

**VOLUME 1**

**HOSTILE ATTRIBUTIONAL STYLE,  
MENTALISATION AND ATTACHMENT IN  
PREADOLESCENCE**

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## OVERVIEW

This thesis describes an investigation into the relationship between hostile attributional style, mentalisation abilities and attachment security.

Part I is a review of the literature around these three constructs. Social information processing patterns, mentalisation skills and attachment theory are introduced separately, and their proposed links to aggressive behaviours are reviewed. The literature supporting associations between attachment security and both mentalisation and hostile attributional style is also outlined, and ideas about the relationship between mentalisation and attributional style are proposed.

Part II is a report of an empirical study testing the hypotheses that insecure attachment and deficits in mentalisation are precursors to the development of hostile attributional styles, and that hostile biased processing is associated with anger. Fifty-five preadolescent children completed measures of attributional style, attachment, mentalisation, and anger experience. Hostile attributional style was associated with trait anger, but not with mentalisation and attachment security. The findings are discussed in terms of the factors relevant to the development of hostile social cognitions, and the link between negative emotions and hostile information processing.

Part III is a critical appraisal of this thesis. The findings of the empirical study are discussed further and methodological issues are considered. A personal reflection is presented before the thesis is briefly summarised and final conclusions drawn.

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# **PART I**

## **REVIEW PAPER**

### **A REVIEW OF PERSPECTIVES ON AGGRESSIVE BEHAVIOUR: EXPLANATIONS FROM SOCIAL INFORMATION PROCESSING MODELS, MENTALISATION APPROACHES AND ATTACHMENT RESEARCH**



## **ABSTRACT**

This review aims to explore social information processing styles, mentalisation abilities, and attachment security, and their associations, in relation to aggressive behaviours. These literatures are considered separately before possible relationships between these constructs are discussed. Existing theory and empirical findings around the relationships between social information processing, attachment and mentalisation are described. The author poses some further suggestions about how these constructs may be related, and the review ends with a possible model of the development of hostile attributional styles.

## **1.0. INTRODUCTION**

Research into the factors associated with aggressive behaviour in children and adolescents has been conducted from a number of different psychological perspectives. For example, attachment theorists have focused on the influence of early care-giving experiences, while developmental psychologists have explored cognitive processes such as theory of mind skills, in relation to externalising behaviours. The social information processing model (Crick & Dodge, 1994; Dodge, 1986) was developed in an attempt to explain individual differences in aggressive behaviour and to improve upon current theory. This approach has identified cognitive styles – such as hostile attributional biases – that are associated with aggression.

The social information processing approach has provided a significant contribution to the understanding of the internal processes associated with aggressive behaviour, but it is a limitation of this theory that little is known about how processing styles develop. Much of the research was conducted in isolation from other valuable psychological accounts of social adjustment, such as attachment theory and developmental theory. The primary aim of this review therefore is to propose a model of how hostile biased processing develops, by considering other processes which may be related. I will suggest that hostile attributional styles are related to both mentalisation abilities and attachment security; that insecure attachment is associated with poor mentalisation, and that this in turn is associated with hostile attributional biases.

In order to elaborate upon and qualify this suggestion, I shall first review the literature on social information processing approaches, and then look separately at attachment theory and mentalisation, all thereof which have hypothesised about the factors that relate to social behaviour. More recently these different paths of research have begun to cross (Petit, Dodge & Brown, 1998), and I shall outline the preliminary research that has been conducted into the possible associations between these constructs in relation to aggressive behaviour. In doing so I shall highlight the limits of what is known about these connections and propose some further ideas.

The review is divided into five sections and will include a separate review of the constructs, as well as a review of the literature which ties these together. In Section 1.1, I briefly describe aggressive behaviour and consider some of the longer term outcomes. Section 1.2 focuses upon social information processing accounts of aggression and specifically the literature relating to attributions of intent. Section 1.3 is a discussion of the contribution of mentalisation research and attachment research, and Section 1.4 pulls together these different perspectives and considers how these psychological constructs might be linked. In the final section I suggest a model of how attachment security and mentalisation relate to the development of hostile biased processing, and some ideas for future research.

## **1.1. AGGRESSIVE BEHAVIOUR**

Aggressive behaviour problems in children have a prevalence rate of 10%, rising to 25% in children who experience socio-economic disadvantage (Rimm-Kaufman, Pianta & Cox, 2000). Aggressive behaviour is considered to be a major marker of social maladjustment - socially maladjusted children have been described as "Children who are rejected by their peers (i.e. who have low social status), who engage in aggression frequently, or who withdraw from social contacts" (Crick & Dodge, 1994, p.82). Displays of externalising behaviour in children are a challenge for families, schools and communities, and such behaviours have a negative impact on peer relationships, parental relationships, and academic achievement. Aggression is often co-morbid with depression (Capaldi, 1992), so there is the potential for aggression to have a negative impact upon an individual's self-esteem.

Aggression can involve both overt and subtle behaviours and a distinction has been made between 'reactive aggression' and 'instrumental' or 'proactive aggression'. Reactive aggression is an act of overt aggression that is accompanied by feelings of intense anger (Crick & Dodge, 1996) and is usually a defensive response to a perceived threat. In contrast, proactive or instrumentally aggressive acts are premeditated behaviours, and are not associated with anger or frustration (Dodge & Coie, 1987). Unprovoked acts of aggression are typically instances of teasing or bullying others, driven by the desire to achieve some external goal. Despite the clear demarcation between these acts, reactive and proactive aggression are positively correlated (e.g. Schwartz, Dodge, Coie, Hubbard, Cillessen, Lemerise & Bateman,

1998), and many children engage in both types of behaviour. It has also been demonstrated that gender differences exist in the form of aggression enacted by socially maladjusted children; boys tend to engage in reactive aggression, while girls more often use non-physical aggression, focused upon damaging relationships between peers. This is characteristic of proactive aggression (Dodge, 1991).

### **1.1.1. Risk Factors for the Development of Aggression**

Risk factors for the development of externalising behaviour problems have been identified and research suggests that aggressive behaviours are predicted by the number and extensiveness of risk factors (Hughes & Leekman, 2004). These risk factors include socio-demographic disadvantage, exposure to stressful events, developmental deficits, and maternal depression (Schultz & Shaw, 2003). Physical abuse is a specific risk factor (e.g. Dodge, Bates & Pettit, 1990), and insecure attachments have also been specifically associated with aggression (see Burke, Loeber & Birmaher, 2002, for a more detailed review).

### **1.1.2. Developmental Trajectories**

Do poor social adjustment and aggression in childhood predict future difficulties? Empirical research indicates that social adjustment difficulties of this kind are predictive of later adjustment difficulties (see Parker & Asher, 1987, for a review). More specifically childhood aggression is predictive of poor emotional stability, low achievement, and criminal activity in later life (Hudley & Graham, 1993). However, Dodge, Lansford, Salzer Burks, Bates, Pettit, Fontaine & Price (2003), acknowledge

the role of positive relationships with peers in “deflecting aggressive children away from aggressive trajectories” (p.390), suggesting that stable and positive preference by peers can be a strong buffer against the development of anti-social difficulties.

### **1.1.3. Summary**

Externalising behaviour problems in childhood are pertinent to accounts of social maladjustment, and are associated with poor adult outcomes. With this in mind it is important to understand the processes by which children who experience behaviour problems become, or fail to become aggressive. Why is it that some children maintain friendships and successfully negotiate conflicts, and that others incite conflict and behave aggressively towards their peers? Unsurprisingly, psychologists working in a number of different fields have attempted to explore this question. In the following two sections of this review I shall outline the theories and empirical support for three different perspectives which comment on aggressive behaviour; (1) social information processing models – in particular suggestions around the role of hostile attributional style (2) developmental theories around mentalisation, or theory of mind abilities, and (3) attachment theory. This will relate to my proposal that insecure attachment and poor mentalisation are precursors to the development of hostile attributional styles.

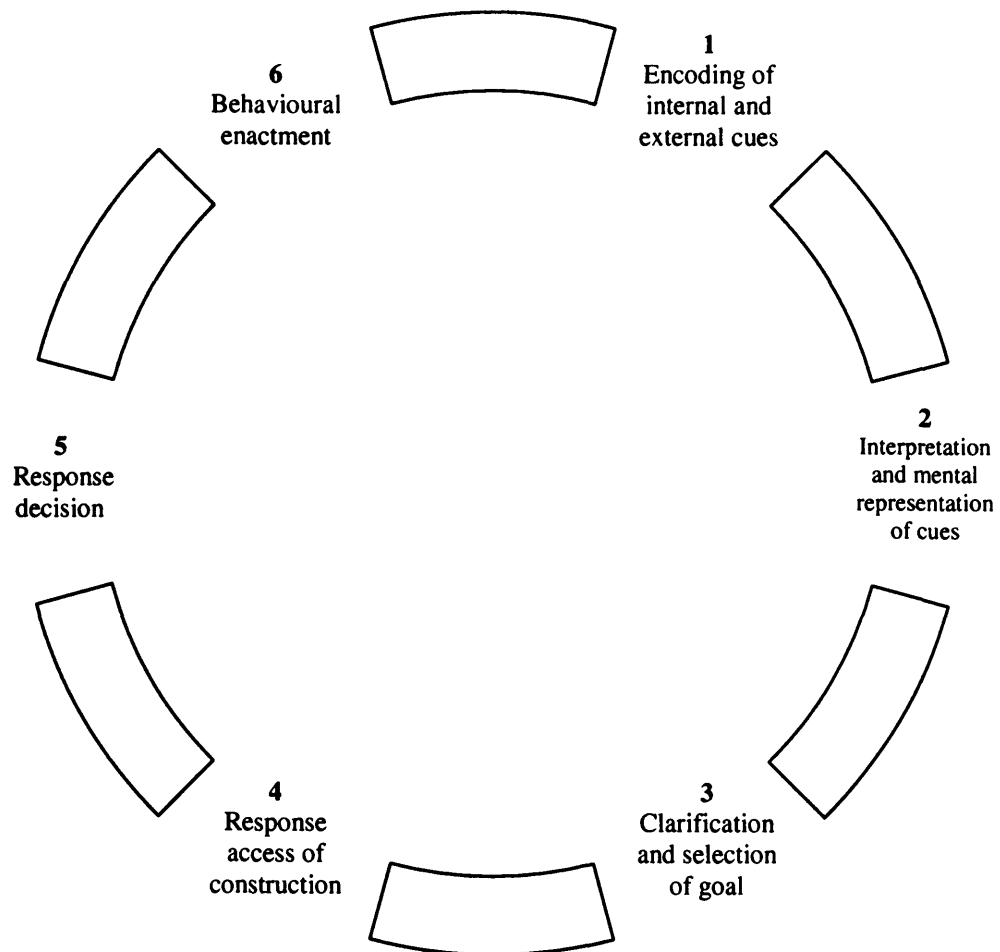
## **1.2. SOCIAL INFORMATION PROCESSING AND AGGRESSION**

### **1.2.1. The Social Information Processing Model (Crick & Dodge, 1994)**

The social information processing model, originally proposed by Kenneth Dodge in 1986, and later revised and updated in 1994 by Nicki Crick and Dodge, was developed as a means to both understand and explain the occurrence of socially maladjusted behaviours in children and adolescents. The main premise behind this approach is that behavioural problems, such as aggression, arise from particular processing patterns; that social cognitions predict social outcomes.

These models have been used as the basis for a large body of empirical research which has provided viable explanations for individual differences in aggressive and pro-social behaviours. The theory suggests that when a child is engaged in social interaction, a sequence of on-line processing steps occur, and these give rise to behavioural outcomes. These are described below and appear in Figure 1.1. The theory suggests that skill in processing at each step is associated with competent social behaviour, but poor or biased processing at each step is predictive of deviant social behaviour. Crick and Dodge (1994) speculate that in aggressive children, particular cognitive styles are evident, which differ from those of children who engage in pro-social activities.

*Figure 1.1: Stages of information processing in response to social stimuli.*





### Stages of Information Processing

The model states that when a child processes social scenarios, certain internal and external cues are attended to and encoded. These cues are interpreted, which involves analysis of the cause of events, inferences about others' perspectives, and attributions of intent. A desired outcome is selected and clarified, and possible responses to achieve this outcome are constructed. Responses are evaluated and the response evaluated most favourably is selected. Finally, the chosen response is enacted.

The model suggests that behavioural outcomes are a function of these idiosyncratic processing steps.

#### **1.2.1.1. Empirical Findings**

There is overwhelming empirical evidence supporting the relationship between the proposed stages of the social information processing model and aggressive behaviour (See Crick & Dodge, 1994). Research indicates that aggressive children perceive, interpret and evaluate social stimuli in a manner that increases the likelihood that anti-social responses will be enacted. For example, aggressive children are more likely to attribute hostility to peers (Dodge, 1985), more likely to strive for inappropriate goals and evaluate aggressive responses more favourably (Crick & Dodge, 1996), and feel more efficacious in performing aggressive acts (Crick & Dodge, 1994).

### **1.2.1.2. Clinical Implications of the Social Information Processing Model**

Cognitive behavioural interventions with aggressive children have been based directly upon social information processing theory (e.g. Bierman, 1986; Guerra & Slaby, 1990; Hudley & Graham, 1993). The rationale behind such work is that modifications to the biased processing styles seen in aggressive children could be targeted to reduce the aggressive actions. Indeed, Humfress, O'Connor, Slaughter, Target and Fonagy (2002), commenting generally on the role of research in informing preventive interventions, state that "one of the best examples of the dialogue between basic and clinical research is provided by children's social cognition e.g. Dodge, 1993" (p.881).

### **1.2.1.3. Critique**

I have referred here to only a small number of the studies in this area, but there is considerable additional research establishing a robust empirical connection between social information processing patterns and externalising behaviours (Crick & Dodge, 1994). The model is intuitively appealing and understandable, and makes the convincing argument that aggressive behaviour is associated with deficiencies in social information processing.

However, both theoretical and methodological limitations are apparent and require consideration. In terms of theory, Crick and Dodge make assumptions that have not been addressed empirically, such as the assumption that emotion (e.g. arousal) plays a role at each processing stage. This idea has not been elaborated nor adequately

empirically investigated. Equally, despite making general assumptions about the impact of age on processing patterns, most studies have been conducted with children aged between 9 and 12 years of age and few have targeted early childhood and adolescence. There are theoretical gaps in relation to how gender relates to processing of social stimuli, and a paucity of research involving girls; even in studies including both genders, gender is not often conceptualised as an independent variable.

In relation to the methodology employed, the research is largely correlational, and claims that processing patterns cause aggressive behaviour have not been established empirically. A number of studies (e.g. Nelson & Crick, 1999; Orobio de Castro, Veerman, Koops, Bosch & Monshouwer, 2002) recognise that the methods of assessing processing styles - which are conceptualised as automatic procedures - have been investigated using paradigms that require an individual to use conscious and reflective thought. This may not be the optimal method of assessment as it requires participants to process in an artificial manner.

