2011

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Abstract

 The ability to empathise has frequently been advocated as the driving force behind pro-social behaviour. The tender and nurturing environment inherently provided by mothers of securely attached children, constructs an ambience which promotes the development of empathy and implicates the role of attachment theory in explaining individual differences in empathy. Investigated in 58 preschool children, using 8 pictorial scenes portraying four emotions – happiness, sadness, anger and fear, children were invited to rate emotions elicited for both the character and self. Results supported the main prediction that securely attached children would be more empathic than insecurely attached children ($p < .001$), thus indicating that the route for increasing pro-social behaviour may lie within the realms of attachment theory.

Ethical Statement

This project was conducted to comply with the British Psychological Society's (BPS) ethical guidelines and those set out in the University of Plymouth, School of Psychology Stage 4 Handbook 2009/2010. These requirements were met both in principle and in practice.

Due to the nature of the study a Criminal Records Bureau (CRB) disclosure was obtained, since children were enlisted as participants. Active consent was secured via the opt-in approach. This was in the form of a signed slip at the bottom of a letter, which was distributed to all parents, giving full information of the study. It informed them of their right to withdraw from partaking at any time along with assurance that all data would remain anonymous and confidential. A verbal brief was also given to the children asking if they were happy to take part and assuring them they could stop at any time.

Data was collected independently and then collaborated with the data obtained by Jodi Glover, to create a larger sample. This was then used for separate analysis.

Introduction

From cradle to grave it is inevitable that we will all experience others in distress. For those enduring such emotional upset the load can be lightened by having someone to turn to for compassion and support in times of crisis. But in order for individuals to respond compassionately, the motivation and ability to put oneself in another's place and to experience the other's feelings, namely empathy, is imperative (Eisenberg & Miller, 1987; Mikulincer & Shaver, 2005; Toi & Batson, 1982; Zahn-Waxler, Radke-Yarrow, Wagner & Chapman, 1992). Concurrently, the capacity to understand and distinguish emotions in self and others, which takes the name of emotional understanding, is considered a prerequisite for experiencing empathy (Eisenberg, 2000; Laible & Thompson, 1998; Roberts & Strayer,1996). Documented by many as the driving force behind pro-social behaviour and a pioneer for moral development, empathic tendency varies from one individual to another (Denham, 1986; Hoffman, 2001). This poses the question as to why some individuals fail to thrive in experiencing empathy and if there is the potential for transforming this paucity.

Given that a child's most primitive experience with emotion takes place within the family environment, it is plausible to anticipate that the quality of interaction between parent and child goes a long way in shaping their emotional development. Bearing witness to and being in receipt of tender, consistent parenting which, as depicted by Ainsworth (1979), is intrinsic in secure parent-child relationships, and consequently should assist in establishing an emotive climate for which the development of empathy can flourish.

Anchored in the parental contribution, attachment security is notably governed by the availability and sensitivity of the primary caregiver, commonly the mother (Ainsworth, 1985). Confidence in their accessibility allows the infant to use the mother as a base from which to explore, safe in the knowledge that they will still be there when seeking comfort and safety. Simultaneously, warm prompt responses to an infant's cues also assist in generating a positive representation of self and others, identified by Bowlby (1973) as the internal working model, which guides a child's thoughts, feelings and emotions. Quite the opposite, interactions with a primary attachment figure who is unavailable and impassive, yield insecurities in others' responses and one's own self worth.

Bowlby (1969) contended that attachment theory may not merely serve to epitomise others' responses to the child's needs but also be pertinent in explaining a *child's* reactions to others in need. Supporting this notion, Mikulincer, Shaver, Gillath and Nitzberg (2005) depicted that the instinctive predisposition to feel empathic towards another's distress has the potential to be overpowered, interfered with or reversed by attachment insecurity. Akin to the theory of evolution, if individuals feel secure and less threatened, this frees up their psychological resources enabling them to detect, experience and respond positively to others' plight. In contrast, if attachment needs are not met an individual is absorbed with their own needs, consuming mental resources, therefore disabling the concentration of attention and concern towards others. Accordingly, this indicates that those securely attached are at a distinct advantage in experiencing empathy, since they likely possess greater resources for allocation to others' suffering.

