No statistics reported.	Coding reliability kappas of .45 to .100 with a mean of .78.	Abused sample more likely to portray parents as unaware of distress. Positive and negative themes increased at one year (increased ability to express negative experiences)

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Table 3 – The Manchester Child Attachment Story Task

Authors	Sample	Procedure	Coding system	Validity	Test-retest reliability	Inter-rater reliability	Findings
Green et al., (2000)	Normal sample (n=53). Mean age 6.3 years (Age range 5.2 – 7.7)	A dolls house with furniture is used, with dolls being chosen by the interviewer to represent the child and the primary caregiver of interest. A non-attachment related introductory story, followed by five attachment related stories. Induction phase distress is amplified in the child until they are clearly involved. Stories involve the child being placed in situations of specific distress with their caregiver close by, but not present. Structured prompts to clarify: intention behind play, degree of assuagement and mental state assumptions about the dolls. The task ends with a period of free play.	Four main coding categories of attachment related behaviours (categorised into overall strategy of assuagement and a code of A, B , C or D assigned as with the Strange Situation). Narrative coherence, disorganized phenomena and bizarreness of the narrative also coded for. Predominant affect, mentalizing ability and meta-cognition also coded.	Goldwyn et al., (2000) Ratings of disorganized attachment on the MCAST showed association with 'unresolved' status on the concurrent maternal AAI responses. A relationship between disorganized attachment and independent teacher ratings of classroom behaviour was found. Overall association between attachment security on the MCAST and SAT was 80%. This was significant but demonstrated only moderate kappa.	Follow up carried out a median 5.5 months follow up. 33 interviews repeated. 76.5% of ABC categories and 69% of D categories remained stable Continuity in: narrative coherence, metacognition and D score. Relationship between number of secure vignettes and stability of interview classification (3/6 vignettes to 6/6 = 71% to 100% stability).	80% to 94% agreement on categorical classifications	Attachment classifications Total A – 26.5% Total B – 62.3% Total C – 7.6% Primary D 26.4% Non D 73.6% Older children were less disorganised. But just including children under 7 years made this effect disappear, with only variations in narrative coherence and displacement behaviours remaining. Security was discriminated from insecurity. Disorganization was discriminated from non disorganization. However, no differentiation of insecure categories

Table 4 – The Dolls' House Play Task

Authors	Version used	Sample	Procedure	Coding system	Validity	Test-retest reliability	Inter-rater reliability	Findings
Murray et al. (1999)	The Dolls House Play Task (created by Uddenberg & Englesson, 1978)	5 year old children of depressed and non-depressed mothers. (n = 95)	The DHPT uses a doll's house and doll family to represent the interviewee's own family and requires the child to enact what happens in their own family in four generic family scenes. Items such as 'show me what happens at bedtime in your family' was administered to child.	Play was rated on dimensions of care, neglect, hostility of parent, caregiving by the child and narrative structure, including coherence.	Dolls house play was also related to the assessment of dyadic interaction, with greater maternal sensitivity related to representations of high maternal care, low levels of maternal neglect and high narrative coherence. Both observed maternal insensitivity and child depictions of maternal neglect were independently related to emotional and behavioural problems in school, thus suggesting direct and indirect links between children's representations and their social adjustment.	No longitudinal studies have been carried out using the DHPT.	12% of the transcripts were double coded on this measure, Reliability across the various subscales range from .74 to .91 (Kendall's T).	Children's representations were related to maternal depression and parental conflict and these interacted with gender. A relationship was found between dolls house play responses and behavioural and emotional functioning in school in children of depressed mothers. Performance on theory of mind tasks was weakly related to family adversity and child disturbance but was significantly related to general and verbal intelligence. An interaction between experience of family adversity and narrative coherence was found, with gender appearing to play a mediating role.

Appendix B – Comparative information about schools

Comparative information about nurture group and comparison schools

The following information was collated in 2006 from data collected between 2004 to 2006. One hundred and twenty three schools in the county were ranked to determine which schools were most in need of a school nurture group. A low ranking score indicates a high level of need, in all indices of need. An overall ranking was compiled by the Local Education Authority based on the ranked scores in the following five indices of need:

1. Income deprivation affecting children
This index is related to the proportion of children aged under 16 years of age living in families who are in receipt of income support and other means tested benefits.