Nonetheless, empirical research has highlighted important individual differences in social information processing patterns, which correlate with aggressive outcomes in the manner predicted by the model.

#### **1.2.1.4. Summary**

In summary, empirical evidence suggests that particular patterns of social information processing are associated with aggressive behaviour problems.

The social information processing model is one approach to the question of the development of aggressive behaviour, but how is aggression conceptualised from other psychological perspectives? Do different accounts overlap with this model, and do other psychological constructs help to explain how information processing styles develop? Before turning to these questions in Sections 1.3 and 1.4, I shall now focus on hostile attributional styles, which Crick and Dodge suggest are predictive of aggression.

### **1.2.2. Hostile Attributional Bias**

A large body of research has focused upon individual differences in the manner in which children process the intentions of others', and the implications that this has for social behaviour. The term 'hostile attributional bias' was originally used by Nasby, Hayden and DePaulo (1979, cited in Crick & Dodge, 1994) to describe a particular bias in interpreting intent. Since this time, two terms, 'hostile biased processing', and 'hostile attributional style', have been used to describe this phenomenon. I shall use these terms interchangeably.

#### **Definitions**

"A hostile attributional bias reflects a tendency to view others' intentions as mean, especially within ambiguous social situations with negative outcomes" (Schultz & Shaw, 2003, p.441). A more extreme definition has also been offered by Dill, Anderson, Anderson and Deuser (1997), they suggest that children with this style of processing "tend to view the world through blood-red tinted glasses" (p.275).

To illustrate these definitions, take the scenario where a child is hit by a ball but does not know why. This is potentially a benign event; it could have been accidental, caused by a poorly judged throw. The theory states that the child with a predominantly hostile attributional style, in the absence of information about why the ball struck them, is likely to state that the ball was thrown at them deliberately. Hostile biased processing is *not* thought to be in operation in scenarios where the

intent behind an event is either *clearly* hostile or non-hostile (e.g. Bickett, Milich & Brown, 1996). Threat of hostility is inferred from limited or ambiguous information, and as such a hostile attributional style represents a form of cognitive distortion.

### Hostile Attributions and Aggressive Behaviour

The perceived intention of a provoker is crucial in determining the behavioural response of the child. In an early paper on the topic, Dodge (1980) was explicit in stating that *one* of the reasons we see aggression in children is because they attribute hostile intentions to others. Dodge (1985) suggested that when children make attributions of hostility aggressive actions are endorsed. Conversely an individual is unlikely to respond with aggression if they represent others' intentions as benign. More recently, Crick and Dodge (1994) go so far as to suggest that hostile attributional biases "causally contribute to eventual aggressive behaviour patterns and peer status" (p.85).

If children consistently perceive hostile intent in the actions of others, this can become very damaging to social relationships (Schultz & Shaw, 2003). Angry reactions can also be problematic for relationships with teachers, as recognised by Schultz and Shaw (2003) "hostile attributional biases may also elicit negative reactions from teachers, who may become frustrated by these children's angry and defensive reactions to classroom events" (p.444). Thus such a bias can be particularly problematic for social adjustment, and clinical interventions, based upon cognitive behavioural theory, have been designed specifically to address hostile attributions (e.g. Hudley & Graham, 1993).

### **1.2.2.1. Empirical Findings**

Hostile attributional styles have been investigated most commonly through the use of hypothetical situations, where a child is presented with written or video depictions of social scenarios, such as peer rebuff and conflict. The participant is then interviewed, or given a questionnaire, about the intent of the characters. Due to the magnitude of the research this topic has generated, I will outline only a selection of studies.

#### **Aggressive Children**

Intent attributions are one of the most widely studied elements of Crick and Dodge's social information processing model, and a robust relationship is reported between hostile attributional style and aggression (Crick & Dodge, 1994). The key research finding, from which more specific research questions have been generated, is that a hostile attributional style is seen primarily in children with aggressive behaviour. These children are more likely to attribute hostile intent to a hypothetical peer after an ambiguous provocation (Dodge, 1980; Dodge, Pettit, McClaskey & Brown, 1986).

Some of the earliest research on intent attributions began with studies of boys in psychiatric settings, and boys identifiable as problematic in mainstream schools. Nasby, Hayden and DePaulon (1979, cited in Crick & Dodge, 1994) initially recognised hostile attributional styles in aggressive children who were receiving psychiatric treatments. Similarly, Milich and Dodge (1984, cited in Crick & Dodge,

1994) observed this bias in groups of severely aggressive boys who were receiving psychiatric input as out-patients.

More recently Dodge and Price (1990) investigated the relationship between hostile attributional style and types of deviant behaviours in male adolescents in a maximum security forensic setting. Hostile attributional biases were associated with levels of conduct disorder and violent crimes. Lochman and Dodge (1994) explored whether the social information processing patterns of severely violent adolescents in psychiatric settings, were distinct from the processing styles seen in moderately aggressive and non-aggressive males. Results indicated that the degree of attributional bias was related to the severity of behavioural problems; severely aggressive boys made attributions of hostility most frequently, and moderately aggressive boys scored higher on hostile attributions than the non-aggressive group. Aggressive adolescents have also been shown to make errors in attributions even when the provocation is non-ambiguous (Dodge, Asher & Parkhurst, 1989, cited in Crick & Dodge, 1994). Orobio de Castro et al., (2002), found large effect sizes in studies that combined aggressive and rejected children, which suggests that this group are the most likely to have hostile attributional style. It may seem intuitive that children who experience bullying and rejection are likely to view peers with wariness and hostility.

These studies suggest that social information processing patterns of clinically aggressive individuals are qualitatively different from those who are less aggressive. Hostile attributional styles characterises males who have clinical and moderate levels of aggressive behaviours, and aggressive children who are rejected by their peers.



### Sub-types of Aggression

Hostile attributional biases are proposed to be specific to reactive aggression (Crick & Dodge, 1996). In a study of adolescent males in a forensic setting (Dodge & Price, 1990), hostile attributional style was positively correlated with reactively aggressive behaviour and violent crimes, but not with proactive aggression (e.g. drugs, theft, gang membership). In a study involving over 600 children from non-clinical populations, Crick and Dodge (1996) found that those in the reactive aggressive group attributed hostile intent most frequently. Schwartz, Dodge, Coie, Hubbard, Antonius, Cillessen, Lemerise and Bateman (1998) explored these ideas by devising 'contrived playgroups' with 8 year-old boys. Children's play in small groups was recorded, and participants completed vignette assessments of attributional style. In this study hostile attributional biases were significantly associated with reactive, but not proactive, aggression.

These studies support the assertion that reactive and proactive aggression are associated with different social information processing patterns (Swartz et al., 1998), and that it is reactive responses that stem from a bias in the representation and interpretation stage.

### Attributions and Social Competence

Few studies have explored the attributional styles of pro-social children. Nelson and Crick (1999) sought to address this gap, and explored attributional styles in children

rated by their peers as pro-social, as compared to children rated as neither pro-social nor aggressive. As anticipated, pro-social children were less likely to attribute hostile intent, and were significantly more likely to perceive benign intent. The authors suggest that pro-social children display a 'benign attributional bias'; that when negative outcomes occur they give their peers the 'benefit of the doubt' when explaining their behaviour.

This evidence suggests that socially adjusted children engage in distinct processing styles when appraising social events, including the tendency to attribute benign intent. In the context of Crick and Dodge's model, this benign cognitive style is regarded as a significant contributor to displays of pro-social behaviours. Studying such groups has implications for clinical interventions. For example, it may be possible to instruct aggressive children to adopt a 'benign attributional bias', or as Nelson and Crick (1999) described it, "put on rose-coloured glasses" (p.35), in order to reduce their aggressive behaviour.

#### Potential Influences on Hostile Attributional Style: Social and Environmental Factors

An interesting issue concerns the relationship between hostile attributional style and other related factors, such social and environmental influences. These factors may be relevant to the genesis of hostile attributional bias and may influence the tendency to process social stimuli in hostile ways.

Some studies have taken these issues into consideration. For example Graham & Hudley (1993; 1994) studied minority groups of African-American boys, from an

economically deprived environment. Without the inclusion of an ethnically different comparison group, they were unable to investigate the influence of ethnicity, however made some valuable comments about the impact of social environments on attributions of hostility: “For some of our young research participants, violence and aggression are part of everyday experience. It is therefore unclear to what extent being quick to assign blame.... might operate as genuine survival strategies for coping with the perilous conditions.... in economically depressed, inner-city neighbourhoods” (p.136). Thus, they stress the relevance of the social conditions for developing a bias towards hostile judgements, particularly in disadvantaged environments.

It seems sensible to assume that certain environmental factors are relevant to the development of hostile biased processing. One could assume that hostile attributional styles do not function in isolation, that there is a context for their development. Pettit, Dodge and Brown (1988) explored a sample of children from economically disadvantaged families. Upon finding that both aggressive and non-aggressive participants in their study showed hostile attributional biases, they concluded that this bias is associated with deprived environments. Weiss, Dodge, Bates, and Pettit (1992) have concluded that deficiencies in social information processing are partly mediated by the contribution of abusive parenting, and Crick and Dodge (1994) suggest that exposure to violence leads to “aggressive scripts” which include representations about the probable intentions of others. The ideas that environmental influences are associated with the development of hostile processing will be re-visited in Section 1.4.of this review.

In summary the relationship between hostile attributional styles and socio-environmental factors has not been fully delineated. Cultural differences in processing have not been considered. A few studies have commented on the effect of environment and they indicate that the social climate has implications for the development of hostile biased processing. Ideas about potential antecedents of hostile processing will be discussed in more detail in Section 1.4. of this review. In particular I will discuss the relationship between specific social experiences - those within the attachment relationship - and hostile processing, and argue that insecure attachment is a precursor to hostile attributional style.

#### **1.2.2.2. Critique**

As outlined above, a wide range of studies have been conducted with children from various clinical and non-clinical populations, and the findings have implications for clinical interventions. However, despite the value of this work, it is possible to identify both methodological issues and theoretical criticisms which affect the appraisal of this evidence.

With few exceptions, most studies are correlational, and thus causal conclusions cannot be drawn. Indeed only a handful of studies have attempted to manipulate attributional style (e.g. Hudley & Graham, 1993; Krahé & Möller, 2004). This is relevant as Crick and Dodge (1994) claim that hostile attributions of intent are causally linked to aggressive behaviour. However, the research can be credited with the fact that a wide range of different techniques have been used to assess hostile attributions, including use of video, written and verbal stimuli, and a range of relevant

peer and teacher scenarios have been included. With this said, the nature of the tasks used to measure attributions are less than perfect. In particular, verbal responses to hypothetical scenarios are unlikely to replicate the processing patterns that one sees in real life, and will struggle to capture the complexity of processing that occurs in encounters with peers. A small number of observational studies, using staged provocations, have been used in response to this (e.g. Hudley & Graham, 1993), but behaviour in this context will inevitably be affected by the presence of an experimenter. Crick and Dodge (1994) recognise that standard research tasks measure reflective and controlled processing, and thus are not equivalent to the automatic processing that the theory suggests. More ingenious measurements with greater ecological validity are required to reduce this measurement error.

In terms of the magnitude of the relationship between hostile attributions and social adjustment, Orobio de Castro et al., (2002) conclude that findings are less consistent than some of the research into other stages of the social information processing model. They note that results between studies vary considerably; some report small effect sizes, others large, and a number of studies report no significant associations. In defence of this, Crick and Dodge (1994) have clearly stated that we can never expect hostile attributional bias alone to account for all the variation in behavioural outcomes - the social information processing model posits multiple processing steps as predictors of behaviour. Thus they would expect effect sizes in studies to be moderate.

Studies of extreme groups may have led to an overestimate of the correlations between hostile intent attributions and social maladjustment (Dodge & Price, 1994).

Indeed a number of studies have failed to find associations between attributional processes and measures of social maladjustment, and are inconsistent with the model. For example, Keane, Brown and Crenshaw (1990) looked at groups of both rejected and popular children, and found no significant differences in the intent attributions. Dodge and Price (1994) also found no association between ratings of behavioural competency and hostile intent. Two studies found no relation between hostile attributions and conduct problems (Dodge & Price, 1990; Schultz & Shaw, 2003).

Methodology aside, there are some issues that relate more to theoretical assumptions. In terms of the claim that hostile attributions are causal to aggression, different experimental designs are needed before such claims can be qualified. The manner in which hostile attributional styles are related to emotional state is an understudied area and few specific conclusions have been made about whether certain emotions inhibit or exacerbate the tendency to process social cues in a hostile manner. Externalising behaviours – particularly reactive aggression – are associated with anger and frustration (Crick & Dodge, 1996) and thus it would be interesting to know more about how these feelings influence, and are influenced by, hostile attributions of intent. For example, emotions such as anger or paranoia could influence accuracy in interpretation, leading to hostile biased interpretations. More research is also needed to clarify the role of general cognitive developments for processing accuracy.

Certain factors have been neglected by research into this model. Girls are chronically under-represented, particularly in the clinical populations that have been studied, which begs the question of whether the association between hostile attributional bias and aggression generalises. Unfortunately many studies do not relate their findings to

social conditions and pay little attention to the non-cognitive factors in the generation of aggression, a significant omission for populations drawn from disadvantaged communities. There is a paucity of longitudinal studies, and there are gaps in research into certain age groups, with most research focused on children aged between 6 and 12 years of age (Orobio de Castro et al., 2002). The consequence of this is that little is known about developmental trajectories associated with hostile attributional style, nor what factors contribute to their development. What is the predictive utility of hostile attributional styles that we see in social maladjusted children, and what will this be able to tell us about deviance and psychopathology in adulthood? This is an important question because both borderline personality disorder and schizotypal personality disorder are conditions where sufferers often hold paranoid views of others' intentions (APA, 2000).

In my opinion the social information processing literature remains unrelated to other fields of potentially relevant psychological theories, such as those within cognitive and developmental psychology. Arguably broader questions remain unasked, such as how hostile attributional styles develop. It has also been suggested by Keane, Brown and Crenshaw (1990) that the model needs to suggest more ideas about how parent-child interaction, and family values are influential in the development of processing styles. For example do children demonstrate hostile attributional styles in interpreting parental behaviour? I will suggest that the attachment relationship is pertinent to accounts of hostile proceeding. I will also propose that mentalisation abilities are important to the development of hostile attributional style. The possibility that mentalisation deficits may be (1) indistinguishable from, or (2) a cognitive precursor to, hostile attributional style, has not been outlined nor empirically investigated.

Mentalisation requires understanding of another's mental state, which is then used to interpret their behaviour. I would argue that if an individual has the ability to use understanding of another person's perspective, they are less likely to interpret ambiguous scenarios in a biased or hostile fashion.