Children's comprehension and recognition of basic emotions, including happiness, sadness, fear and anger becomes more sophisticated during the preschool year, in line with enhanced quality of interaction, owing to the acquisition of language skills (Eisenberg, Sadovsky & Spinrad, 2005; Harris, 1999). The transition from expressing emotions via gestures and facial expressions to incorporating the use of language offers richer opportunities for elaboration and strengthening of emotional understanding. Fabes, Eisenberg, Nyman & Micheaulieu (1991) observed preschool children in their natural setting within a day-care centre and on noticing a child openly conveying an emotion, they asked a nearby child who had viewed it to describe what they had seen. Even the youngest age group, at 36 months were proficient in accurately recognising and explaining the emotions experienced by the target child. Crucially, this ability to identify how another person may be feeling is a gateway for putting oneself in their position and vicariously feeling the same emotions. Simply being subjected to different emotions, whilst not understanding them, is futile. If children cannot appreciate their meaning and are unable to discriminate one from another, then they are destined for difficulty in predicting others' feelings, experiencing empathic concern and in responding appropriately.

The astute erudition of emotional understanding beyond age two, ensuing language acquisition is indicative of the opportunity for more elaborate emotive interactions. Denham, Zoller and Couchoud (1994) highlighted the value of such interactions for emotional development by discovering that the amount of time that mothers spent discussing feelings with their children was positively related to their understanding of emotions. This supplemented similar research which also established that distinctions in the emotional content of children's family discourse was linked to distinctions in their later understanding (Dunn, Brown & Beardsall, 1991; Dunn, Brown, Slomkowski, Tesla & Youngblade, 1991). Especially of relevance, those mothers found to invest more time in discussing a variety of emotions were distinctly more likely to bear secure parent-child attachments (Goldberg, Mackay-Soroka and Rochester, 1994; Steele, Steele, Croft & Fonagy, 1999). Conceivably, secure children are uninhibited in feeling and displaying a range of emotions since discussion of these is frequent and acceptable, whereas insecure children may in fact feel compelled to detract from showing and ultimately feeling such emotions, based on the deficiency and discouragement of emotion-based converse. If children do not have the freedom and safety to experience and assimilate their own emotions, then awareness and sensitivity of others' emotions will justifiably be stilted.

Through emotion-laden interactions children have the opportunity to engage in perspective taking, in particular during pretend play, where the child endeavours to take on the role of another person, physically, mentally and emotionally. Extensive research has been conducted within the field of pretend play and has frequently documented an association between pretend play and understanding the mental states of others, so much so that regular participation in make-believe play revealed increased awareness and concern for others' feelings (Hughs & Dunn, 1997; Youngblade & Dunn, 1995). This prudently implies that frequent participation in pretend play may benefit a child's level of empathy, since candidly experiencing another's feelings is routinely exercised during episodes of pretend play. In a study conducted by Slade (1987) mothers of securely attached children engaged in extended and more elaborate phases of pretend play, than those of insecurely attached children. Likewise if securely attached children are better equipped to

distinguish and act upon the perspectives of others in a make-believe scenario, it may be that this can also be applied outside fantasy-based play and implemented during real interactions. To critically challenge the premise that pretend play leads to enhanced understanding of others' mental states, it could be argued that the direction is in fact reversed. Feasibly, it may be that those with advanced awareness of others' feelings simply draw more pleasure from pretend play and so invest more time in it. What's more, it could be questioned as to whether taking on the role of another person, actually entails vicariously experiencing the feelings of the person or merely imitating them. Irrespective of the direction, if securely attached children engage in more elaborate pretend play as Slade (1987) discovered and pretend play is correlated with advanced sensitivity to others' feelings, then this supports the premise that securely attached children may be more empathic.

Corresponding to the principle of perspective-taking facilitating the understanding of others' feelings, Ruffman Perner and Parkin (1999) illustrated this relationship within the domain of discipline style. They discovered that children of parents who adopted perspective-taking strategies whereby they asked their children to imagine how something must feel to someone else, excelled in belief-understanding tasks. Whilst those whose parents employed power assertive tactics including shouting, physical punishment and withdrawal of privileges, performed worse on theory of mind tasks and displayed a greater lack of concern for others, together with the propensity for an insecure attachment status (Crockenberg & Litman, 1990; Douglas, 2007; Meins, Fernyhough, Russell & Clark-Carter, 1998; Pears & Moses, 2003; Smith, 2006). Appreciation that others are entities with different desires, beliefs and feelings, may assist in the development of empathy, since recognising another person's feelings is an opening for then putting oneself in their position and feeling the same. If the more punitive and forceful discipline strategies often implemented by mothers of insecurely attached children (Coyl, Roggman & Newland, 2002), do not offer the chance to assume another person's perspective nor seek to offer explanations regarding the effects that their behaviour has on others, then presumably insecurely attached children are less likely to appreciate and subsequently experience another's distress.