2. Index of multiple deprivation
This index gives a total score for deprivation by amalgamating scores in 7 domains which may affect people in a particular geographical area. The 7 domains are:

- Income
- Employment
- Health and disability
- Education, skills and training
- Barriers to housing and services
- Crime
- The Living Environment

3. Free school meals entitlement
This index provides information about the proportion of children whose parents receive various support payments and who are eligible for free school meals.

4. Key Stage 1 average point score
This index relates to the average score within each school for pupils in Key Stage 1 (ages 5-7 years) of the National Curriculum.

5. Foundation Stage Profile Rank
This index refers to the Foundation Stage Profile, which summarises a child's progress and educational needs at the end of the pre-school foundation stage (at age 5). Schools are ranked in relation to average pupil achievement at this stage.

Table 5 - Comparative information about schools

School (including number of pupils)	Income deprivation affecting children (IDAC) rank (2004)	Index of multiple deprivation (IMD) rank (2004)	Free School Meals Entitlement (FSN) rank (2006)	Key Stage 1 Average point score (KS1 APS) rank (2006)	Foundation Stage Profile (FSP) rank (2006)	Overall Rank
Comparison School 1 (222 pupils)	8	4	2	48	29	7
Comparison school 2 (185 pupils)	17	20	5	13	46	10
Comparison school 3 (200 pupils)	38	48	14	27	N/A	18
Comparison school 4 (146 pupils)	5	6	10	65	64	20
Comparison school 5 (217 pupils)	59	69	27	18	18	26
Nurture group school 1 (240 pupils)	10	8	9	3	2	1
Nurture group school 2 (378 pupils)	3	15	11	9	3	2
Nurture group school 3 (265 pupils)	7	14	15	29	7	5
Nurture group school 4 (178 pupils)	2	10	1	8	99	13
Nurture group school 5 (119 pupils)	40	50	21	1	16	16
Nurture group school 6 (289 pupils)	50	40	3	4	61	21
Nurture group school 7 (325 pupils)	30	36	55	22	55	28
Nurture group school 8 (235 pupils)	37	24	13	102	101	54
Nurture group school 9 (180 pupils)						8*
Nurture group school 10 (289 pupils)						11*

Note. Insufficient information was available on the rankings of NG schools 9 and 10. An estimated rank (*) was given by the Senior Educational Psychologist in the region, based on the ratings of local schools.

Appendix C – Requirements for the establishment of nurture groups

Requirements for the establishment of nurture groups

(Taken, with permission, from the Local Authority Operational Guidelines):

Nurture groups will be established and funded by the Authority in schools where the need for such provision is greatest and where schools are likely to be able to maintain a consistent nurture group roll of 10-12 pupils. The following criteria will be considered:

- A minimum of two forms of entry, except in the 25 most deprived wards in the county where the minimum size will be 1.5 forms of entry.

- High level of need as shown by non-statemented special educational needs funding and economic deprivation funding received by the school.

- Situated in an area of deprivation, based on the Department of the Environment Index of Conditions, Child Poverty Index. High percentage of Children in Need (Children's Act 1989), based on Children in Need Survey 2002.

- The percentage of pupils entitled to free school meals is high.

- Attainment of pupils on entry is low compared to other schools in Hertfordshire.

- School quality and stability as reported by SIAS and Ofsted.

- Accommodation available in Infant/Early Years part of the school to provide a nurture group room with floor area not less than 40 square metres.

- Predicted long-term need for nurture group provision based on the special educational needs of current and previous school cohorts, i.e. a minimum of 20 children in Key Stage 1 for whom nurture group provision would be appropriate, to be confirmed by the school's attached EP and/or the Quadrant SN team.

- Whole school commitment to educational inclusion and the establishment of nurture group principles and practice in the school.

Appendix D – Criteria for Admission to Nurture Groups

Criteria for Admission to Nurture Groups

(Taken, with permission, from the Local Authority Operational Guidelines):

Nurture group placement will be considered for children who are underachieving for social emotional and behavioural reasons:

- Children who are very restless, cannot listen, behave impulsively, aggressively, or show inappropriate emotional responses to a range of situations.
- Children who are withdrawn and unresponsive and who have difficulty relating to others.
- Children whose known early or recent history suggests that they may be at risk.
- Children whose recent history suggests they may be vulnerable in the school setting due to difficulties in relationships at home.
- Children will be already identified as School Action or School Action Plus. Nurture group placement is a School Action Plus intervention.
- Parental agreement to nurture group placement is essential.
- Prior to group entry, children will be observed by nurture group teachers on at least two occasions.