#### **1.2.3.3. Summary**

A vast amount of research has been conducted into the interpretive style that has been termed hostile attributional bias. An empirical connection has been established between hostile attributional style and aggression. Orobio de Castro et al., (2002), after reviewing 41 studies of hostile attributional style and aggressive behaviour, found that the overall relation between hostile biased processing and aggression was highly significant. Studies have also shown that pro-social children are likely to display a distinctly different processing style, that which has been called a 'benign attributional bias'. It has been speculated that hostile attributional style is causal of aggression, and there is limited evidence to support this. Although ideas have been proposed, the role of age related developments, emotions, gender, ethnicity, and social environments for processing of intent, has yet to be established.

In summary, in Section 1.2. of this review I have outlined the major research findings around hostile attributional bias and aggression, which consists of an impressive array of studies. I have appraised this evidence closely, and have identified an important gap that I will take further in this review. Research into the social information processing model has not been linked up with related fields of research, and I believe



that making these links could lead to a fruitful exchange of ideas about how hostile processing styles develop.

The social information processing theory has become very specific, arguably at the expense of considering the broader implications of the model, and relating the findings to wider psychological constructs. I will suggest that 'internal working models' proposed by attachment theory could be relevant to the manner in which children interpret others' actions. Secondly I will propose that mentalisation abilities influence the interpretational processes involved in making attributions of intent. Accordingly, in section 1.3. I shall discuss attachment theory and theories of mentalisation separately, in relation to aggression.

### **1.3. OTHER PERSPECTIVES ON AGGRESSIVE BEHAVIOUR:**

#### **MENTALISATION APPROACHES AND ATTACHMENT THEORY**

I will now review ideas from the mentalisation and attachment literatures separately, because I will go on to suggest that these are both relevant to the development of hostile attributional style. Both constructs have been explored in relation to a number of psychological outcomes. I shall describe the main theoretical ideas, and outline the literature in relation to aggressive behaviour problems.

##### **1.3.1. Mentalisation**

A number of different terms have emerged recently to describe what was originally called 'theory of mind', and currently both 'mentalisation' and 'reflective function' are popular descriptions. I shall use these terms interchangeably. Theory of mind was first defined by Premack and Woodruff (1978), as "the ability to impute mental states in oneself and in others" (p.515). This refers to the capacity to understand others' behaviours with reference to their thoughts and feelings. Fonagy and Target (1997) have defined mentalisation as the ability to "represent behaviour in terms of mental states, or to have a theory of mind" (p.674), with the idea being that this appreciation guides social interaction. Having good skills in mentalisation implies that one can predict and understand the behaviour of other people, and have awareness of the internal reasons behind one's own behaviour. Furthermore, it has been suggested that mentalisation plays an important role in self-organisation, leading to good impulse control and affect regulation (Kohler, 2004).

### **1.3.1.1. Empirical Findings**

#### Acquisition

The acquisition of a theory of mind has generated much interest within developmental psychology. Although there is not the scope here to discuss different theories of theory of mind development, we now know that at around 18 months infants show the beginnings of these skills; they can understand that another person may act based upon beliefs or wishes that are different from the desires that they themselves hold (Repacholi & Gopnick, 1997). Empirical research has also demonstrated that between the ages of 3 and 4 years, a child can recognise that another's behaviour may result from a mistaken belief, and are able to attribute these false beliefs in 'classic' theory of mind tasks (Perner, 1991). At this age a child has the capacity to consider the perspective of another person, and thus is seen to possess a theory of mind.

#### Theory of Mind Deficits

Theory of mind abilities have been examined in clinical groups and it has been suggested that a number of clinical features - pertaining to interpersonal difficulties - can be partly accounted for by mentalisation deficits. Theory of mind has been reliably suggested as core impairment in autistic spectrum disorders (e.g. Happé, 1995), and deficits in mentalisation have been found in research into psychosis (Craig, Hatton, Craig & Bentall, 2004; Frith & Corcoran, 1996), mood disorders (Inoue, Tonooka, Yamada & Kanba, 2004; Kerr, Dunbar & Bentall, 2003), and

borderline personality disorder (Stokes, 2001). Conversely, violent behaviour has been associated with good mentalising abilities, coupled with poor empathy (Abu-akel & Abushua'leh, 2004).

### Theory of Mind and Aggressive Behaviour

Research has also focused directly on the implications that deficits in mentalisation may have on the generation of aggressive responses in children. The proposition that competency in mentalisation allows one to make sense of others behaviour, seems to imply that possession of a good theory of mind leads to positive peer relations and thus low aggression. Empirical research has addressed the degree to which these ideas are valid; whether individual differences in mentalisation are related to individual differences in aggressive behaviour.

Bosacki and Astington (1999) measured theory of mind abilities in pre-adolescent children and found a positive association between these skills and ratings of social interaction skills. A similar association was found when teacher's ratings of social-emotional skills were used as the index of social adjustment (Lalonde & Chandler, 1995). Rose-Krasnor (1997) found that children identified as having difficulty with social integration, and who were at risk of peer rejection due to aggression, were poor at taking on another's perspective in mentalisation tasks.

Research into mentalisation in children with conduct disorder (e.g. Hughes, Dunn & White, 1998), and offending behaviour (e.g. Mundy, 2004), suggest that there is some support for a theory of mind deficit in these groups. This research seems to indicate

that there are mentalisation deficits in groups of children who display extreme behavioural difficulties which include aggression.

However, despite this evidence Happé and Frith (1996), argue that the influence of mentalisation skills on social adjustment is not always positive, and there is empirical evidence which supports this. For example, good mentalisation abilities have been shown to be associated with relational aggression; 'bullies' have been shown to display intact or even superior theory of mind skills (Sutton, Smith & Swettenham, 1999a). It has been suggested that relationally aggressive children are quite skilled 'mind readers', and use this understanding to manipulate social interactions to their own advantage. Hughes and Leekam (2004) reviewed links between theory of mind and social outcomes in children, and stated that mentalisation skills may have "positive, neutral or even negative implications for social relations" (p.607). They concluded that the relationship between mentalisation and social behaviour is complex, and is likely to be bi-directional.

#### **1.3.1.2. Summary and Critique**

In summary, theory of mind abilities were originally proposed to be important in social success, and to a large degree this view still prevails. Research has demonstrated that children are able to understand the thoughts and beliefs of others at around the age of four, and can then apply this understanding in interaction with others. Mentalisation deficits are thought to be a feature of clinical syndromes that include difficulties with interpersonal relating, and have been shown in some studies to relate to social competence.

However, within the developmental literature there is an unclear picture with regard to how mentalisation relates to social adjustment. It does not seem to be the case that poor theory of mind always leads to aggression. In fact, recent evidence indicates that competency in mentalisation, and good understanding of others' minds, can lead to relational aggression. This was also echoed by research that found good mentalising abilities in a forensic population (Abu-akel & Abushua'leh, 2004). With this in mind, research needs to clarify which aspects of social maladjustment relate to poor theory of mind skills, and articulate more clearly how good mentalisation abilities are associated with forms of aggression.

Crick and Dodge (1999) suggest that the limitation of the theory of mind approach is the lack of specificity in descriptions of the particular processes involved in mentalisation. Without clear definitions of the processes it is difficult to make comparisons with other psychological constructs such as attributional style, and to consider how these may be related.

### **1.3.2. Attachment Theory**

Attachment theory is an approach to personality development which was originally pioneered by John Bowlby (1969; 1973; 1980). Bowlby postulates that all individuals display a universal need to form bonds with a care-giver from early childhood, to ensure both emotional and physical survival. Attachment behaviours performed by the infant - such as crying when hungry, or clinging to a care-giver at a separation - are formulated as strategies enacted to ensure that basic needs are met.

Typically, such behaviours are reciprocated by attachment behaviours by the adult, which include care-taking responses, and these serve to restore an infant's sense of physical and emotional security. Thus the function of attachment is to provide security in frightening environments, which later serves to foster independence and autonomy. Others have described the function of attachment as the process by which an infant regulates their affect; a parent's appropriate response to the child's heightened emotional state, serves to re-stabilise the child's arousal (e.g. Fonagy, Target & Gergely, 2000).

All children develop attachments to caregivers and the quality of these relationships provide a set of expectations about how to interpret and respond to others. They are thus an important basis for the development of close social relationships outside of the parent-child relationship. This crucial component of attachment theory is Bowlby's concept of 'internal working models' (1973). The infant is said to develop internal working models of the self and others, as prototypes for all future relationships. These expectations, which are formed through a history of interactions with principal caregivers, are thought to generalise across contexts and individuals.

It is proposed that the manner in which a caregiver responds to an infant is of paramount importance. Responsive, supportive and reliable parenting will represent a 'secure base' for the child, providing comfort at times of uncertainty, and will lead the infant to develop and internalise the expectation that others are supportive. However, a child that receives insensitive or unsupportive parenting will, broadly speaking, develop and internalise the expectation that others are unreliably responsive to their needs. It is proposed that attachment representations are stable cognitive

structures, and thus early interactions in infancy will continue to hold influence across the entire lifespan. Bowlby anticipates that there is wide variation in the representations held between different individuals, due to diverse experiences of care. In summary attachment theory is concerned with how experiences with attachment figures are organised, represented, and subsequently influence future relationships and psychological functioning.

One way in which Bowlby's ideas have been extended, is through observational studies of infants. Experimental procedures developed by Mary Ainsworth (1969; 1985), have made it possible to observe systematically attachment behaviours in infants, and these have been categorized. Infant behaviour in a testing situation known as the 'Strange Situation' has been classified as belonging to one of four categories of attachment, three of which are secure attachment, anxious resistant attachment, and anxious avoidant attachment (Ainsworth, 1969; 1985). A fourth, disorganised attachment, has been added more recently (Crittenden, 1988), and describes infants that behave in a disorganised and disorientated manner (Main & Solomon, 1986; 1990). Disorganised attachment has been associated with early maltreatment (Holmes, 2003).

Attachment status has also been measured in adulthood using the adult attachment interview (AAI; George, Kaplan & Main, 1985), and longitudinal designs - relating attachment in infancy to adult attachment classification - have demonstrated the stability of attachment status in the transition from infant to adult (e.g. George, Kaplan & Main, 1996).



### Attachment Status and Psychological Adjustment

Attachment theorists posit that the quality of attachment has significant influence upon the structure of the personality and thus is pertinent to psychological adjustment (Bowlby, 1982). Internal working models are proposed to become resistant to change and, in instances of attachment 'failure', are thought to guide pathological behaviour (Cassidy & Shaver, 1999). Insecure attachment has been implicated in disorders of personality, and the attachment system is thought to play a key role in regulation of emotional experience in general (Fonagy et al., 2000).

#### **1.3.2.1. Empirical Findings**

### Attachment and Aggressive Behaviour

Bowlby's theory implies that attachment representations are relevant to social behaviour; internal working models are proposed to provide models of interaction with others. There is an extensive literature pertaining to attachment and peer related behaviour and I shall outline some of the most relevant research.

Research has demonstrated that infant parent attachment is related to children's behaviour with peers. Attachment had been found to predict peer competence, problem solving skills, and displays of anger from as early as 2 years old (Matas, Arend & Sroufe, 1978). Renken, Egeland, Marvinney, Mangelsdorf and Sroufe (1989) found that, as compared with those classified as insecure, secure children were both better liked by peers and were less aggressive towards them. Similarly, children rated as securely attached in infancy were found to display more competent play

behaviour; they had fewer conflicts with peers and at times of conflict solved these difficulties adaptively (Wartner, Grossmann, Fremmer-Bombik & Suess, 1994). Secure attachment has also been associated with lower instances of bullying (Troy & Sroufe, 1987), whereas insecure attachment has been linked to externalising behaviour problems (Belsky & Cassidy, 1994).

Waters, Wippman and Sroufe (1979), found that securely attached children were rated by teachers as having fewer behavioural problems. This finding was replicated by Sroufe (1983). Main and Weston (1981), also looked at the relationship between infant attachment and teacher ratings of social adjustment, and concluded that in early childhood those with secure attachments were more likely to be rated by teachers as being competent and socially skilled with peers.

The relationship between attachment status and social maladjustment has also been explored during adolescence. Studies have focused less on overt measures of aggression and have looked at the quality of peer relationships. Studies have found that self-reported attachment security is related to friendships characterised by trust, closeness and mutuality (e.g. Zimmerman, 2004). Individuals secure on attachment reported closer friendships and low rates of hostility. Similarly, Sroufe, Bennett, Englund, Urban and Shulman (1993) found that adolescents with secure histories had higher frequencies of friendships and were well integrated into the wider peer group. Kobak and Sceery (1998) echoed the finding that secure attachment in late adolescence is associated with high quality peer relationships. The converse of this is that studies indicate that children with attachment problems in infancy go on to exhibit higher levels of conduct problems in late adolescence (e.g. Carlson, 1998).

### **1.3.2.2. Critique**

Attachment theory posits that early interactions with a caregiver are aggregated into representational models, which provide expectations about one's general approach to relationships, and have important influences on behaviour. Above I have briefly outlined some of the evidence around attachment security and children's functioning in peer relationships. These studies indicate that secure attachment is associated with a range of positive social outcomes across childhood and adolescence. In contrast, insecure attachment is indicated as playing a role in externalising behaviour in later life, through the acting out of working models that represent relationships as mistrusting.

With this said, it is important to recognise that not all aspects of aggressive behaviour will be attachment-related, as a number of studies have failed to find a link between insecure attachment and externalising behaviours (e.g. Bates, Maslin & Frankel, 1985; Fagot & Kavanaugh, 1990). Furthermore, research has identified children with difficulties in social adjustment who nonetheless have been found to have secure attachment relationships; Speltz, DeKlyen, Greenberg and Drydne (1995) found that 20% of a sample of children with conduct disorder were classified as securely attached.

Waters, Posada, Crowell and Lay (1993) have argued that researchers have in general been too keen to explain psychological phenomena under the attachment construct. Attachment security is not the only influential factor for aggressive outcomes, as we

have seen that social information styles can also predict aggression. The association between insecure attachment and externalising behaviour problems may be due to the existence of other risk factors found in families, such as life stress, parental psychopathology, and social support. With all this in mind, and considering correlation research designs, there are clear limitations in viewing this relationship as causal, and attachment difficulties are best viewed as risk factors for social maladjustment.

#### **1.3.2.3. Summary**

In Section 1.3. I have outlined both mentalisation skills and attachment theory in relation to aggressive behaviour. The general picture generated from empirical studies, is that both good theory of mind skills and secure attachments are associated with more co-operative friendships and low aggression.

In Section 1.4. I shall outline how hostile attributional style, mentalisation, and attachment may be related, in order to advance my argument for a potential model of the development of hostile attributional styles.