Stipek, Gralinski and Kopp (1990) conducted a factor analysis using infants 14-40 months of age, which led to the proposition that only with recognition of self can infants begin to experience and regulate emotions. The development of self-concept is a precursor to representations of self, which Eder (1990) depicted as not only physical but psychological in nature and present by the preschool years. Largely derived from parent-child interactions, possessing a positive self-concept, in particular the element of high self-esteem, is common in children with secure attachments, given that their needs for comfort and safety are swiftly met thus initiating feelings of worthiness (Mikulincer, 1995; Sroufe, 1988). Also, although literature is sparse, there is the circuitous suggestion that children with a positive self-concept are seemingly more empathic as they are not concerned with their own inadequacies (Strayer, 1983, as cited in Barnett, 1987). The discernment of self as a capable exponent is also likely to assist the development of empathy in comparison to less adept others, as a result of confidence in their ability to ease the shared distress. In contrast, rather than the child developing a sense of mastery over the world they live in, the insecure child feels controlled and restricted. So how can they be expected to have the confidence to feel others' emotions if they have no control over their own. To recapitulate, if attachment is associated with positive self-concept

which is purportedly related to empathy, then it strengthens the need to investigate further whether an actual direct causal link between attachment security and empathy exists.

More direct research was conducted by Mikulincer, Gillath, Halevy, Avihou, Avidan, and Eshkoli (2001) which integrated the priming of attachment in adults by asking them to recollect past memories, read stories, look at pictures or be exposed to subliminal attachment-related words. Following the attachment priming, the participants then read a story portraying someone in distress and subsequently rated the extent to which they themselves had experienced a variety of emotions. Results showed that the activation of attachment security produced reports of higher empathy, whereas insecurity inhibited it. Building on this, Mikulincer et al. (2005) assessed actual responses to someone in distress as opposed to self-reporting and again found that empathy was facilitated by priming of attachment security. Since priming of attachment appears to elicit higher empathy this appends prolific scope to the tenet that quality of parent-child attachment in children impinges on the degree of empathy experienced.

In keeping with the credence assigned to attachment security, Laible, Carlo and Roesch (2004) examined peer attachment in relation to children's empathy. Through questionnaires they discovered that attachment security with peers was associated with high levels of empathy. Given that preschool children spend the largest part of their time in the home environment, it could be speculated that if peer attachment is linked to empathy then the quality of the parent-child attachment would be of equal if not greater influence on empathy. Furthermore, the security derived from sensitive care-giving is likely to promote and assist the experience of other close relationships and friendships. Therefore indicating that secure peer attachments may in fact be derived from the initial secure parent-child attachment, which again would obliquely imply that a relationship may exist between parent-child attachment status and empathy.

The demand for research exploring the development of empathy appears crucial given the current social climate. Recognised by many as the driving force behind moral development and pro-social behaviour (Eisenberg, Miller, Shell, McNalley & Shea, 1991; Van Der Mark et al.,2002), if there is scope to enhance empathic concern in individuals, this would undeniably reap rewards. Laible et al. (2004) illustrated that adolescents depicted as high in empathy were less aggressive and engaged in more prosocial behaviour. This supplemented earlier research by Mehrabian and Epstein (1971) who described individuals high in empathy as furnishing helping behaviour and those low in empathy as displaying aggression. Moreover, empathy has also been positively associated with academic achievement (Parker et al.,2004) and with cooperation and sharing in children (Marcus, Telleen & Roke, 1979). It could be surmised that those experiencing empathy are motivated to lessen the distress of others and so empathy appears as an antecedent to pro-social behaviour. This is highly encouraging as it highlights the opportunity for transforming individuals, by looking for methods to increase empathy. If, as the literature is gravitating towards, a relationship between attachment security and empathy exists, this would potentially provide a route for boosting pro-social behaviour.

 In light of the reviewed literature the present study aimed to support the notion that cognitive and emotional provisions for the development of empathy are set in place

by the preschool years. In addition, an attempt was made to establish a relationship between attachment security and emotional understanding, wherein it was predicted that securely attached children would have more advanced emotional understanding. Laible and Thompson (1998) attempted to investigate more directly a relationship between emotional understanding and attachment security. Findings accentuated attachment security as a predictor of performance on emotional understanding tasks. The current study aimed to build on this, by employing an alternative approach which required the identification of characters' emotions from pictorial scenes. To clarify, it was expected that emotional understanding would be present, yet the level of emotional understanding would be superior in children with a secure parent-child attachment in comparison to insecurely attached children.