Appendix E - Nurture Group Referral Procedures

Nurture Group Referral Procedures

Referrals will be made by class teachers on a standard form, following discussion with the nurture group teacher and/or SENCO.

- Assessment by an educational psychologist is not a pre-requisite for admission, but he/she should be involved in consultation and discussion of background factors.
- All referrals will be discussed at a meeting with the head teacher, nurture group teacher, SENCO and educational psychologist.
- Maintaining a manageable, effective social mix in the group will be a consideration in all decisions
- The class teacher and/or headteacher, and nurture group teacher will discuss with parents the child's admission to the nurture group
- A Boxall Profile will be completed for each child on entry to the nurture group in order to obtain a more precise assessment of need, to plan interventions and to provide a baseline for measuring progress in the group.
- A baseline of National Curriculum attainment on entry will also be recorded.

Appendix F - Summary of the range of life events experienced by children in the study

Summary of the range of life events experienced by children in the study

Nurture Group	Control group
Birth of a sibling (n = 2)	Birth of a sibling (n = 2)
Parental separation (n = 3)	Parental separation (n = 2)
Moved schools (n = 3)	Moved schools (n = 5)
Onset of parental mental health problems (n = 0)	Onset of parental mental health problems (n = 1)
Illness of child (n = 1)	Illness of child (n = 0)
Father in prison (n = 1)	Father in prison (n = 1)
Social Services involvement because of concerns (n = 1)	Social Services involvement because of concerns (n = 2)
Disruptions to attendance, aggression reported at home, (n = 2)	Disruptions to attendance, aggression reported at home (n = 3)

Appendix G – Key characteristics of a nurture group (Cooper et al., 1999)

<u>The Characteristics of Nurture Groups (From Cooper, Arnold and Boyd, 1999, with the permission of Professor Paul Cooper)</u>

These characteristics were developed by the Project team in consultation with the Nurture Group Consortium, teachers, learning support assistants and others who attended the four day course. Schools have found them helpful when setting up new nurture groups.

They are subject to further development and refinement as the Project and the training courses continue.

a) A nurture group is integrated provision. It is an agreed part of an LEA/school continuum of special educational needs provision, either as an integral part of an individual school or as a resource for a cluster of schools.

b) The curriculum includes the National Curriculum and takes full account of school policies.

c) All staff work towards the child's full return into mainstream classes.

d) Children attend the nurture group for a large part of each day or for substantial regular sessions. This can be on a short or medium term basis, but is usually two to four terms.

e) Two adults work together modelling good adult relationships in a structured and predictable environment, where children can begin to trust adults and to learn.

f) It supplies a setting in which missing or insufficiently internalised essential early learning experiences are provided.

g) The emphasis is on supporting positive emotional and social growth and cognitive development at whatever level of need the children show by responding to them in a developmentally appropriate way.

h) There is an emphasis on language development through intensive interaction with an adult.

i) Social learning through co-operation and play with others is essential and the group is constituted with this in mind.

j) Staff involve parents/carers as early and as fully as possible and have a positive attitude towards them.

Appendix H - Strengths and Difficulties Teacher Questionnaire

Strengths and Difficulties Teacher Questionnaire (taken from www.sdqinfo.com website)

The SDQ is a brief behavioural screening questionnaire about 3-16 year olds. It exists in several versions to meet the needs of researchers, clinicians and educationalists. Each version includes between one and three of the following components:

A) 25 items on psychological attributes.
All versions of the SDQ ask about 25 attributes, some positive and others negative. These 25 items are divided between 5 scales:

1) emotional symptoms (5 items)

2) conduct problems (5 items)

3) hyperactivity/inattention (5 items)

4) peer relationship problems (5 items)

added together to
generate a total difficulties score
(based on 20 items)

5) prosocial behaviour (5 items)

* All subscales can also be classified into normal, borderline and abnormal groups.