## **1.4. RELATIONSHIPS BETWEEN ATTACHMENT, MENTALISATION AND HOSTILE ATTRIBUTIONAL STYLE.**

I have outlined the theories put forward regarding how hostile biased processing, mentalisation abilities, and attachment representations are associated with aggressive behaviour, which indicates the commonalities between these constructs. Humfress, O'Connor, Slaughter, Target and Fonagy (2002) recognised the overlap between attachment and mentalisation, which they describe as social cognitive processes which "pay particular attention to the ways in which children understand (i.e. predict and interpret) others' behaviours, thoughts and feelings" (p.873). I shall now outline more specific ideas about the associations between these constructs; firstly the relationship between attachment and mentalisation, and secondly the relationship between attachment and hostile attributional bias. Possible connections between mentalisation and hostile attributional style have not been the focus of much theoretical debate, but I shall outline some suggestions about how these may overlap.

### **1.4.1. Attachment and Mentalisation**

#### A Transactional Model of Theory of Mind Development (Fonagy & Target, 1996)

Deviating from mainstream models of theory of mind development, a number of researchers have recently stressed the importance of the attachment relationship for children's developing theory of mind skills. Fonagy and Target (1996) propose that

mentalisation is a capacity that is related to attachment status. To this end the transactional model was articulated, which describes these ideas.

This main premise of the model is that attachment history significantly influences the development of mentalisation; that secure attachment facilitates mentalisation, and insecure attachment hinders its development (Fonagy & Target, 1997). The transactional approach asserts that the child depends upon an attachment figure to provide a base from which they can develop the ability to understand both the perspective of others, as well as their own mental states.

Some time ago Ainsworth, Bell and Stayton (1971) connected attachment and theory of mind, stating that some mothers are “capable of perceiving the child’s point of view” (p.45). Fonagy and Target have been interested in understanding more about how interactions with the care-giver might relate to individual differences in development of mentalisation. They suggest that ‘reflective parenting’ fosters mentalisation. This style of interaction involves parents intuitively engaging in specific verbal and non-verbal activities with their infant.

The crux of reflective parenting lies in the provision of opportunities for the child to learn about minds. This is thought to be achieved optimally when parents behave towards infants in a manner that implies they have intentionality. Mentalistic understanding is believed to be enhanced when parents or care-givers behave in certain ways, such as appropriately mirroring the infant’s affects, thereby providing feedback to the infant about their mental state. Pretend play with a caregiver is also regarded a valuable activity where children can learn that there are different versions

of reality, and parents ascribing mental states to others in their everyday conversation is another example of reflective parenting. The model recognises that there is variation in the extent to which caregivers are 'reflective' in their parenting, and Fonagy and Target (1997) propose that reflective parenting is most evident in parents of securely attached children. It is predicted that where there is a poor attachment history - where a care-giver fails to adequately respond to the child's emotional state, or provide opportunities for learning about others' minds - there will be an associated theory of mind deficit.

In summary, the transaction model of theory of mind development proposes that mentalisation develops on the basis of the attachment relationship. It is suggested that in secure attachment relationship, where there is reflective parenting, parents and children interact in ways which foster mentalistic understanding. Conversely, insecure attachments relationships are deemed disruptive to mentalisation, as there are more restricted opportunities for the infant to be viewed as an intentional being. Fonagy and Target (1997) assert that reflective parenting is the mechanism underpinning the association between attachment security and mentalisation.

#### **1.4.1.1. Empirical Findings**

There is some empirical support for the transactional model. Parenting style and attachment security have been associated with theory of mind abilities.

### Reflective Parenting and Mentalisation

Research suggests that family climate and the manner in which family members interact is crucially important in the development of mentalisation. In a series of naturalistic studies, the frequency with which families discussed moods, feelings and intentions, predicted rates of theory of mind acquisition in early childhood (Brown & Dunn, 1996). It has been suggested that social interactions of this type provide valuable opportunities for children to be exposed to different beliefs and perspectives, which aids mentalisation (Dunn, 1994). Peterson and Slaughter (2003), measured mothers' conversational style through a self-report questionnaire, and found that a mother's tendency to converse about mental states was the best predictor of children's theory of mind ability. This study also highlighted that there is large variation in the extent to which families talk about mental states. Interestingly, authoritarian styles of parenting have been linked to limiting the development of mentalisation (Alessandri, 1992). It might therefore be safe to assume that authoritarian parenting styles are the converse of reflective parenting.

### Secure Attachment and Mentalisation

Studies that have measured attachment security indicate that theory of mind skills are more advanced in securely attached children. In a sample of four year-olds who were classified for attachment security in infancy, Meins, Fernyhough, Russel and Clark-Carter (1998) found that children secure on attachment were more likely to pass a theory of mind test (83%), as compared to those insecure on attachment (33%). They concluded that securely attached children are better able to recognise the perspectives



of another person. Fonagy, Steele, Steele and Holder (1997) found that 82% of five year-old children classified as securely attached passed a belief–desire reasoning task, compared to 54% of insecure children. A similar trend has been found when groups have been matched for age, verbal abilities and social maturity (Fonagy, Redfern & Charman, 1997c). Steele, Steele, Croft and Fonagy (1999) looked at the link between attachment and emotional understanding more generally, predicting that attachment security would be positively correlated with understanding about mixed emotions. In a group of six year-olds, performance on a mixed emotions task was indeed predicted by the security of the infant-mother attachment, when gender and language skills were controlled for.

Groups of adolescents have also been targeted. Humfress et al. (2002) looked at degree of overlap between attachment (as measured by the AAI) and theory of mind. Mentalising and attachment were significantly correlated, and adolescents rated as low on ‘attachment coherence’ performed worse on mentalisation tasks. Campbell (1998) studied adolescent offenders, and although the study did not attempt to associate these constructs, it was found that the offending group had relative deficits in mentalisation, and all were classified as having insecure attachment histories. Mundy (2004) included both young offenders and typically developing adolescents in her research, and found that insecure attachment was associated with poor theory of mind skills.

#### **1.4.1.2. Critique**

Fonagy and Target provide a compelling hypothesis of theory of mind development for which there is now some empirical support. These studies indicate that secure attachments may provide a psychological basis for acquiring an organised understanding of mind and emotions, and research with adolescent populations suggests this finding is not limited to young children.

However, relevant studies are few and previous studies have suffered from difficulties with power, identification of appropriate and homogenous control groups, as well as concerns related to the specificity of measures for assessing both mentalisation and attachment security. Inconsistent findings also highlight doubts about the strength of the empirical evidence. For example, Meins, Fernyhough, Wainwright, Das Gupta, Fradley and Tuckeym (2002) found no link between security of attachment and theory of mind in young children.

In studies that have found a relationship between mentalisation and attachment one has to consider whether such an association could be accounted for by other factors, such as those which are common in secure attachment relationships (e.g. style of parenting, maternal social support). Social factors that are not within the context of the attachment relationship may influence the development of mentalisation. Humfress et al., (2002) have suggested that one explanation for the connection is that both mentalisation and attachment have social interactional origins.

Further to this it is important to bear in mind that attachment status should not be viewed as the only predictor of mentalisation. Biological factors, parenting skill, and exposure to certain environments may also be relevant explanations for variations in theory of mind development.

#### **1.4.1.3. Summary**

Fonagy and Target (1996) convincingly propose that mentalisation develops in the context of early attachments. A limited number of studies have addressed the intersection of mentalisation capacities with both parenting style and attachment quality. These indicate that where parents have a tendency to discuss mental states, and where there are also secure attachment relationships, together these have positive implications for the development of mentalistic understanding in children. The model would benefit from further investigation, particularly in order to clarify the role of potential confounding factors.

#### **1.4.2. Attachment and Hostile Attributional Style**

The relationship between attachment representations and intent attributions raises questions around the origins of the processing patterns that individuals habitually use. Quiggle, Garber, William and Dodge (1992) articulated this point and, in relation to children displaying hostile attributional biases, pondered “when and how these children begin to view their worlds differently” (p.1325). Indeed one limitation of the social information processing approach is that it has not been clearly articulated how processing style develops on the basis of early experiences. Understanding how

children's thinking becomes suspicious and hostile is as important as understanding how this bias leads to aggressive outcomes.

### Development of Hostile Cognitions

Possible sources of attributional bias are many, and a number of psychological explanations have been suggested. Dodge and Newman (1981) felt that general information processing *deficits* may explain biased interpretations (e.g. impulsive responding), and biological differences in terms of arousal have been implicated (Crick & Dodge, 1994). Some suggest that psycho-social factors, such as family life stress and social support are relevant (Pettit, Dodge & Brown, 1988). Research is beginning to consider how factors such as mother-child interactions, maternal cognitive style, and maternal psychopathology contribute to intent attributions (e.g. Schultz & Shaw, 2004).

Dodge (1991) suggested two possible pathways to the development of hostile attributional biases. Firstly, he proposed that parental modelling of hostile attributional style contributes to the development of hostile social cognitions; that processing styles are learned through interaction with others who process in this manner. This implies that socialisation is a key factor in the development of hostile biased processing and that certain experiences can make hostile attributions more prevalent. It has been speculated that aversive events such as peer rejection, exposure to violence, and maltreatment by parents become aggregated into 'aggressive schema', which influence the tendency towards making hostile interpretations of intent (Crick & Dodge, 1994). Indeed, a number of studies suggest that the social climate has implications for the development of hostile biased cognitions.

Environments that endorse aggression have been associated with hostile processing (e.g. Kirsh, 1998; Krahé & Möller, 2004), and aversive experiences – abusive parenting, peer rejection - have also been associated with hostile attributional biases (e.g. Dodge, Bates & Pettit, 1990; Dodge, Lansford, Salzer-Burks, Bates, Petit, Fontaine & Price, 2003; Weiss, Dodge, Bates & Pettit, 1992)

Secondly, Dodge (1991) suggested that insecure attachments contribute to the development of hostile attributional style. He proposed that on the basis of experiences with a caregiver, some children might come to view the world and other people as threatening. He speculates that insecure attachment representations lead a child to interpret ambiguous events in a hostile manner; that hostile attributional style develops in relation to insecure attachment representations which have become generalised.

Some time ago, Belsky and Nezworski (1988) suggested that attributional processes have similarities with internal working models. Over the years, Dodge has come back to this issue; in 1993 he described hostile attributional style as an example of a “working model” of the world, and Crick and Dodge (1996) mentioned “the experience of early attachments to adult figures” (p.78) as relevant in influencing information processing patterns. Furthermore, Dodge and Swartz (1997) have stated that a hostile attributional bias may reflect a global orientation towards others, a description which ties in with Bowlby’s definition of internal working models.

I shall now outline the small number of published studies that have explored whether hostile social cognitions are influenced by the quality of attachment relationships.

#### **1.4.2.1. Empirical Findings**

Suess, Grossman and Sroufe (1992) related attachment in infancy to representations of peer intent. Five-year-old children were asked to explain negative outcomes depicted in drawings, and results revealed a positive association between insecure attachment and hostile attribution of intent. In contrast, infants classified as securely attached to their mother had “realistic or well-meaning” representations of the intent of the peer. Similarly, Wartner, Grossman, Fremmer-Bombik and Suess (1994) measured attachment in six year-old children and found that those children who were securely attached attributed less hostility in interpreting a pictured interaction.

Other studies have used self-report questionnaires which assess perception of parental relationships as the index of attachment. Rabiner, Keane and MacKinnon-Lewis (1993), measured the degree of perceived parental support and acceptance and asked fourth and fifth grade children to rate the likelihood that a peer was trying to be friendly. They found that children who perceived their parents as rejecting had negatives expectations about unfamiliar peers. Cassidy, Kirsch, Scolton and Parke (1996) explored children’s perception of their relationship with parents and, in relation to hostile attributional biases, found a positive association between insecure attachment and hostile attributions in nine year-old children. In a second study, they asked children to rate each parent using the Parental Acceptance-Rejection Questionnaire (Child-PARQ; Rohner, 1991), and perceived rejection by parents was associated with greater attributions of hostile intent. They conclude their paper by stating that hostile attributional style has a direct link with attachment; that children

form representations from their interactions with parents, which they use to interpret the intent of peers.

Gomez and Gomez (2000) explored whether aggressive boys' perceptions of their relationships with their mothers was associated with hostile biased processing. They utilised the 'Network of Relationship Inventory' questionnaire with aggressive 9-11 year-olds, and found that perceived maternal control (e.g. amount of hostility and restriction) was positively associated with hostile social cognitions, and perceived maternal support (e.g. degree of warmth, intimacy and responsiveness) was negatively associated. An interaction effect suggested that low perceived support increased the association between high perceived maternal control and hostile attributional style. On the basis of this research finding they speculate that insecure attachment histories favour hostile social information processing. This study was replicated with aggressive children referred from psychiatric services (Gomez, Gomez, DeMello & Tallent, 2001). The same relationship was found between perception of control and support, and hostile biased responding. Gomez et al., concluded that for aggressive children, their perceptions of their mothers as hostile and unsupportive (which reflects some aspect of attachment quality), leads to hostile biased processing.

#### **1.4.2.2. Critique**

Despite Dodge's suggestions about the development of processing biases, there is a lack of research into the possible relationship between attachment and representations of intent (Cassidy et al., 1996). Most of the studies in this area are unpublished

dissertations. Compounding this, some of the studies mentioned above measure possible *components* of attachment, such as perceived maternal support (e.g. Gomez & Gomez, 2000), which are at best indirect measures of attachment. It is unclear as to whether such instruments are grounded in attachment theory, or relate to other factors, such as parenting quality. Self-report of attachment by children may also be influenced by social desirability. Studies which use measures that originate specifically from the attachment literature, such as the Strange Situation, provide a more rigorous empirical exploration, but there is only a limited amount of published research using these measures.

A potential area of confusion relates to the overlap of influences of attachment processes, and social learning processes, upon the development of intent attributions. It is difficult to classify whether empirical findings have implications exclusively for one or other of these processes. For example, early adverse experiences have been associated with hostile biased processing – these could be explained as influencing ‘aggressive scripts’ and being opportunities for modelling of negative styles, but if these occur within the attachment relationship it could also be argued that they relate specifically to attachment security.

The nature of the attachment relationship may be one of several factors that are influential in children’s processing of intent. There could be other relevant factors, such as family and social environment, or child temperament, and the challenge for research is to isolate these influences. Below I will discuss how cognitive abilities of mentalisation may have a more direct influence on hostile attributions than attachment security.



#### **1.4.2.3. Summary**

In summary, Dodge suggested that attachment representations could be relevant to the development of hostile social cognitions. A small amount of research indicates a link between attachment-related measures and hostile processing. At present, whether attachment exclusively influences attributional processing is unclear, and more clearly defined research is needed. In the next section I shall consider the links between hostile attributional style and mentalisation.

#### **1.4.3. Mentalisation and Hostile Attributional Style**

The sequence of mental operations outlined in the social information processing theory have been described in Section 1.2. of this review, with mentalisation described in Section 1.3. An interesting question is whether mentalisation has a role in the cognitive activities outlined in the social information processing model, and if so, at what stage? It may be most obvious during the second stage of processing, where it is proposed that individuals make attributions of intent. This leads to further questions about whether mentalisation differs from processing of intent, and also whether interpretations of intentionality are reliant upon theory of mind knowledge.