The scarcity in research explicitly investigating a relationship between attachment style and empathy tendered a gap which warranted further investigation. Van Der Mark, Van Ijzendoorn and Bakermans-Kranenburg (2002) did conduct a study on children aged 16 months and then again at 22 months old, with the purpose of examining such a relationship. They delineated attachment type using the Strange Situation, congruent with the age of the children tested. Empathy was examined through scoring the child's facial and verbal responses towards experimenters' and mothers' simulated distress. Subsequently they found that empathic concern was present but they determined only a low correlation between attachment security and empathy. It could be argued that perhaps the ability for such young children to empathise was overridden by the wariness aroused through observing an unfamiliar person in distress. To avoid this, the present study tested empathy using hypothetical scenarios, which were presented in picture format and supported by short narratives as opposed to real interactions. It was explicitly predicted that children with a secure parent-child attachment would be more empathic than children with an insecure attachment.

Seemingly, such research may be better focused on preschool aged children since the reviewed literature proposed that cognitive and emotional development undergoes particular maturity during this time (Eisenberg et al., 2005; Fabes et al.,1991; Harris, 1999). It is with this in mind that the current study conforms to this suggestion by utilising children aged 2.5 - 5 years old. Given the developmental trend and on account of considerable past research rendering age as a strong predictor for emotional understanding and empathy (Barnett, 1987; Borke, 1973; Burns & Cavey, 1957; Denham et al., 1994; Hoffman, 2001; Howe, Cate, Brown & Hadwin, 2008; Laible & Thompson, 1998), age in the present study was identified as a covariate, to prevent contamination of results.

The current study finally sought to elucidate whether gender differences existed in the emotional understanding and empathy of preschool children. Uncertainty remains as to the accuracy of the common supposition that girls are more empathic than boys (Van Der Mark et al., 2002; Zahn-Waxler, Robinson & Emde, 1992), since other research has found no variation (Eisenberg & Lennon, 1983; Hoffman & Levine, 1976; Laible & Thompson, 1998). With this in mind, the current study aimed to clarify the ambiguity surrounding gender differences in both emotional understanding and empathy.

Method

Participants

Fifty eight preschool children (29 boys, 29 girls) and their mothers were recruited via three childcare settings across Devon and Cornwall. These served both middle and lower class populations. The children ranged in age from 30 months to 60 months ($M = 45$ months; $SD = 8$ months). Of 94 mothers contacted, 65 gave their consent, of which 3 did not complete the attachment Q-set, 2 children were absent on day of testing and 2 children did not assent to partake.

Materials

Mothers' task

The Attachment Q-set (Version 3) by Waters (1987) which consisted of 90 items was utilised. Recommended adaptations for using mothers as observers were made, by converting the wording into first person and "the child" was amended to "my child". Each item was then reproduced using Microsoft PowerPoint with the suggested hint underneath, which offered an explanation of when to place an item low or high. All items plus hints were printed onto paper and cut out. See Appendix A for the full adapted item list.

The 90 items were placed in a large envelope which also included 9 pieces of card with a number from 1 to 9 written on each, along with 9 paperclips, an envelope with a participant number on, instructions (Appendix B) and a debrief (Appendix C).

Child's task

Eight different pictures were created using Microsoft Photoshop. Of these pictures, two presented a scene with a target character experiencing happiness, two sadness, two fear and two anger. Each picture was supported by a short narrative, which described what was taking place in the scene. These were printed and subsequently laminated. Refer to Appendix D for all pictures and narratives.

Cartoon images illustrating each of the four emotions; happy, sad, scared and angry were used as visual aids to assist participants in their responses (Appendix E). These were also created using Microsoft Photoshop, printed and then laminated.

Score sheets were designed using Microsoft Word for the purpose of recording responses and other relevant information, including participant's number, gender and age (Appendix F).

Design and Procedure

A two-factor between subjects design was employed in which children were categorised into two attachment dichotomies, secure or insecure, based on the results of their mother's Attachment Q-Sort (AQS). They were also grouped by gender. Children's age was used as a covariate to eliminate developmental effects.