Appendix I – The Boxall Profile

<u>Factors making up the Boxall Profile strands</u>

Developmental Strands

1. Organisation of experience
   - Gives purposeful attention
   - Participates constructively
   - Connects up experiences
   - Shows insightful involvement
   - Engages cognitively with peers

2. Internalisation of controls
   - Is emotionally secure
   - Is biddable and accepts constraints
   - Accommodates others
   - Responds constructively to others
   - Maintains internalised standards

Diagnostic Strands

1. Self limiting features
   - Disengaged
   - Self-negating

2. Undeveloped behaviour
   - Makes undifferentiated attachments
   - Shows inconsequential behaviour
   - Craves attachment, reassurance

3. Unsupported development
   - Avoids/rejects attachment
   - Has undeveloped/insecure sense of self
   - Shows negativism towards self
   - Shows negativism towards others
   - Wants, grabs, disregards others

Appendix J – Inter-item correlations within the Boxall Profile strands

Table 6 - Inter-item correlations within the Boxall Profile strands

Boxall strand	Alpha if item deleted	Standardised item alpha
Organisation of experience		.8546
Gives purposeful attention	.8071	
Participates constructively	.7830	
Connects up experiences	.7732	
Shows insightful involvement	.8069	
Engages cognitively with peers	.8243	
Internalisation of controls		.8419
Is emotionally secure	.8401	
Is biddable/accepts constraints	.7579	
Accommodates to others	.7398	
Responds constructively	.8020	
Maintains internalised standards	.8084	
Self limiting features		.2499
Disengaged	Not calculated*	
Self-negating	Not calculated*	
Undeveloped behaviour		.6657
Makes undifferentiated attachments	.2529	
Shows inconsequential behaviour	.6658	
Craves attachment, reassurance	.5990	
Unsupported development		.8721
Avoids/rejects attachment	.8838	
Has undeveloped/insecure sense of Self	.8112	
Shows negativism towards self	.7913	
Shows negativism towards others	.8201	
Wants, grabs, disregarding others	.8574	

*Not calculated as only 2 items in strand

Appendix K – Summary of story stem codes (Hodges et al., 2003)

Summary of story stem codes (Hodges et al., 2003)

STORY STEM (Little Piggy)	CO	LP	SE	PS	SJ	MH	BH	LK	BD	EX
1 No Engagement (with Story Task)										
2 Disengagement										
3 Initial Aversion										
4 No Closure										
5 Premature foreclosure										
6 Changing Narrative Constraints										
7 Avoidance within Narrative Frame										
8 Child seeks Help, Comfort										
9 Siblings/Peers Help, Comfort										
10 Realistic Active Mastery										
11 Child Endangered										
12 Child Injured/Dead										
13 Excessive Compliance										
14 Child 'Parents' or 'Controls'										
15 Adult Provides Comfort										
16 Adult Provides Help Protection										
17 Adult Shows Affection										
18 Adult Unaware										
19 Adult Actively Rejects										
20 Adult Injured/Dead										
21 Limit Setting										
22 Physical Punishment										
23 Child Shows Aggression										
24 Adult Shows Aggression										
25 Coherent Aggression										
26 Extreme Aggression										
27 Catastrophic Fantasy										
28 Bizarre/Atypical Responses										
29 Bad <-> Good Shift										
30 Acknowledgement Child Distress										
31 Acknowledgement Adult Distress										
32 Denial / Distortion of Affect										
33 Repetition										
34 Neutralisation/ Diversion Anxiety										
35 Pleasurable Domestic/School Life										
36 Throwing Away/Out										
37 Magic/Omnipotence										
38 Adult Childlike										

Appendix L – Summary of story stem composite clusters

<u>SECURE composite comprises:</u>

- Child seeks help

- Siblings/peers help

- Realistic active mastery

- Adult provides comfort

- Adult provides help

- Adult provides affection

- Limit setting

- Acknowledgement of child distress

- Acknowledgement of adult distress

<u>INSECURE composite comprises:</u>

- Child endangered

- Child injured/dead

- Excessive compliance

- Adult unaware

- Adult rejects

- Ault injured/dead

- Neutralisation/diversion anxiety

- Throwing away

<u>DISORGANISED composite comprises:</u>

- Child parents/controls

- Catastrophic fantasy

- Bizarre/atypical

- Bad/good shift

- Magic/omnipotence

- Extreme aggression

<u>AVOIDANT composite comprises:</u>

- No engagement

- Disengagement

- Initial aversion

- Premature foreclosure

- Changing narrative constraints

- Avoidance in narrative framework

- Denial/distortion of affect

Appendix M – Summary of story stems in battery (Hodges et al., 2003)