Intuitively it seems that mentalisation - understanding of others' mental states - and intent attributions (forming representations of others' probable intentions) are closely related. It is my opinion that these processes share common skills. Both involve judgements about the reasons for others' actions. Indeed the methodology used to research these two constructs has common features – vignettes that have been used in

assessment of theory of mind skills are similar to those used to assess intent attributions. In both, participants are asked to generate internal reasons for characters' actions.

One could argue that making attributions about others' actions is derived from awareness of the assumed thoughts, feelings, and motivations of others (i.e. theory of mind knowledge). I propose that theory of mind knowledge is a cognitive precursor to the attributional processes described in the social information processing model, and argue that one relies upon mentalistic understanding, however limited or inaccurate, to draw conclusions about the intent of others. In my view examination of this relationship seems warranted.

Crick and Dodge (1999) have commented on this in one paper. They are of the opinion that theory of mind knowledge is a "static" understanding, which influences the online procedures they describe in their model, and thus that mentalisation is not equivalent to the processes involved in generating attributions of intent: "An online action of perspective-taking differs from a static latent knowledge construct such as a child's theory about the minds of others. The child's theory is not an active cognitive action and thus not part of processing." (p.129). Crick and Dodge suggest that theory of mind knowledge has indirect influence on aggressive outcomes via its impact on social information processing. This does not exclude the idea that poor mentalisation may lead to inaccurate on-line interpretations.

As far as the author is aware, there has been no empirical research around the possible relationship between attributional processes and mentalisation. With exception of the

paper above, no theoretical links have been drawn. It is possible that one reason why the relationship has not been explored is that theory of mind researchers have not articulated clearly the specific processes involved in mentalisation in the style provided by the social information processing approach.

### Hostile Attributional Style?

How might mentalisation abilities relate to hostile attributional style? It would be interesting to know whether skill in mentalisation is a requirement for accurate interpretations of intent. Hostile attributional bias may be associated with poor theory of mind abilities, in that poor consideration of another person's perspective could lead to the inaccurate assumption that the behaviour of that person is hostile. Research has yet to explore whether hostile attributional biases are associated with deficits in mentalisation, or to explore whether alternatively, mentalisation is unrelated to these biases.

I propose that mentalisation deficits are a cognitive precursor to the development of hostile biased social cognitions; that good mentalisation abilities predispose an individual to make fewer biases in processing, and that reduced mentalisation ability (poor ideas about others' minds) is associated with hostile attributional biases.

#### **1.4.3.1. Summary**

Little has been said about the relationship between mentalisation and hostile attributional style. It has been speculated by Crick and Dodge (1999) that they are not equivalent operations, the former being static knowledge, and the latter an online

procedure. They also suggest that theory of mind understanding may influence intent attributions, and I have proposed that hostile attributional style is associated with theory of mind deficits.

## **1.5. OVERALL SUMMARY AND FURTHER SUGGESTIONS**

In this review I have described three constructs (1) hostile attributional style (2) mentalisation and (3) attachment, all of which theorize about the occurrence of aggressive behaviour. Despite studies in these areas being largely correlational, and bearing in mind methodological limitations discussed, each approach has provided valuable explanations for the occurrence of aggression in children and adolescents. I have also discussed theories around the relationships between attachment security and mentalisation, and attachment security and hostile attributions, and finally have outlined some ideas about the possible relationship between attributional processes and mentalisation.

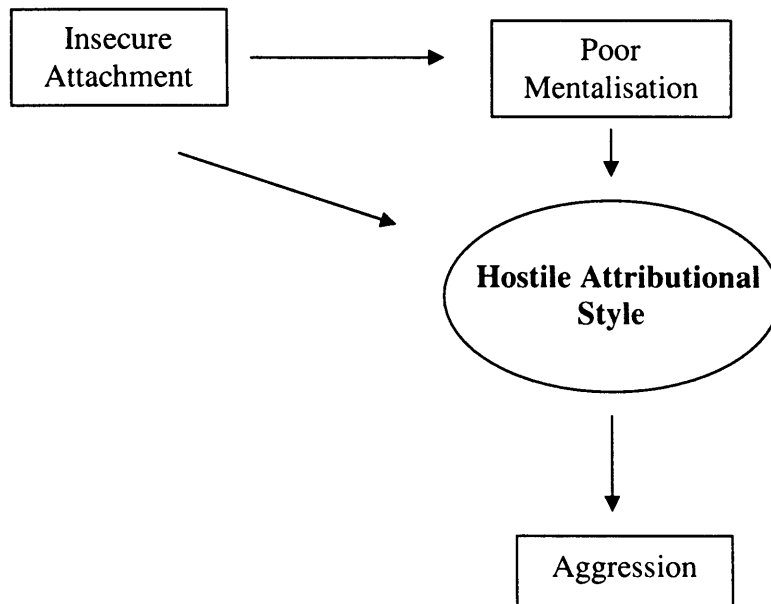
I suggest that the main weakness of the social information processing approach is that it remains unconnected to other psychological theories. We know very little about possible overlap with alternative models of social cognition because each perspective has explored ideas within a particular framework (Humphress et al., 2002). Connections with existing theories of aggressive behaviour have either not been made, or are now only slowly being explored (Petit, Dodge & Brown, 1988). As a consequence little is known about the factors that contribute to the development of biased social information processing. Exploration of the relationship between biased processing and other psychological constructs may have implications for understanding the development of hostile attributional styles, and these links could be important to the development of clinical interventions with aggressive children.

### **1.5.1. A Model of the Development of Hostile Attributional Styles**

In this review I have strived for a larger aim; that is to draw these psychological constructs together into a model that may go some way towards explaining the development of hostile attributional biases. My idea is a variation on Fonagy and Target's transactional model (1996), which I suggest could be relevant to hostile processing styles. I have incorporated Dodge's (1990) suggestion that attachment security is related to hostile processing, and have also included the idea that mentalisation ability might be associated with hostile biased processing.

I propose that attachment security is important to the development of both mentalisation and social information processing styles. I also suggest that attachment representations influence attributional styles indirectly, via influencing mentalisation abilities; i.e. attachment is predictive of mentalisation, which is predictive of attributional style. Specifically, I hypothesise that insecure attachments are associated with both poor mentalisation and hostile biased processing, and that poor ability to mentalise is also predictive of hostile attributional biases (see Figure 1.2). Conversely, I speculate that secure attachment is associated with good mentalisation skills, which is associated with a 'benign attributional style.'

*Figure 1.2: A model linking attachment, mentalisation, and attributional style.*



### **1.5.2. Future Directions**

The link between attachment and mentalisation is an interesting area and would benefit from further empirical investigation. In relation to the proposed model, I suggest that it would be valuable for research to explore whether hostile biased information processing relates to individual differences in mentalisation ability. Greater clarity around definitions of the mental operations involved in mentalisation would assist in this endeavour. Research exploring the relationships between the three constructs featured in this review is required in order to investigate the proposed model of hostile attributional style development.

### **1.5.3. Summary**

In the hope of shedding light upon the factors which might influence the tendency of aggressive children to make hostile judgements about others' behaviour, I have described how two related constructs (1) attachment and (2) mentalisation, might contribute to the development of hostile biased social information processing. This model is a novel suggestion and although based upon some existing theory, requires empirical investigation.



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## **PART II**

### **EMPIRICAL PAPER**

#### **HOSTILE ATTRIBUTIONS, ATTACHMENT AND MENTALISATION IN PREADOLESCENCE: EXPLORING POTENTIAL ASSOCIATIONS**

## **2.0. ABSTRACT**

Hostile attribution style refers to the tendency to attribute hostile intentions to others' behaviour when a provocation is ambiguous. Over two decades of empirical research has demonstrated a significant relationship between this bias and the occurrence of aggressive behaviour in children and adolescents. This study explored whether hostile attributional biases were related to attachment security and mentalisation abilities, and whether hostile processing was associated with anger. It was predicted that both poor mentalisation abilities and insecure attachment were antecedent to the development of hostile attributional styles, and that hostile attributions were associated with angry affect. Preadolescent children completed measures of attributional style, attachment, mentalisation, and anger experience. Results indicated that hostile attributional style was associated with trait anger, but not with mentalisation and attachment. This study has relevance for understanding the link between negative emotions and hostile processing, and for identifying factors that relate to the development of hostile social cognitions.

## **2.1. INTRODUCTION**

### **2.1.1. Hostile Attributional Style**

The occurrence of childhood aggression has been estimated at 10% (Webster-Stratton, Reid & Hammond, 2001a), and externalising behaviour problems in early life are associated with poor psychological adjustment in adulthood (Parker & Asher, 1987). Deficits in social information processing have been posed as explanatory models for the occurrence of aggressive behaviour (Crick & Dodge, 1994). The social information processing (SIP) account posits that specific processing patterns are identifiable, and these are consistently associated with displays of aggression. One example is that aggressive children often read negative intentions into others' behaviour. This phenomenon has been termed 'Hostile Attributional Style', defined as the tendency to attribute hostile intentions to others' behaviour when a provocation is ambiguous (Dodge, 1986; Dodge, Petit, McClasky & Brown, 1986).

Research has shown that this processing bias predominates in aggressive children from both clinical and non-clinical populations (e.g. Crick & Dodge, 1996; Dodge & Price, 1990), and has been seen in early childhood through to adolescence (e.g. Dodge & Price, 1994; Krahé & Möller, 2004). Hostile biased processing of intent has also been found in children who have been rejected by their peer group (Dodge, Lansford, Salzer-Burks, Bates, Petit, Fontaine & Price, 2003), and in children who exhibit depressive symptomatology (Quiggle, Garber, William & Dodge, 1992). A hostile attributional bias is thought to be independent of general cognitive abilities (Lochman & Dodge, 1994), and research indicates that this bias is more frequent in

males (e.g. Krahé & Möller, 2004). In sharp contrast, the tendency to view others' intentions as benign has been called a 'Benign Attributional Bias', which is thought to predispose an individual to positive peer relationships (Nelson & Crick, 1999).

Hostile attributional style is described as a cognitive distortion, which increases the likelihood that aggressive responses are enacted (Crick & Dodge, 1994). It is proposed that on the basis of making attributions of hostility, an individual is motivated to act aggressively. Little has been inferred about how hostile cognitions relate to emotions, but it has been suggested that hostile attributions may *lead* to negative feelings (Crick & Dodge, 1994). It is also proposed that negative arousal (i.e. fear or anger) may *contribute* to attributions of hostility; for example, feeling angry may influence the accuracy of interpretations (Crick & Dodge, 1994). Despite these suggestions, the manner in which SIP styles relate to negative emotion states such as anger is an understudied area, and the links between cognition and emotion have not been empirically established.

Despite a large body of empirical evidence indicating a robust association with externalising behaviour problems (Orbó de Castro, Veerman, Koops, Bosch & Monshouwer, 2002), at present we know very little about how hostile attributional styles develop. It could be argued that this is because the SIP approach remains isolated from other psychological accounts of aggressive behaviour. Humfress, O'Connor, Slaughter, Target and Fonagy (2002), commenting on different psychological theories of social adjustment, suggest that "each perspective has tested ideas only within a particular framework and consequently we know very little about the overlap and association between alternative models of social cognition" (p.873).

For example, both attachment theory and theories of mentalisation abilities provide accounts of aggressive behaviour; the former referring to the links between aggression and internal working models, and the latter relating aggression to cognitive deficits. Below I suggest that these constructs could be successfully linked to SIP accounts, proposing that the development of hostile biased processing relates to broader emotional and cognitive developments.

### **2.1.2. Attachment and Hostile Attributional Style**

Attachment theory posits that quality of attachments are fundamental to personality formation and have influence upon emotional regulation throughout life (Bowlby, 1982). On the basis of early caregiver experiences, an individual is said to develop 'internal working models' of the world. Bowlby suggested that these representations serve as templates, which generalise to a number of situations and relationships. Attachment research indicates that attachment security is associated with aggressive behaviour in children. It has been proposed that disruptive behaviours are more prevalent in children with insecure attachments (Greenberg & Speltz, 1988), and insecure attachment has been linked to both externalising difficulties (Belsky & Cassidy, 1994), and offending behaviours (e.g. Allen, Marsh, McFarland, McElhaney, Land, Jodi & Peck, 2002). Despite these studies demonstrating a relationship between insecure attachment and aggressive behaviour problems, this relationship seems to be influenced by other risk factors found in families (Greenberg, Speltz, DeKlyen & Endriga, 1997). Insecure attachment should be thought of as a risk factor for externalising difficulties.

Dodge, Bates and Pettit (1990) suggested that insecure attachments could contribute to the development of hostile attributional biases. It is plausible that attachment representations that include the expectation that other people are untrustworthy, could lead one to interpret another person's actions in a predominantly hostile manner. A bias towards hostile interpretations of intent could be based upon internal working models of the world, self and other, and generalisation of insecure attachment representations could be one mechanism accounting for the development of hostile attributional style.

The relationship between attachment security and hostile attributional style has been investigated in a small number of studies. Although not assessing attachment per se, research indicates that the emotional climate of the family (e.g. socio-economic disadvantage, maternal depression, harsh discipline) is associated with the development of hostile biased social information processing patterns (e.g. Schultz & Shaw, 2003; Weiss, Dodge, Bates & Pettit, 1992). Research that is more closely linked to attachment security has also been conducted. Gomez and Gomez (2000; 2001) found that adolescents' perceptions of hostility, restriction, and low support in maternal relationships (which are arguably features of insecure attachment) were associated with hostile attributional style. Cassidy, Kirsch, Scolton and Parke (1996) also found a positive association between insecure attachment and hostile social cognitions. In a sample of nine-year-old children, perceived rejection by parents was associated with greater attributions of hostility. Taken together these studies indicate that children who self-report features of insecure attachments in their relationships with parents, are prone to hostile attributional biases. It is a limitation of these studies that they measure possible *components* of attachment security, such as perceived

parental support and rejection, rather than including measures specifically designed to capture attachment quality.

Research has also explored whether attachment status measured in infancy, using the Strange Situation, relates to hostile attributional style in early childhood. Suess, Grossman and Sroufe (1992) and Wartner, Grossman, Fremmer-Bombik and Suess (1994), found that five year-old children classified as securely attached, had “realistic or well-meaning” representations of peers. In these studies secure attachment was associated with fewer attributions of hostility in interpreting pictured scenarios. In summary there is limited empirical evidence to suggest that insecure attachment is associated with hostile attribution biases, and only a handful of studies have included attachment specific measures to explore this hypothesis. More rigorous empirical investigation is required to examine the possible relationship between attachment and hostile biased processing.