Mothers' task

A letter emulating as a brief and requesting active consent via the opt-in method was distributed to all parents (Appendix G). It depicted the purpose of the study as investigating the influence of parent and child interaction on children's empathic responses and described the nature of the experiment for both the parent and child's

tasks. Confidentiality was assured along with the right for themselves and their child to withdraw at any time. On receipt of signed consent the attachment Q-sort pack was distributed. The pack contained instructions which directed the mother to carry out the sorting task at home in her own time. They were asked to lay the enclosed number cards from 1 to 9 in a line in front of them. It was explained that 1 was to reflect least like their child and 9 most like their child. Items that the mother perceived as non-applicable, i.e. neither like nor unlike their child, were to be placed in the centre pile which was 5. Items sorted here would not impact on the later data coding. Following this, mothers were asked to read each item and carefully consider where on the scale they felt it best represented their child. Each item had a hint below to assist in their choice. Below is an example of one of the 90 items:

> Item 21. My child keeps track of my location when he/she plays
> around the house.

Below is an example of the hint assigned to the item:

> Middle: If he/she isn't allowed or doesn't have room to play away
> from you.
> Low: Doesn't keep track.

The sorting task took approximately 20 minutes and on completion of the 90 item sort they were paper-clipped to the relevant number and returned in a confidential envelope. The pack also contained a debrief thanking them for their contribution and again defining the purpose of the study. They were notified that a concise poster would be displayed in the preschool to illustrate the general findings of the study.

Children's Task
Children were tested individually during preschool hours between 8:30am and 3:30pm. They were asked if they would like to play a picture game and on approval were directed towards a quiet table in their setting. Once sat at the table with the experimenter, children received an informal verbal brief, which was as follows:

> "Hello, my name is Becky and if it is okay with you I would like you
> to look at a few pictures. I'll read to you what is happening in the
> picture and then ask you a few questions about them. All answers
> will be right and really useful for me. Are you happy to have a go?
> Please let me know if you want to stop at any time".

The cartoon images used as visual aids to illustrate the four relevant emotions; happy, sad, angry and scared were explained to the children. Subsequently, each picture of an emotionally evocative situation was presented to the child one at a time along with a short narrative which was read aloud by the experimenter. For example, a picture of a shark chasing a child in the sea was accompanied by the narrative:

> "Ted is swimming in the sea when a great big white shark starts
> to chase him".

The experimenter then pointed to the character in the scene that they were referring to and asked the child two questions. The first was to examine emotional understanding and the second was to examine empathy:

1.   "How do you think this person in this picture is feeling"?
       Happy   Sad   Angry   Scared

2.   "How do you feel for this person in this picture"?
       Happy   Sad   Angry   Scared

Children had the visual aid at hand to refer to if needed and were regularly reminded of the four emotions available to choose from. Responses were recorded on a score sheet discreetly. Finally after all eight pictures were shown and all responses were recorded the children received the following informal verbal debrief:

"Thank you very much for doing so well. You've been really helpful.
Do you have any questions before you go back and join your friends"

Throughout the task children were able to withdraw at any time and the manager of the setting was kept fully informed.

Data Coding

Attachment
Attachment security was classified using the criterion sort scoring method. Pearson's correlation coefficients were computed, comparing the AQS criterion sort scores for each participant to those of the prototypically secure child provided by Waters, Vaugn, Posada and Kondo-Ikemura (1995). Thus, the higher the correlation, the more secure the child. These correlation coefficients are available on the appended disk. Raw data including participants' Q-sort for the 90 items and all statistical output is also available on the appended disk. Using the rationale of Waters (1987), which was inspired by the proportions assumed from the strange situation, children whose correlations were in the top two-thirds of the distribution were categorised as securely attached and the bottom one-third as insecurely attached. This provided the two attachment dichotomies used in the analysis, secure and insecure.

Task performance
The score range for both the emotional understanding task and the empathy task was 0-16. Each response was rated on a 0-2 scale, wherein 2 points were awarded for a response matching that of the protagonist. 1 point was given for emotions of a similar valence, i.e. if the protagonist was scared and a child responded with the emotion sad and a score of 0 was given for a mismatched response.

Results
Participants' scores on the emotional understanding task ranged from 8 to16 (M = 14.26, SD = 1.83) and on the empathy task they ranged from 0 to 16 (M = 10.34, SD = 4.43). This indicates that overall participants were performing higher on the emotional understanding task than on the empathy task.

A Pearson's correlation with age partialled out revealed a weak relationship between emotional understanding and empathy, $r = .395$, $p = .002$.

Descriptive statistics for the four experimental groups are presented in Table 1 for emotional understanding and Table 2 for empathy. All raw data and output are available on the appended disk.