(Removed for confidentiality)

Appendix N – Summary of lower level representational clusters

Positive adult cluster comprises:

- Adult comforts

- Adult helps

- Adult provides affection

- Pleasure in domestic life

Negative adult cluster comprises:

- Adult rejects

- Adult injured/dead

- Adult unaware

- Parent childlike

- Bad/good shift

- Adult aggressive

- Physical punishment

Aggression cluster comprises:

- Throwing away

- Extreme aggression

- Catastrophic fantasy

Appendix O – Inter-item correlations within lower level representational clusters

Table 7 – Inter-item correlations within lower level representational clusters

Lower level representational cluster	Alpha if item item deleted	Standardised alpha
Positive adult, time 1		.74
Pleasure in domestic life	.68	
Adult provides help	.74	
Adult provides comfort	.57	
Adult provides affection	.61	
Positive adult, time 2		.69
Pleasure in domestic life	.64	
Adult provides help	.62	
Adult provides comfort	.55	
Adult provides affection	.54	
Negative adult, time 1		.59
Adult rejects	.55	
Adult unaware	.65	
Adult injured/dead	.53	
Adult aggressive	.39	
Adult childlike	.61	
Bad/good shift	.50	
Physical punishment	.56	
Negative adult, time 2		.64
Adult rejects	.53	
Adult unaware	.66	
Adult injured/dead	.53	
Adult aggressive	.42	
Adult childlike	.59	
Bad/good shift	.54	
Physical punishment	.57	
Aggression, time 1		.72
Throwing away	.72	
Extreme aggression	.37	
Catastrophic fantasy	.71	
Aggression, time 2		.82
Throwing away	.92	
Extreme aggression	.58	
Catastrophic fantasy	.62	

Appendix P – Letter of approval from UCL Graduate School Ethics Committee

UCL
GRADUATE
SCHOOL

The Graduate School
University College London
Gower Street London WC1E 6BT

Professor Leslie C Aiello
Head of the Graduate School

Tel: 020 7679 7844
Fax: 020 7679 7043
Email: gradschoolhead@ucl.ac.uk

25 January 2005

Professor Peter Fonagy
Sub-Department of Clinical Health Psychology
Torrington Place
University College London

Dear Professor Fonagy

Re: Notification of Ethical Approval

Assessing the Impact of Nurture Groups

The above research has been given ethical approval following review by the UCL Committee
for the Ethics of non-NHS Human Research for the duration of the project subject to the
following conditions:

1. You must seek Chair's approval for proposed amendments to the research for which this
   approval has been given. Ethical approval is specific to this project and must not be
   treated as applicable to research of a similar nature. Each research project is reviewed
   separately and if there are significant changes to the research protocol you should seek
   confirmation of continued ethical approval by completing the 'Amendment Approval
   Request Form'.

The form identified can be accessed by logging on to the ethics website homepage:
http://www.grad.ucl.ac.uk/ethics/ and clicking on the button marked 'Key Responsibilities of
the Researcher Following Approval'.

2. It is your responsibility to report to the Committee any unanticipated problems or adverse
   events involving risks to participants or others. Both non-serious and serious adverse
   events must be reported.

   Reporting Non-Serious Adverse Events.
   For non-serious adverse events you will need to inform Ms Helen Dougal, Ethics
   Committee Administrator (h.dougal@ucl.ac.uk), within ten days of an adverse incident
   occurring and provide a full written report that should include any amendments to the
   participant information sheet and study protocol. The Chair or Vice-Chair of the Ethics
   Committee will confirm that the incident is non-serious and report to the Committee at the
   next meeting. The final view of the Committee will be communicated to you.

   Reporting Serious Adverse Events
   The Ethics Committee should be notified of all serious adverse events via the Ethics
   Committee Administrator immediately the incident occurs. Where the adverse incident is

unexpected and serious, the Chair or Vice-Chair will decide whether the study should be terminated pending the opinion of an independent expert. The adverse event will be considered at the next Committee meeting and a decision will be made on the need to change the information leaflet and/or study protocol.