### **2.1.3. Mentalisation and Hostile Attributional Style**

Theory of mind was first defined as “the ability to impute mental states in oneself and in others” (Premack & Woodruff, 1978, p.515). More recently ‘mentalisation’ and ‘reflective function’ have been used to describe this concept, referring to the capacity to understand one’s own and others’ behaviours with reference to intentions, beliefs and feelings (Fonagy, Target & Gergley, 2000). Empirical research has demonstrated that children between the ages of three and four have acquired this understanding, and can appreciate other perspectives (Perner, 1991). Skill in mentalisation guides social interaction, allowing one to predict and understand other



people's behaviour on the basis of mental states. Research has found mentalisation deficits in autistic spectrum disorders and schizophrenia (e.g. Frith & Corcoran, 1996; Happé, 1995), and mood disorders (Kerr, Dunbar & Bentall, 2003). Poor theory of mind understanding has also been proposed to explain the occurrence of aggressive behaviour problems. Research conducted with boys with conduct disorder (e.g. Hughes, Dunn & White, 1998), and adolescent offenders (e.g. Mundy, 2004), shows mentalisation deficits in these groups. Mentalisation deficits are also thought to be linked to poor social interaction and difficulties integrating into the peer group (Bosacki & Astington, 1999).

Mentalisation and the attributional processes described in SIP accounts, both involve interpretation of others' motivations, or mental states. This similarity has led me to consider whether there is a boundary between these processes; it is not clear from existing literature whether mentalisation and attributional style are overlapping, or separate constructs. Crick and Dodge (1999) have made the only comment on this issue, suggesting that mentalisation is *static* understanding which influences *on-line* social information processing. One might speculate from developmental theory that mentalising abilities are a cognitive precursor to attributional judgements. Mentalisation requires an individual to hold an accurate representation of another person's mental state (Fonagy et al., 2000), which could be viewed as a developmental precursor to accurate attributional reasoning. Mentalisation involves global understanding about other's minds, and this may be influential in the attributional processes involved in situationally specific judgements. Therefore it is plausible that deficits in mentalisation contribute to the development of hostile

attributional style, and conversely accurate understanding of other's mental states (good mentalising abilities), largely prevents hostile biased interpretations.

#### **2.1.4. Attachment and Mentalisation**

In recent years attachment has been theoretically linked to mentalisation. Fonagy and Target (1997) have proposed a transactional model of theory of mind development, which states that attachment history facilitates the development of mentalisation. Secure attachments are proposed to be associated with 'reflective parenting' - where a care-giver reflects upon, responds to, and communicates about the child's mental state – and this is thought to aid the development of mentalistic understanding in children. Conversely, insecure attachments are thought to hinder mentalisation, as in these relationships care-givers fail to acknowledge adequately, and respond to, the child's emotional state. Research into this model is limited, but is slowly accumulating, and the ideas have been supported largely by studies involving children and adolescents. Mentalisation has been shown to be more advanced in securely attached children (Meins, Fernyhough, Russel & Clark-Carter, 1998; Steel, Steele, Croft & Fonagy, 1999), and adolescents (Humphress et al., 2002). An association between attachment and mentalisation has also been found in adolescent offending populations (Mundy, 2004), and in adult psychiatric populations (Fonagy, Leigh, Steele, Steele, Kennedy, Mattoon, Target & Gerber, 1996). This theory linking attachment and mentalisation is mentioned here because both constructs, and their proposed association, may be relevant to the development of hostile attributional styles.

### **2.1.5. Aims of the Current Study**

The primary aim of this paper was to explore correlates of hostile attributional styles. Specifically I aimed to investigate whether hostile attributional styles were related to individual differences in mentalisation ability and attachment security, in a sample of typically developing preadolescent children.

There were several rationales for this study. Firstly, as mentioned, little is known about the cognitive and emotional precursors to hostile biased processing. Attachment and mentalisation are good candidates because, like deficits in social information processing, these are consistently associated with aggressive outcomes, and furthermore all three are concerned with how children understand others' behaviours, thoughts and feelings. Secondly, attachment and mentalisation are theoretically and empirically linked, and this association may be relevant to the development of hostile processing. Thirdly, Dodge (1990) suggested a link between attachment and hostile attributions, and few studies have explored this claim. Fourthly, developmental theory suggests that mentalisation and attributional judgements may be linked; this idea has not been investigated and therefore this study would bring together these two hitherto distinct approaches to the study of children's aggressive behaviour. There is an empirical gap in all three literatures for adolescent children which provided a further rationale for the study. Preadolescence is of interest because it is an age when processing styles become more stable (Crick & Dodge, 1994), and it is also when we see the emergence of severe delinquent behaviours (Loeber, 1990). This study also had broader relevance for understanding

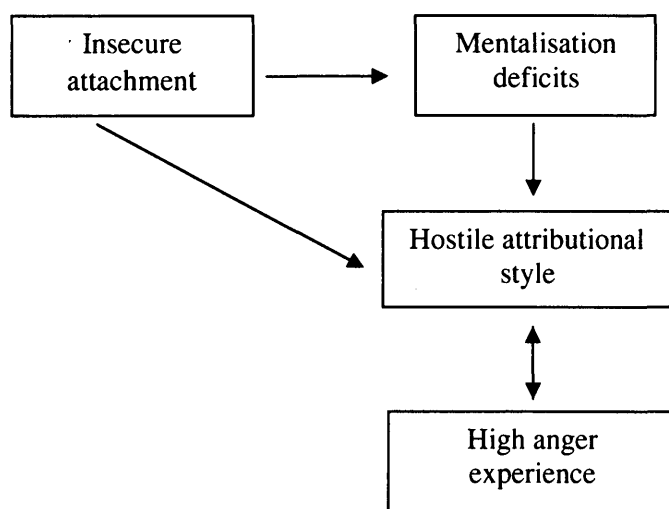
the factors relating to externalising behaviour problems, and thus for developing clinical interventions.

The second aim of the study was to explore whether hostile attributional style was associated with individual differences in the experience of anger. Hostile social cognitions have been explored extensively in relation to aggression but little is known about how these processes relate to, and are influenced by, negative emotions. When one interprets ambiguous intentionality in terms of hostility, this often leads to angry retaliation (Crick & Dodge, 1996). Thus it is plausible that hostile attributional style is associated with anger. It is possible that assumptions of hostility lead to anger and also that anger influences the nature of attributions made.

#### 2.1.6. Model and Hypotheses

Below I suggest a model of the development of hostile attributional biases, with implications for anger experience. This model is a variation on the transactional model of theory of mind development.

*Figure 2.1: A model linking attachment, mentalisation, attributional style and anger.*



The model proposes that insecure attachment is related to both mentalisation deficits and hostile attributional style, and that poor mentalisation is directly related to hostile attributional style. Further to this it is proposed that hostile attributional style is associated with angry affect, and also that angry feelings effect attributional judgement.

The main hypotheses are as follows:

1. Insecure attachment is associated with hostile attributional style.
2. Deficits in mentalisation are associated with hostile attributional style.
3. Hostile attributional style is associated with high anger experience.
4. Insecure attachment is associated with mentalisation deficits.

Hypotheses 1 and 2 are central hypotheses and consider potential precursors of hostile biased processing. Hypothesis 3 is secondary and concerns the relationship between hostile social cognitions and negative arousal. Hypothesis 4 is also a secondary hypothesis. This hypothesis was included to examine the transactional model of theory of mind development in a normative sample, and also because the proposed association between attachment and mentalisation may be relevant to the development of hostile attributional styles.

## 2.2. METHOD

### 2.2.1. Participants

Using Cohen's (1992) power primer it was calculated that 70 participants would be required to detect a large effect size. Fifty-five preadolescent children participated in the study (mean age 12.0 years). The sample consisted of 29 males (53%) and 26 females (47%). Demographic information relating to the participants is presented in Tables 2.1 – 2.5. These data were unavailable for participants where consent to collect this information was declined.

*Table 2.1: Demographic details: Family constitution.*

	(n=55)	
	N	%
Living with two parents (biological)	32	58.2
Living with two parents (one biological, one step)	3	5.5
Living with single parent	8	14.5
Unknown	12	21.8

*Table 2.2: Demographic details: Parental marital status.*

	(n=55)	
	N	%
Married	32	58.2
Co-habiting	2	3.6
Separated	4	7.2
Divorced	2	3.6
Widowed	1	1.8
Single	2	3.6
Unknown	12	21.8

*Table 2.3: Demographic details: Employment status of parents.*

	(n=55)	
	N	%
Professional/white collar	28	50.9
Manual Worker	5	9
Unemployed	7	12.7
Student	2	3.6
Retired	1	1.8
Unknown	12	21.8

*Table 2.4: Demographic details: Ethnicity of participants.*

	(n=55)	
	N	%
White British	33	60
White European	4	7.2
Asian	3	5.5
Black African	4	7.2
Mixed	4	7.2
Unknown	7	12.7

As illustrated in Tables 2.1 and 2.2, a high proportion of the participants were living with two biological parents who were married. Parental employment is presented in Table 2.3 and half the participants' parents worked as professionals. Table 2.4 indicates that the majority of children were of White British ethnicity; few participants were from ethnic minority or mixed ethnicity groups. The sample had low variability on the demographic variables, and collectively represented a group of children from a high socio-economic background.

Children were recruited from two mixed-sex comprehensive secondary schools in the Outer London area. The researcher initially approached five London schools; three declined involvement in the project, and two schools agreed. School approval was obtained from head teachers following discussion of the rationale for the research. Children in Year 7 (aged between 11 and 12 years) were targeted for recruitment. The researcher gave brief presentations to Year 7 classes explaining the research. Interested pupils were given recruitment packs. These contained written information about the research for both children and parents/guardians (See Appendices A and B). Children were asked to return completed parental consent forms to school if they wanted to participate in the research (See Appendix C). Children who did not return with parental consent did not participate.

Recruitment from School A began in the spring term. At the discretion of the head teacher, two classes were approached (60 children). Of these 60 children, 19 returned parental consent and participated (32% response rate). Recruitment from school B began in the summer term. After negotiation with the head teacher, six classes (120 children) were approached, and 36 children (30%) returned parental consent and participated in the research. Each participant was entered into a raffle, in which one pupil would win £30 worth of sports, music or book vouchers, and all participants received a pen as a small token of appreciation.

### **2.2.2. Procedure**

All data were collected by the author. Research sessions took place during school hours. Each child participated in one 50-minute classroom session, where



questionnaires were completed in small groups, and one 30-minute individual session, where one-to-one tasks assessing mentalisation and IQ were administered separately with each child. Child consent forms were also completed (see appendix D). Children received appointment cards at registration time, which instructed them to visit the researcher in the library at a scheduled time slot. Participants who could not easily miss a lesson, or who were absent, were re-assigned to a future time slot. Parents who indicated on the consent form that they were willing to provide demographic data, were contacted by telephone and asked questions relating to marital status, educational level, occupation, and ethnicity.

### **2.2.3. Design**

The study followed a correlational design.

### **2.2.4. Measures**

*Hostile attributional style: Assessment of Intent Attributions and Feelings of Distress.*

This hypothetical-situation measure was designed to assess children's attributions about peer intent, and has been used in past research (e.g. Crick, 1995; Fitzgerald & Asher, 1987). Ten hypothetical stories are presented, which describe ambiguous provocations reflecting situations that children regularly encounter (See Appendix E). Five stories depict relational provocations and the remaining five describe instrumental provocations.

Stories were read aloud by the researcher and participants then answered two questions. For question one, children are asked to select one of four possible reasons for peer behaviour – two of these reflected hostile intent, and two benign intent. For question two participants were required to select one of two fixed responses, either choosing that the depicted peer intended to be ‘unkind’ (hostile intent), or did not intend to be ‘unkind’ (benign intent). For both questions, hostile responses scored ‘1’ and benign responses scored ‘0’. The two questions are summed for each story (ranging from 0-2), and scores across the two story types are summed to create a Relational Intent Score and an Instrumental Intent Score (ranging from 0-10). High scores reflect hostile attributions.

*Mentalisation: Children’s Version of the Reading the Mind in the Eyes Test Revised (RMET; Baron-Cohen, Wheelwright, Spong, Scarhill & Lawson, 2001b).*

The Eyes Task is a test involving recognition and labelling of facial emotions. It is regarded as a high-level theory of mind task, which taps into “socio-perceptual or affective components of the mentalising system” (Brent, Rios, Happé & Charman, 2004, p.283). The child and adolescent version was administered in this study, which is an adaptation from the adult version and is normed for children aged 6-12 years (Baron-Cohen, Jolliffe, Mortimore & Robertson, 1997).

The stimuli consist of black and white photographs of the eye region of faces. Each photograph is surrounded by four mental state descriptions (See Appendix F for example of stimuli.). One of these words describes the emotional state depicted (the target word), two words are unrelated, and one word is the semantic opposite (the foil word). The participant is instructed to select the word which ‘best describes what

the person in the photograph is thinking or feeling'. There is one practice item where the participant is given feedback, and 28 test items. If a participant selects the target word it is assumed that they understand the mental state represented. An overall score of the number of correct responses (ranging from 0-28) is generated. A low score reflects poor ability to infer people's mental states, and a potential theory of mind impairment.

Children with autistic spectrum disorder have scored lower than typically developing children on this task (Brent et al., 2004). Baron-Cohen et al., (2001b), have described the task as a "pure mind reading task", as they have found it can detect differences in ability to work out mental states which operate independently from general cognitive abilities.

*Attachment: The Inventory of Parent and Peer Attachment (IPPA; Armsden & Greenberg, 1987).*

The IPPA was developed by Armsden and Greenberg (1987) and is a self-report measure to assess cognitive and affective aspects of attachment relationships in children aged 12-18 years. The measure is based on attachment theory, and is designed "to tap the internal working model of attachment" (Armsden & Greenberg, 1987, p.1). It yields continuous scores, and although not designed to discriminate between different attachment classifications, can be related to Ainsworth's attachment styles (Vivona, 2000).

The Parent version was used in this study. This consists of 25 items that look at the psychological availability of the caregiver (see Appendix G). Items include positive

statements (e.g. 'my parents accept me as I am'), and negative statements (e.g. 'I feel angry with my parents'). Participants are asked to rate each item on a 5-point scale, ranging from 'never true' to 'always true'. Items map on to three subscales which have been derived from factor analysis: (1) IPPA Trust – the degree of mutual trust, respect and understanding (ten items), (2) IPPA Communication – the quality and extent of communication (ten items), and (3) IPPA Alienation – the degree of emotional detachment, alienation and anger (eight questions). Items contributing to each subscale are summed (Alienation items are reversed and then summed). High scores on IPPA Trust and IPPA Communication reflect high perception of trust and communication respectively (range 10-50), and high scores on IPPA Alienation reflect *low* perception of alienation from parents (range 8-40). Scores across the three subscales are aggregated to yield a composite index score; IPPA Total (range 28-140).

Ainsworth, Blehar, Waters and Wall (1978), described secure attachment as trustful and respectful involvement with parents. Similarly a secure-adolescent relationship has been described by Armsden and Greenberg (1987) as an enduring affectionate bond, signalled by trust, good communication and acceptance. Thus high scores on IPPA Trust and IPPA Communication represent 'high security', and low scores represent insecure attachment (Vivona, 2000). IPPA Alienation can be linked to avoidant attachment (Mundy, 2004), e.g. 'talking over my problems with my parents makes me feel ashamed or foolish'. Thus high scores on IPPA Alienation (which indicates self-report of *low* alienation) also reflect 'high security'.