Emotional understanding

Table 1: Means (standard deviations) of performance scores on emotional understanding task for the two categories of attachment security and gender (n=29 secure; 20 male, 19 female, n=19 insecure; 9 male, 10 female)

	Secure	Insecure
Male	14.1 (1.83)	14.0 (2.5)
Female	14.68 (1.67)	14.0 (2.0)
Overall	14.38 (1.76)	14.0 (2.0)

Table 1 illustrates that performance on the emotional understanding task only varied slightly between securely attached and insecurely attached children. A two-factor analysis of covariance (ANCOVA) was used to assess the difference after controlling for age differences. According to Levene's test, the assumption of homogeneity of variance was met, p = .49. The two-factor ANCOVA revealed no significant difference for attachment style, $F(1,53) = 0.31$, $p =.58$.

Table 1 also indicates no noteworthy difference between males' and females' performance on the emotional understanding task. A two-factor ANCOVA, with age covaried out, maintained this by revealing no significant difference for gender, $F(1,53) = 0.06$, $p =.814$. No significant interaction between attachment style and gender was found $F(1,53) = 0.25$, $p =.618$.

Empathy

Table 2: Means (standard deviations) of performance scores on empathy task for the two categories of attachment security and gender (n=29 secure; 20 male, 19 female, n=19 insecure; 9 male, 10 female)

	Secure	Insecure
Male	11.8 (3.78)	6.0 (3.54)
Female	13.0 (2.83)	6.3 (3.23)
Overall	12.38 (3.36)	6.16 (3.29)

Table 2 indicates a difference in performance on the empathy task with securely attached children outperforming insecurely attached children, which was in the direction predicted. An analysis of covariance (ANCOVA) was used to assess the difference after controlling for age differences. According to Levene's test, the assumption of homogeneity of variance was met, p =.66. The two-factor ANCOVA showed a significant difference between attachment styles $F(1,53) = 44.34$, $p <.001$, $\eta^2 = .45$.

Table 2 shows only a slight difference between males' and females' performance on the empathy task, with females scoring higher than males. A two-factor ANCOVA, with age as a covariate, found no significant difference for gender $F(1,53) = 0.22$, $p = .643$ and no significant interaction between attachment security and gender $F(1,53) = 0.18$, $p = .674$.

Discussion

This study sought to confirm the presence of emotional understanding in preschool children, with particular focus on the anticipated relationship between attachment security and emotional understanding. Overall children performed highly on the emotional understanding task, which was consistent with the proposition that comprehension and recognition of basic emotions matures markedly during the preschool years, on account of language acquisition giving rise to more profound interactions (Fabes et al.,1991; Harris,1999).

Nevertheless findings did not support the claim that securely attached children would outperform insecurely attached children on the emotional understanding task. In view of this, it could be argued that attachment security may not lead to sophisticated understanding of *all* emotions. Perhaps those with an insecure attachment have enhanced understanding of only negative emotions since, as highlighted by Bowlby (1969), they are subjected to negative emotions more frequently, whereas securely attached children are often sheltered from them. If securely attached children are protected from observing, discussing and feeling emotions of a negative valence, then how can they be expected to recognise and understand these. Therefore although results implied that attachment style did not predict emotional understanding, it may simply be the case that it favours positive emotions such as happiness. Contradictory to this, Laible and Thompson (1998) actually found securely attached children to have better emotional understanding for negative emotions. This would fit with the present study's initial prediction which prophesised that since emotional discourse for a variety of emotions was more frequent and elaborate in secure parent-child relationships, secure children would feel unconstrained in expressing these and ultimately comprehension would excel (Denham et al.,1994; Dunn et al.,1991).

In addition, the lack of variation in emotional understanding between attachment classifications could be attributable to the opportunity for expanding emotion comprehension elsewhere. Basic understanding of emotions may be grasped from alternative sources other than within the family environment, such as preschool teachers, interactions with peers and other relatives. Therefore the rudiments of acquiring emotional understanding should be taken into account.

Subsequently, although findings were incongruous with our expectations for attachment security, it was still ascertained that emotional understanding was in

place and potentially the lack of difference between attachment categories may be owing to the fact that basic comprehension of emotions generally existed for all preschool children, irrespective of attachment style. Furthermore, it may be that in order for future research to find individual differences in emotional understanding for attachment status, more complex emotions such as embarrassment and pride ought to be examined. These secondary emotions have been observed in children beyond the middle of the second year (Lewis, Sullivan, Stanger & Weiss, 1989), so we can surmise that the capacity to experience these emotions may equip children to recognise these emotions in others. Hence, it may be valuable to examine individual differences between attachment dichotomies, in the understanding of a wider range of emotions.