3. The Committee thought that this was an extremely interesting piece of research and therefore look forward to receiving a copy of your brief final report (maximum of two sides of A4), which MUST be submitted on completion of the research. It would be helpful if you could comment in particular on any ethical issues you might wish to draw to the attention of the Committee.

Yours sincerely

Sir John Birch
Chair of the UCL Committee for the Ethics of Non-NHS Human Research

Cc: Fiona Seth-Smith, Netali Levi and Richard Pratt, Sub-Department of Clinical Health Psychology, UCL

Appendix Q – Information letter to parents

PARENTS INFORMATION SHEET ABOUT NURTURE GROUP STUDY
Do nurture groups have a positive effect upon children's relationships?

Introduction

In the next six months, three researchers from University College London are planning to visit your child's school to look closely at a form of school support known as "Nurture groups". As you may know, Nurture groups aim to help children improve their relationships with adults, their concentration and enjoyment of school. Although Nurture groups have been shown to help children manage at school it is not known how they help. As part of the Nurture group the child develops a supportive relationship with one particular teacher. The study is interested in finding out how important this relationship is in helping children who have been part of the Nurture group. The researchers will seek to improve understanding of the way children think about teachers and other adults, to see how their views of adults influence their performance in school, both in the classroom and playground.

Who will participate?

Children aged between 4 and 8 years (Reception, Years 1, 2 and 3) will be selected from a number of schools in this area. Children will be selected who are due to attend a Nurture group. They will be assessed as they start the Nurture group and after 5 months of belonging to the group. In order to check whether any changes are indeed due to attending the Nurture group the study will also assess children from the same schools who do not attend Nurture groups. These children will also be tested on two occasions.

A small number of children will be selected for a pilot study before the main study begins and they will be assessed on one occasion.

What will be asked of the children?

Some time will be spent putting each child at ease and making sure they understand the activity. Verbal agreement will be obtained and the children will be informed that they can withdraw from the activity at any point. Children's views will be assessed with a simple story completion task. The story is introduced by using a set of dolls and the child is then asked to finish it in their own way. Each story involves imaginary figures. To give you an idea of the activity here is an example:

The child is shown some dolls or animal toys. The researcher shows the child the characters and sets up the story. For example: "A little pig goes away from the other pigs and gets lost." The researcher will say: "Show and tell me what happens next?"

In addition to the stories the children will be asked some general questions to get an idea of how they think about themselves. The activity will take place in a quiet area within the school environment and take less than one hour. In order to keep an accurate record of the stories the sessions will be video taped. The videos will be confidential and only be viewed by people helping with the study. The children's names and identities will be kept confidential.

We will also be asking the school to supply information about the children's academic achievement and peer relations.

Research Team
Netali Levi
Fiona Seth-Smith
Richard Pratt

Trainee Clinical Psychologists at the Sub-department of Clinical Health Psychology, University College London, Gower Street, London, WC1
The team can be contacted via a named teacher at your child's school or alternatively you can contact Richard Pratt on (mobile number)

Project Supervisor
Professor Peter Fonagy
Sub-department of Clinical Health Psychology, University College London, Gower Street, London, WC1

Risks, Discomforts and Benefits
Most children enjoy telling stories and welcome the opportunity to use their imagination. The time may well be thought of as a welcome break from the school routine. Most children are also happy to talk about themselves. In the unlikely event that a child should become upset during the activity it will be discontinued and appropriate support would be given to the child. Children have the right to withdraw from the study at any point. This study will increase understanding of how Nurture groups help children. In doing so, it may help children in the future get the support they need.

Confidentiality
Any information shared during the study will be treated with strict confidence and once completed, it will not be possible to identify individuals. Throughout the study only the researchers (see above) will have access to the information. The data (videos and written material) will be collected and stored in accordance with the Data Protection Act for 5 years, after which time it will be destroyed.

Request for Further Information
You or your child are encouraged to discuss any concerns regarding the study with one of the research team at any time, and to ask any questions that you might have.

Refusal or withdrawal
You or your child may refuse to participate. If you were to decide you did not want your child to continue with the study, then please contact one of the research team at the earliest opportunity. In the event of withdrawal, all information gathered in the study concerning your child will be destroyed.