The IPPA has been used to measure attachment in both clinical and non-clinical groups of adolescents (e.g. Capaldi, 1992; Capaldi & Stoolmiller, 1999; Formoso, Gonzales & Aiken, 2000; Labile, Carlo & Roesch, 2004). The subscales have high internal consistency; Cronbach's alpha has been reported at between 0.83 and 0.93 (Armsden & Greenberg, 1987). Test-retest reliability estimates for IPPA Total, over a three week period, are reported as 0.93. Construct validity has been established via correlates between IPPA sub-scales and measures that tap into family cohesion, support and conflict.

*Anger experience and regulation: State Trait Anger Inventory - Child and Adolescent Version (STAXI-CA; Del Barrio, Aluja & Spielberger, 2004)*

The STAXI-CA is a self-report questionnaire measure to assess the experience, expression, and control of anger in children and adolescents. It was developed for use with children aged 7-17, and was derived from adapting the English Adult Inventory (STAXI; Spielberger, 1998).

The questionnaire consists of 32-items, rated on a three point scale (see Appendix H). Items form four dimensions (1) Anger State (e.g. 'at this moment I feel furious'), (2) Anger Trait (e.g. 'usually I have a bad temper'), (3) Anger Expression (e.g. 'when I'm angry I do things like slam doors') and (4) Anger Control (e.g. 'when I'm angry I do something to calm down'), and there are eight items for each dimension. Items for each dimension are summed (range 8-24). The four dimensions are correlated as follows: Anger State, Anger Trait and Anger Expression correlate positively, and Anger Control correlates negatively with the other dimensions. High scores on Anger State, Anger Trait, and Anger Expression reflect high anger

experience and expression. High scores on Anger Control reflect the ability to manage angry feelings.

Acceptable psychometric properties have been reported for use in children and adolescents (Del Barrio, Aluja & Spielberger, 2004). The dimensions have satisfactory internal consistency and test-retest reliability. Convergent and discriminant validity has also been established; the scale correlates positively with measures that tap into physical and verbal aggression and sensation-seeking, and negatively with measures of socialisation (Del Barrio, Aluja & Spielberger, 2004).

*General cognitive abilities: Weschler Intelligence Scale for Children, Third Edition (WISC-III UK) (Weschler, 1992)*

The WISC-III is a widely used standardised measure of cognitive functioning. It has been advocated that verbal intellectual abilities are statistically controlled for in studies of attributional styles (Dodge et al., 1990), and there has been a reported influence of verbal abilities on mentalisation (Frith, Happé & Siddons, 1994). An estimate of cognitive abilities was included in the study as a potential co-variate.

Vocabulary and Block Design were selected to provide an estimate of general cognitive abilities. Vocabulary is the most reliable WISC-III subtest, and provides an index of verbal abilities, and Block Design is a reliable estimate for non-verbal abilities. In the Vocabulary subtest participants are asked to describe the meaning of increasingly difficult words. Block Design requires participants to construct complex patterns with coloured blocks, and measures visuo-spatial construction and organisation. Scores have a mean of 10, and a standard deviation of 3. High scores

on both tasks reflect good cognitive abilities. The two scaled scores were summed to provide an overall IQ estimate.

#### *Demographic questions*

Parents were contacted by telephone to provide information relating to ethnicity, marital status, educational level and occupation. Socio-economic status may be confounded with hostile based processing (e.g. Pettit, Dodge & Brown, 1998) and for this reason this variable was also included as a co-variate.

#### **2.2.5. Ethical Approval**

Ethical approval was obtained from the UCL Committee for the Ethics of Non-NHS Human Research, in January 2005. (See Appendix I for letter of approval).

Completion of the attachment measure raised the only ethical concern at the outset of the study. Although this measure has been employed in numerous research projects without difficulty, questions about relationships with parents could be potentially difficult for children from adverse backgrounds. One headteacher initially suggested that children known to have a difficult home life should be excluded from completing this measure. On reflection it was felt that this measure might induce anxiety for some children, and it was decided that participants' reactions to this measure would be closely monitored. If children appeared distressed they would be reminded that completion of the questionnaire was both voluntary and confidential.

## **2.3. RESULTS**

This results section is divided into four parts. Firstly data screening, which considered normality of distributions and outliers, is reported. Secondly descriptive data for each of the main variables is presented. This is followed by the preliminary analyses, which involved correlations between subscales of the main variables, and correlations between background variables and the main variables. Section four consists of the main analysis and was structured according to the hypotheses; attributional style was examined in relation to anger experience and mentalisation, and then attachment was investigated in relation to attributional style. Finally associations between attachment and mentalisation were explored.

### **2.3.1. Data Screening**

The data were inspected for normality and outliers before any analysis was undertaken. Tests assessing the degree of skew and kurtosis in the variables indicated that a number of variables were not sufficiently normally distributed. Six variables were distributed with significant negative skew: Eyes (-2.94), Relational Intent (-3.13), IPPA Trust (-3.37), IPPA Communication (-2.96), IPPA Total (-3.32), and Age (-4.02). Transformations were applied in order to improve approximations to normality. To achieve this, these variables were first reflected and then a square root transformation was applied. Two variables were distributed with significant positive skew: State Anger (7.21) and Trait Anger (2.23). These variables underwent square root transformations to reduce asymmetry. The distribution of scores on State Anger



remained significantly positively skewed following both square root and logarithmic transformations. Almost all participants scored the minimum possible score on this variable and there was minimal variation. As this measure did not usefully discriminate between participants, and because it was not possible to improve the approximation to a normal distribution using standard transformations, State Anger was removed from the analysis. Outliers were identified for the following variables: Eyes, Relational Intent, and Age. These data points were removed as they were exerting a strong influence on mean scores and would unduly influence future analyses. Transformed data was used for parametric analyses.

### **2.3.2. Descriptive Data**

Mean scores and standard deviations for each of the main variables are presented in Table 2.5.

*Table 2.5: Descriptive statistics for the main variables.*

	n=55 N	Mean	Standard deviation
Eyes	55	19.1	2.9
Relational Intent	54	5.9	2.0
Instrumental Intent	54	3.3	2.8
IPPA Trust	49	42.5	6.9
IPPA Communication	51	37.9	7.4
IPPA Alienation	50	30.8	6.5
IPPA Total	44	112.2	19.4
Trait Anger	54	13.8	2.7
Anger Expression	54	15.0	2.2
Anger Control	54	16.1	3.7
IQ Estimate	55	22.2	4.1

The mean Intent scores and mean IPPA scores are reported in Table 2.5. High scores on Relational and Instrumental Intent represent hostile attributions, and high scores on IPPA subscales represent high security. The mean score on the mentalising task indicated that on average participants scored well above chance, and the mean score on the IQ estimate indicated that as a group the participants were within the average range for general cognitive abilities.

### **2.3.3. Preliminary Data Analysis**

#### Subscale Intercorrelations

Associations between subscales of the main variables were explored using bi-variate correlations. Relational Intent scores and Instrumental Intent scores were not significantly correlated  $\{r(53) = .11, p = .414\}$ . This result indicated that the tendency

to attribute hostility in relational scenarios was not significantly associated with this tendency in instrumental scenarios; those participants who attributed high hostility for relational items did not necessarily do so for instrumental items.

Table 2.6 displays the significant positive associations between all the three IPPA scales. IPPA Trust was significantly correlated with both IPPA Communication { $r(47) = .69$ ,  $p=0.001$ }, and IPPA Alienation { $r(46) = .82$ ,  $p=0.001$ }, and IPPA Communication was significantly associated with IPPA Alienation { $r(49) = .64$ ,  $p=0.001$ }. These findings indicate that participants scoring high on one subscale also scored high on the other subscales.

*Table 2.6: Intercorrelations between IPPA subscales.*

	1.	2.	3.
1. IPPA Trust	-	<b>.69**</b>	<b>.82**</b>
2. IPPA Communication		-	<b>.64**</b>
3. IPPA Alienation			-

**Bold indicates a significant correlation (\* $<.05$  level, \*\* $<.01$ )**

As can be seen in Table 2.7, scores on Trait Anger and Anger Expression were positively correlated { $r(53) = .40$ ,  $p=.003$ }, and both Trait Anger and Anger Expression were negatively correlated with Anger Control { $r(53) = -.68$ ,  $p=.001$ }, { $r(53) = -.42$ ,  $p=.002$ } respectively. This indicated that participants scoring high for Trait Anger also had high scores for Anger Expression, and low scores for Anger Control.

*Table 2.7: Intercorrelations between STAXI dimensions.*

	1.	2.	3.
1. Trait Anger	-	<b>.40**</b>	<b>-.68**</b>
2. Anger Expression		-	<b>-.42**</b>
3. Anger Control			-

**Bold indicates a significant correlation (\*<.05 level, \*\*<.01)**

### Co-variates

Background variables were considered in relation to the main study variables to examine whether these had any effects relevant to the main analyses. Preliminary data screening revealed that there was low variation on all demographic variables (see Tables 2.1-2.4, in Section 2.2.1.). Due to limited discrimination, it was decided that analysis of demographic data in relation to the main variables was inappropriate. The effects of gender, recruitment source, IQ, and age were examined.

Independent t-tests were carried out to consider gender differences on all main variables. Mean scores for male and female participants for each of the main variables are presented in Table 2.8.

Table 2.8: Means scores for male and female participants.

	n=29	n=26
	Boys	Girls
Eyes	19.31	18.88
Intent Relational	5.61	6.12
Intent Instrumental	<b>4.18*</b>	<b>2.38*</b>
IPPA Trust	42.41	42.59
IPPA Communication	38.48	37.23
IPPA Alienation	30.55	31.10
Trait Anger	14.21	13.42
Anger Expression	14.86	15.12
Anger Control	15.72	16.60

**Bold indicates a significant difference in mean scores (.05 level, \*\*<.01)**

There was one significant gender effect; on average, as compared with girls, boys scored significantly higher on Instrumental Intent  $\{t(52) = 2.48, p=.017\}$ . This indicated that boys showed a greater tendency towards hostile interpretations in physical interaction scenarios. Accordingly it was decided that gender would be controlled for when instrumental intent scores were correlated in the main analysis.

Mean scores for participants recruited from School A and School B were explored in the same manner to explore the effect of recruitment source on the main variables. The mean scores for the two schools are presented in Table 2.9.

*Table 2.9: Means scores for participants from School A and School B.*

	n=19 School A	n=36 School B
Eyes	18.58	19.39
Relational Intent	5.53	6.03
Instrumental Intent	3.00	3.49
IPPA Trust	40.50	43.45
IPPA Communication	37.11	38.44
IPPA Alienation	<b>27.70*</b>	<b>32.33*</b>
Trait Anger	14.17	13.67
Anger Expression	<b>16.37**</b>	<b>14.23**</b>
Anger Control	15.72	16.33
<b>Bold indicates a significant difference in mean scores (*&lt;.05 level, **&lt;.01)</b>		

There were no significant mean differences between Schools A and B for the majority of variables. However, on average, participants recruited from School B scored significantly higher on IPPA Alienation (which reflects higher security), than those from School A { $t(48) = -2.47, p=.017$ }. The analysis also demonstrated that participants from School B had a significantly lower mean Anger Expression score than School A { $t(52) = 3.90, p=.001$ }, indicating that on average participants in School B had lower levels of anger expression. It was therefore decided that the effect of recruitment source on both IPPA Alienation and Anger Expression would be controlled for in the main analysis.

The effect of age and intelligence on the main variables was also explored. Bi-variate correlations were conducted across all measures to determine whether the effects of age and IQ needed to be co-varied in the main analysis. These are presented in separate columns of Table 2.10.

*Table 2.10: Correlations between age, IQ, and the main variables.*

	n=55	n=55
	IQ	Age
Eyes	<b>.48**</b>	<b>.29*</b>
Relational Intent	-.12	.08
Instrumental Intent	-.10	.14
IPPA Trust	-.03	.18
IPPA Communication	-.06	.15
IPPA Alienation	.09	<b>.38**</b>
Trait Anger	-.09	-.15
Anger Expression	-.00	-.20
Anger Control	.10	.10

**Bold indicates a significant correlation (\*<.05 level, \*\*<.01)**

Table 2.10 illustrates that IQ was significantly correlated with Eyes, { $r(54) = .48$ ,  $p = .001$ }, which indicated that higher general cognitive abilities were associated with better performances on the mentalising measure. Age was also significantly correlated with Eyes scores { $r(54) = .29$ ,  $p = .037$ }, indicating that older participants achieved higher scores on this assessment. Additionally, age was positively correlated with IPPA Alienation { $r(50) = .38$ ,  $p = .007$ } indicating that older participants reported lower alienation. Intent attributions and STAXI subscales were unrelated to both IQ and age.

It was decided that where necessary, age and IQ would be controlled for in the main analyses in order to reduce error variance in the main variables. This would involve multiple regression analyses, with age and IQ as co-variates.

### 2.3.4. Main Analysis

#### Attachment and Hostile Attributions

The hypothesis that insecure attachment is related to hostile attributional style was explored. It was predicted that low scores on attachment dimensions would be associated with high scores on both Relational and Instrumental Intent. Bi-variate correlations were conducted initially between the IPPA subscales and the Intent scores to investigate these associations. These appear in Table 2.12.

*Table 2.12: Correlations between Intent scores and IPPA Sub-scales.*

	Relational Intent	Instrumental Intent
IPPA Trust	.01	.04
IPPA Communication	-.06	.06
IPPA Alienation	.01	.01

As shown in Table 2.12 associations between IPPA subscales and Intent scores were not significant, indicating that no relationship was found between attachment security and attributions of hostility. Hypothesis One was not supported by the data.

#### Mentalisation and Hostile Attributions

The hypothesis that poor mentalisation ability is associated with hostile attributional style was explored. It was predicted that low scores on mentalisation would be correlated with high scores on both Relational and Instrumental Intent. Bi-variate correlations were conducted initially between Eyes scores and Intent scores and these appear in Table 2.13.



*Table 2.13: Correlations between Intent scores and Eyes scores.*

	Relational Intent	Instrumental Intent
Eyes	-.05	-.02

As illustrated in Table 2.13, correlations between mentalisation scores and Intent scores were not significant. These results indicated that poor mentalisation was not associated with attributions of hostility, and therefore Hypothesis Two was not supported.

#### Hostile Attributions and Anger Experience

The hypothesis that hostile attributional style is associated with high anger experience was explored. Relational and Instrumental Intent scores were predicted to correlate positively with Trait Anger and Anger Expression, and negatively with Anger Control. Bi-variate correlations were conducted initially to explore associations between the STAXI dimensions and Intent scores. These appear in Table 2.11.