When inspecting for gender differences the present study found no variation between boys' and girls' performance on the emotional understanding element of the task, or on the empathy task. Following Eisenberg and Lennon's (1983) research on gender differences which ascertained that inconsistencies prevailed, attempts to clarify whether distinctions between gender existed for emotional understanding and empathy resolved that no such variations were present (Hoffman & Levine, 1976; Laible & Thompson, 1998). Accordingly, we can add to this literature by providing further support for the inference that boys and girls do not differ considerably in emotional understanding and empathy. Ostensibly males and females may diverge in how empathic and adept with emotions they wish to be perceived by others. Thus, if females are more willing to portray themselves as empathic, it may be that literature uncovering gender differences was influenced by males' aversion to appear empathic. Since the present study focused on preschool children, who are conceivably oblivious to this concept, the propensity for males to withhold their empathic side was presumably avoided. Thus, accrediting the current study's nuance that gender differences in emotional understanding and empathy do not prevail.

The central aim of this study was to tentatively investigate whether a relationship between attachment style and empathy existed, wherein securely attached children would perform higher on the empathy element of the task than those with an insecure parent-child attachment. This forecast was fervently substantiated, with securely attached children significantly outperforming insecurely attached children. These findings fit with the contention made by Mikulincer et al. (2005), that only when individuals feel fairly secure themselves can they recognise and consequently experience others' emotions. The receipt of dependable and sensitive responses to a child's own distress, acts as a model for which the securely attached child can refer back to when experiencing others in distress. This template for empathising with others is often missing for the insecurely attached child, so it follows suit that their empathic responses would be depleted in comparison to the securely attached child.

Our research also supports the claim that the opportunity to engage in perspective-taking via pretend play and implemented through discipline strategies, nurtures the development of empathy. Since these are dominant within secure parent-child dyads and attachment security has been demonstrated to relate to the development of empathy, this also brings to light the important role of emotionally evocative interactions. As proclaimed by Steele et al. (1999), the freedom to explore and

discuss a variety of emotions which is prevalent in secure dyads may now seem to emerge as necessary for the development of empathy. Without these components, namely rich emotional discourse, pretend play and perspective-taking discipline methods, which are conventional within the securely attached child's up-bringing, it could be argued that attachment security would not prosper in augmenting empathic concern. Therefore it might be construed that the various facets of the securely attached child's rearing are essential to and in part what drives the development of empathy. With this in mind, future research could be directed towards exploring the various components of the secure parent-child relationship with the intention of discerning which elements go further in shaping a child's empathic concern.

Attachment style may not act alone in fostering enhanced levels of empathy in children. Van Der Mark et al. (2002) raised the concept of a child's temperament as a possible contender in the development of empathy. Temperament was described by Rothbart (2007) as biologically based where in conjunction with experience it cultivates a personality. For instance, a fearful child is less likely to extend themselves to respond to another person's distress. However, although it could be construed that this would inhibit their empathic response, it does not necessarily indicate that they do not actually vicariously feel another person's emotions. It merely suggests that they refrain from responding. Therefore the matter of temperament may require further exploration to rule it out as a problem in the interpretation of our results.

In addition, it may be worth noting that the current study broadly categorised children into either secure or insecure classifications, based on their mother's AQS. This assumption that all insecurely attached children have equivalent psychological mechanisms driving their emotions is incongruent with the narrower categorisations identified by Bretherton (1992). In the case of the insecure avoidant child, it may be that they distance themselves from another's feelings, whereas the insecure anxious child may transfer another's distress into personal anguish. Either way, as Mikulincer and Shaver (2005) professed, the tendency to empathise with another person is susceptible to be overridden, therefore although the broad categorisation does not outwardly impair our findings it is worth considering for future analysis.

The present study alleged that empathy was contingent upon emotional understanding, yet despite children's overall performance on the emotional understanding task being superior to the overall performance on the empathy task, the relationship between the two was decidedly weak. Nonetheless, it was not suggested that advanced emotional understanding always furnishes empathy, but that empathy relies upon the presence of emotional understanding, which was sustained.

The findings of the current study, though they ardently add to the literature concerning the quality of the parent-child attachment in relation to emotional understanding and empathy, should be treated with some caution. The tendency to present oneself in a positive light, referred to as social desirability, posed as a potential problem when interpreting our findings. Since mothers were used as observers for the AQS, they succumbed to the risk of response bias. Social desirability could arise through mothers exaggerating responses to items in order to overestimate behaviour that is perceived as socially pleasing. Alternatively they may deny or reduce the level of reported behaviours which are recognised as improper.