Thank you for taking time reading through this information sheet. Please fill in the enclosed form if you DO NOT want your child to participate in this study.
Should you require any further information or wish to speak to a researcher they would

be very pleased to hear from you.

NURTURE GROUP STUDY – University College London

IF YOU CONSENT TO YOUR CHILD PARTICIPATING IN THIS
RESEARCH, PLEASE COULD YOU SIGN AND RETURN THIS SLIP TO THE
SCHOOL.

I CONSENT TO MY CHILD PARTICIPATING IN THE NURTURE GROUP
RESEARCH PROJECT

Childs Name:..

Class:..

Parents/Guardian Name: ....

Parents/Guardian Signature ....

Date...

Appendix R – Information given to children in the study

INFORMATION FOR CHILDREN PARTICIPATING IN NURTURE GROUP STUDY

(To be read to child before commencing with story completion task)

I am visiting the school today to meet some of the children. I am going to ask you to help me with some stories. We will tell the stories using toys like these (shows a model). I will start the story and then I would like you to carry on. You can tell and show me the rest of the story yourself.

If you feel upset or worried about a story please tell me. We can stop and wait for a while. Then I will check if you want to carry on. If you don't that's ok. Most children find the stories lots of fun.

After we have stopped I'll give you some time to ask some questions about what we have done.

We're going to video the stories so I can watch them later. (Show child camera). Is that ok? The tape will be kept safe. It will only be watched by me and a few other people who are helping me. We won't show the stories to anyone else. Your name will not be used in any of the things we write about the stories. No one will know that you made up the stories. (Check child understands).

So do you think you can help me finish some of these stories?

Remember if you want to stop at any time, please let me know.

Appendix S – Changes in SDQ normative groups over time

Table 8 - Changes in SDQ normative groups over time

	Nurture group		Control group	
Group norm	Time 1	Time 2	Time 1	Time 2
Emotional problems				
Normal	23.3% (n=10)	43.2% (n=19)	35.9% (n=14)	35.9% (n=14)
Borderline	16.3% (n=7)	18.2% (n=8)	15.4% (n=6)	17.9% (n=7)
Abnormal	60.5% (n=26)	29.5% (n=13)	48.7% (n=19)	38.5% (n=15)
Conduct problems				
Normal	45.5% (n=20)	43.2% (n=19)	35.9% (n=14)	35.9% (n=14)
Borderline	16.3% (n=7)	18.2% (n=8)	15.4% (n=6)	17.9% (n=7)
Abnormal	60.5% (n=26)	29.5% (n=13)	48.7% (n=19)	38.5% (n=15)
Hyperactivity				
Normal	23.3% (n=10)	43.2% (n=19)	35.9% (n=14)	35.9% (n=14)
Borderline	16.3% (n=7)	18.2% (n=8)	15.4% (n=6)	17.9% (n=7)
Abnormal	60.5% (n=26)	29.5% (n=13)	48.7% (n=19)	38.5% (n=15)
Peer problems				
Normal	23.3% (n=10)	43.2% (n=19)	35.9% (n=14)	35.9% (n=14)
Borderline	16.3% (n=7)	18.2% (n=8)	15.4% (n=6)	17.9% (n=7)
Abnormal	60.5% (n=26) *	29.5% (n=13)	48.7% (n=19)	38.5% (n=15)
Pro-social behaviour				
Normal	23.3% (n=10)	43.2% (n=19)	35.9% (n=14)	35.9% (n=14)
Borderline	16.3% (n=7)	18.2% (n=8)	15.4% (n=6)	17.9% (n=7)
Abnormal	60.5% (n=26) *	29.5% (n=13)	48.7% (n=19)	38.5% (n=15)
Total score				
Normal	23.3% (n=10)	43.2% (n=19)	35.9% (n=14)	35.9% (n=14)
Borderline	16.3% (n=7)	18.2% (n=8)	15.4% (n=6)	17.9% (n=7)
Abnormal	60.5% (n=26)	29.5% (n=13)	48.7% (n=19)	38.5% (n=15)

Note. Age and academic attainment are not controlled for in these figures.

Note. Percentages may not add up to 100% due to missing values.

* Significant association between groups using 'normal' versus 'borderline/abnormal' combined categories ($p < 0.05$).