On the other hand, some individuals, particularly those with low self-esteem, may be prone to painting negative representations. Thus such mothers could underestimate pleasant responses and overrate negative behaviours. Teti and McGourty (1996) evaluated the pro's and con's to using mothers as observers in comparison to experimenters. They supported the use of mothers on account of significant intercorrelation between sorts from mothers and experimenters. They resolved that mothers had a more representative impression and highlighted that the risk of social desirability on the AQS was superseded by the structure and concealed connotation of the items. Hence, the threat of social desirability for the mothers' task was noteworthy but minimal.

Likewise, through social learning children acquire the knowledge of which behaviours are perceived as negative or positive – socially desirable (Eisenberg & Mussen, 1989). So when they see someone who is feeling sad, it may be the case that they know that they too should feel sad for them. So in terms of the present study, there may be the risk of children falsely reporting feeling the same as the character, on account of recognising it as socially pleasing. This could result in an erroneous inflation of their level of empathy. However, given that this is a risk that could apply to all participants it was anticipated that this would balance the results so that any effects found were still valuable. To counteract this weakness, forthcoming research could measure empathy using facial expressions or as utilised by Eisenberg and Fabes (1990) physiological responses. This would eliminate the risk of social desirability as it is easier to alter verbal responses than facial and physiological reactions.

Several other limitations apply to the current study. Firstly, the stylised and hypothetical nature of the children's task may be less competent in eliciting the level of affect which would otherwise be stimulated in real interactions. If exposed to emotions incited by real individuals as opposed to imaginary characters as was the case in the present experiment, children may experience more emotional arousal. This would suggest that the present study may not have obtained true measures of empathy. For that reason, future research may benefit from observing empathic responses in naturalistic settings to circumvent this constraint.

In the pictorial scenes used in the child's task, the protagonist was in some instances a child and on some occasions an adult. It could be challenged that children may be more instinctive in empathising with someone of their own age, rather than with an adult. This would then imply that the pictures involving adults would elicit less empathic responses and so may undermine a child's overall empathic nature. It would be interesting for further research to examine this novel suggestion that differences in empathy may be derived as a result of the protagonists' age and role as parent or child.

Common factors to take into account with experiments of this kind include fatigue, boredom and practice effects. These may have transpired in the children's task on account of their limited attention span and distractibility (Sigelman & Rider, 2005). This may have resulted in flawed responses for the pictures presented towards the end of the experiment. In an attempt to eliminate these issues, the current task was kept brief lasting a maximum of 20 minutes and the pictures were designed to portray a variety of scenarios which were attractive and colourful. In addition, pictures were presented in a randomised order.

Future research may also benefit from broadening the sample to incorporate participants from more diverse backgrounds, in terms of ethnicity, religion and socioeconomic status. The current study was limited by cost and time restrictions, wherein the sample was limited to only three childcare settings. It would be mindful to recognise that utilising a more eclectic sample may produce dissimilar results to those obtained in the current study. Conversely, if findings can be replicated in a broader sample this would tentatively underpin the crucial role of attachment theory in the development of empathy in preschool children. It was also proposed that the amount of time in which mothers spent discussing emotions with their children was related to the child's emotional understanding and that frequent emotional discourse was conventional within secure parent-child relationships (Dunn et al., 1991; Steele et al.,1999). However, rather than the initial perception that the attachment relationship may mould the discussion of emotions and consequently the child's degree of emotional understanding, perhaps the family structure i.e. lone parent, two-parent family, siblings, and household income may be underlying factors, which influence the quality of time that mothers actually have to spend discussing emotions with their children. So rather than the quality of the parent-child attachment solely shaping a child's emotional understanding, an array of alternative characteristics may also impact on their development. These should therefore be explored in future research in an attempt to determine the extent of their influence on the development of emotional understanding and empathy.

The current study reflects the potential powerful impact of attachment security on children's social and emotional development. It does not claim that children's level of empathy is solely constructed on account of parent-child attachment style, it simply highlights the influential role that attachment security plays in the formation of a child's degree of empathic concern. It draws attention to the importance of further exploring the relationship between attachment security and empathy and eliminating other viable explanations for the results achieved. Fundamentally it has challenged the foundations of pro-social behaviour and established a possible route for improving what is increasingly becoming a socially destructive environment for children to be raised in. If the emergent theme of attachment theory is as influential to empathy and wider society as has been reasoned, it is seemingly rational to consider means of communicating this to prospective parents. If individuals are educated in the advantages of nourishing a secure parent-child attachment and skills are taught and instilled from the start, then there is hope of restoring a morally congenial society.

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