*Table 2.11: Correlations between Intent scores and STAXI dimensions.*

	Trait Anger	Anger Expression	Anger Control
Relational Intent	.05	-.10	-.11
Instrumental Intent	<b>.24*</b>	-.12	-.01

**Bold indicates a significant correlation (\*<.05 level, \*\*<.01)**

As shown in Table 2.11, significant correlations were not found between Intent scores and Anger Expression and Anger Control. This indicates that there was no relationship between hostile attributions and both expression and control of anger in this sample, and thus further analyses on these associations were not warranted.

There was a significant positive correlation between Instrumental Intent and Trait Anger ( $r(53) = .24, p = .045$ ). This indicated that attributions of hostility in scenarios involving ambiguous *physical* interaction, were associated with high trait anger. In the preliminary analysis Trait Anger was not associated with any co-variables considered in this study, and therefore a multiple regression was not employed. This significant association provided some support for Hypothesis Three, that hostile attributional style is associated with high anger experience.

### Attachment and Mentalisation

It was hypothesised that insecure attachment is associated with reduced mentalisation ability, and it was predicted that low IPPA subscale scores would be associated with low Eyes scores. Bi-variate correlations between IPPA scores and Eyes score were conducted to explore this hypothesis. These appear in Table 2.14.

*Table 2.14: Correlations between IPPA subscales and Eyes scores.*

	Eyes
IPPA Trust	.14
IPPA Communication	.01
IPPA Alienation	.07

As illustrated in Table 2.14 no significant correlations were found between IPPA scores and Eyes scores. This indicates that in this sample no relationship was found between attachment security and mentalisation. Hypothesis Four was not supported.

### **2.3.5. Summary**

A number of the main and background variables were not sufficiently normally distributed and so where necessary transformations were applied and outliers were removed. Descriptive data indicated that there was a mean difference between Relational and Instrumental Intent, and overall participants scored higher for hostile attributions in a relational context. Interestingly, Relational and Instrumental Intent scores were not correlated. Subscales of the IPPA and STAXI were intercorrelated as expected. A number of co-variables were identified; these included a gender difference for Instrumental Intent, an effect of IQ on mentalisation scores, and age was correlated with both mentalisation and IPPA Alienation scores.

The main analysis indicated that Hypothesis Three was partially supported; Instrumental Intent scores were positively correlated with Trait Anger scores. Hypotheses One, Two and Four were not supported by the data.

## **2.4. DISCUSSION**

The primary aim of this study was to explore correlates of hostile attributional style, by investigating a model which posed attachment and mentalisation as cognitive and emotional precursors. This study was the first to consider mentalisation in relation to attributional style. The study also aimed to examine the relationship between hostile social cognitions and anger experience, and attachment and mentalisation. The central finding was that children who experienced higher levels of anger had a stronger tendency towards making attributions of hostility to ambiguous instrumental provocations. Hypotheses proposing associations between attachment, mentalisation and hostile attributional style were not supported by the data. A secondary finding related to the effect of gender on attributions of intent; as compared to the female participants, males demonstrated a greater tendency to show hostile attributional patterns in interpreting ambiguous physical provocations.

### **2.4.1. Hostile Attributional Style and Trait Anger**

The finding of a significant correlation between trait anger and hostile processing in instrumental provocations supported the hypothesis that hostile attributional style is associated with high anger experience. Hostile judgments in response to ambiguous physical provocations were made more frequently by those children reporting relatively high levels of trait anger.

What might be the reason for an association between trait anger and attributions of hostility, and how might the relationship between hostile social cognitions and

negative emotions operate? Two possibilities have been proposed by Crick and Dodge (1994). Firstly they suggested that negative emotions in themselves (e.g. fear or anger) could increase the likelihood that one makes hostile interpretations. On the basis of this proposal, children with a low threshold for anger (e.g. high trait anger) would make attributions of hostility more frequently than those with a higher anger threshold. Secondly they propose that interpretations of hostility may lead to the generation of anger. These ideas may not be mutually exclusive; feeling angry may increase the likelihood that others are perceived as hostile, and equally anger may escalate following assumptions of hostility. Both suggestions fitted with the findings of this study. Limited literature supports both ideas; firstly, emotional arousal has been shown to compromise accuracy in interpretations (Dodge & Somberg, 1987). Secondly, hostile attributions have been associated with higher levels of distress than non-hostile attributions (Crick & Ladd, 1993). Furthermore, hostile attributions are associated specifically with reactive aggression (Crick & Dodge, 1996), and reactive aggression is motivated by anger. This could indicate that hostile biased attributions generate anger.

It was interesting that trait anger was not associated with hostile intent in *relational* scenarios. Relational provocations (e.g. not being acknowledged when entering a group) may pose a different kind of threat to instrumental provocations (e.g. being knocked into). It is possible that ambiguous relational provocations evoke *anxiety* rather than anger, and therefore it may be that angry emotions are less relevant to relational provocation. Equally, if we also consider how negative emotions might reinforce hostile attributions, anxiety rather than anger may lead to assumptions of hostility in ambiguous relational scenarios.

It was important to consider alternative explanations for the association between trait anger and hostile attributions found in the study. For instance, it was possible that the relationship could be accounted for by an unmeasured third variable, which correlated separately with both trait anger and hostile attributions. For this reason no assumptions of causality were made.

Although a significant correlation was found with the measures used in this study, there have been concerns expressed about the ecological validity of assessing attributional style using hypothetical scenarios (Crick & Dodge, 1994). Thus it was possible that measurement error led to a spurious result. Furthermore, considering the number of correlations performed in the analyses, it was possible that the significant association was a chance finding, due to a Type I error, and replication of this finding would be recommended. Nonetheless, the idea that trait anger is associated with hostile attributional style in instrumental provocations was supported by this study. Further research needs to clarify the role of negative emotions for attributional style and could consider how personality traits interact with social information processing styles.

#### **2.4.2. Attachment, Mentalisation and Hostile Attributional Style**

The study found no associations between attachment security and hostile attributions, and between mentalisation abilities and hostile attributions. Additionally, no relationship was found between attachment security and mentalisation in this sample. A number of explanations for these findings were considered.

### Attachment and mentalisation

The lack of association between attachment and mentalisation could indicate that in typically developing adolescent children these constructs are not associated in the manner proposed by Fonagy and Target (1997). The transactional model has received minimal empirical investigation in normative samples, and only a handful of studies have involved adolescent populations (e.g. Humfress et al., 2002; Mundy, 2004). Whether this model is relevant to adolescents is therefore questionable. However, it was important to acknowledge alternative explanations for the non-significant finding, and to locate the results within the wider empirical context. The data were contrary to existing literature which *has* found significant associations between insecure attachment and mentalisation deficits (e.g. Humfress et al., 2002; Fonagy et al., 1996; Meins et al., 1998). Therefore it seemed sensible to consider whether features of the study, rather than an improbable theory, accounted for the insignificant finding.

The participants were a self selected, normative sample and within this select group it may not have been possible to capture the subtle relationship between attachment and mentalisation. For example, there was limited variation on attachment subscale scores, which may not have been sufficient to allow for a thorough investigation of the relationship between these constructs. Further to this, the measures selected may not have been able to detect variation in attachment security and mentalisation ability. It has been noted that self-reports of attachments fail to take into account the issue of idealisation when individuals describe attachment relationships

(Zimmerman, 2004). Interview assessments of attachment are a valuable alternative to questionnaire measures because in addition to considering the self reported content, they also analyse the qualitative aspects of the narrative in order to classify attachment quality. The RMIET was developed for use with autistic samples and is not well validated for 'normal' populations. One needs to question whether this task could identify subtle differences in mentalisation abilities. Additionally a small sample size may have resulted in low statistical power and the inability to detect a significant relationship between variables. Another possibility is that attachment to peers, rather than attachment to parents, may be more connected to individual differences in mentalising in preadolescence (Humphress et al., 2002). During adolescence there is a shift from parents fulfilling attachment needs to the peer group providing this security and emotional support (Allen & Land, 1999), and further research around peer attachment and mentalisation is recommended.

#### Attachment and hostile attributional style

Possible reasons for the lack of association between attachment security and hostile attributional style were also considered, and this finding also had implications for current theory. The insignificant finding could have been taken as evidence that insecure attachment histories do not contribute to hostile processing, as Dodge et al., (1990) suggested. The existing empirical base supporting Dodge's proposal is minimal, and there are concerns about the appropriateness of the attachment measures used in some of the studies which have supported this idea. However, considering the methodological limitations described earlier it may be hasty to conclude from this study that these constructs are not linked; it is possible, rather,



that characteristics of the study may have accounted for the lack of association. Self-report assessments are open to variance, and although it was an improvement on some previous research to use a measure grounded in attachment theory, the difficulties for self report instruments in capturing attachment quality have been described. Data assessing these constructs was provided by the children and the absence of independent ratings of attachment and attributional style may have led to an informant bias. Low variation on attachment subscales and low power are also relevant, and both could have contributed to non-significant findings. As discussed in relation to mentalisation, attachment to peers rather than parents may be more connected to attributions of hostility in this age group. With these issues in mind, Dodge's suggestion of the link between internal working models and hostile attributional style is worthy of further investigation.

#### Mentalisation and hostile attributional style

The relationship between mentalisation and attributional style was an exploratory question and although the hypothesis was prompted by developmental theory, it was not grounded in an empirical base. It is possible that the lack of statistical association reflected the fact that mentalisation ability has no bearing on the tendency to interpret scenarios in a hostile manner. However, as this is the first study to explore this issue, it seemed unwise to rule out the relationship at this early stage. The lack of association could have been related to the methodological limitations already discussed, including the small sample size, normative sample, possible informant bias, and difficulties with the ecological validity and sensitivity of measures. The lack of association may have also been related to the use of different methodologies

to assess mentalisation and attributional style; mentalisation was assessed using visual stimuli, and hostile attributional style using vignettes about others' behaviour. On the other hand, correcting for this could also be problematic, because the use of methodologies that are too closely related (e.g. two vignette assessments) can lead to artificial inflations of associations when scores are correlated. In hindsight it might have been useful to correlate two or more measures of mentalisation with a measure of attributional style. Social information processing accounts and mentalising perspectives would benefit from further dialogue, and their possible association could be explored in future research.

What were the implications of these findings for the model featured in Figure 1.1? The findings were not in support of the suggested model, but it was possible that the non-significant findings were an artefact of methodological limitations described. Further research around this model is warranted, including studies which isolate components for separate investigation (e.g. mentalisation and hostile attributions), longitudinal investigations, and studies that allow for path analysis.

#### **2.4.3. Hostile Attributions, Provocation Type and Gender**

Male participants interpreted ambiguous physical interactions in a hostile manner, and this tendency was significantly less pronounced in female participants. This finding has replicated those produced in a study by Krahé and Möller (2004), where boys showed more attributions of hostility in response to ambiguous instrumental provocation. Closer examination of the data also revealed that girls inferred more hostility to ambiguous relational scenarios, relative to instrumental scenarios. Nelson

and Crick (1999) found a similar gender difference in relation to perceived distress. In their study female participants were more distressed in response to relational provocations, and males to instrumental provocations. Although gender differences did not feature as an explicit research question, these results were of interest because they led to a consideration of whether gender differences in attributions of hostility were due to gender differences in the *salience* of provocations.

It is possible that ambiguous instrumental provocations (scenarios depicting physical harm or damage to property), and relational provocations (scenarios depicting potential damage to relationships), have different emotional salience for male and female children, which could influence the likelihood that attributions of hostility are made. Physical harm and damage to property may be perceived as more threatening for males and relational harm more so for females. I base this idea firstly on what is known about gender differences in aggression. Research indicates that physical aggression is more normative for boys and relational aggression more normative for girls (Crick & Grotpeter, 1995), and these sub-types of aggression are associated with distinct developmental outcomes (Schwartz et al., 1998). If girls are familiar with relational aggression from peers, they may read hostility into ambiguous relational provocations more readily. Similarly, boys may be sensitive to ambiguous instrumental provocations because instrumental aggression is both part of their behavioural repertoire, and common in their experience of conflict with same sex peers.

Secondly, gender differences in relation to social functioning within the peer group may be another explanation for why provocations may have different salience for males and females. Nelson and Crick (1999) stress the high investment girls put into

developing close relationships, thus ambiguous relational provocations may be perceived as a threat to success in the peer group, and therefore are salient. On the other hand, boys may be more concerned with their individual status and appearing strong in the face of intimidation; thus physical provocations may pose a more significant threat.

Gender differences in both aggression, and in motivations in relation to the peer group, may influence the type of scenarios that constitute a threat, whether an individual is sensitised to this threat, and therefore whether hostility is inferred. This could explain why the results of this study revealed comparatively higher attributions of hostility for girls in relational, as compared to instrumental scenarios, and why boys attributed hostility to instrumental provocations more so than girls. I have argued that the context of the provocation influences attributional style in different ways for males and females. This needs to be investigated more comprehensively before these speculative ideas can be qualified.

#### **2.4.4. Limitations**

A number of limitations have already been mentioned. The characteristics of the sample were relevant; all children tended to be from higher socio-economic groupings than the general population, limiting the generalisability of significant findings to high risk samples, but also contributing to low variation of scores. The potential of the selected measures to capture constructs has already been discussed; self-report instruments introduce measurement error and contribute to poor precision in measurement. With this said, it was difficult to find standardised and validated

measures for the age group under study. Children were the source of all the information, which introduces method variance (Humphress et al., 2002), and the study would have benefited from some objective measures provided by teachers or parents. The study would also have been enhanced by the involvement of many more participants. In instances of small samples, statistical power is reduced and there is a risk that actual associations will not be elucidated. Higher participant numbers would have allowed for a more detailed exploration of the research questions, and a more detailed within-group analysis which may have captured the associations hypothesised.

Nonetheless, the study benefits from a good mix of male and female participants (which led to findings of gender differences) and from considering the influence of general cognitive abilities. Furthermore, there is virtually no research into mentalisation in adolescence, and the study asked novel research questions. The positive finding of an association between anger and hostile social cognitions was encouraging, and that it was found in a normative sample may mean that the association in both the general population, and clinical samples, will be stronger.

#### **2.4.5. Implications**

The finding that attributional style was associated with trait anger has broader implications. If hostile social cognitions lead to, or are the outcome of, angry feelings, this may have important clinical implications. It may be important to consider the attributional styles of children who are referred for anger problems. Clinical interventions have been designed specifically to modify hostile attributional

styles of aggressive children (e.g. Hudley & Graham, 1993), and these interventions may be particularly suited to children presenting with high levels of anger. The link between trait anger and attributions also raised questions about how personality traits relate to social information processing, which may have theoretical implications for both social information processing theory and trait anger as a personality variable.

There are further implications with regard to possible gender differences in social information processing. As discussed, relational and instrumental provocations may have different salience for males and females, which may be related to gender differences in aggression and roles within the peer group. Further research could consider provocation type as the independent variable, to explore whether attributions to relational and instrumental provocations operate differently for males and females.

#### **2.4.6. Conclusion**

In conclusion the findings of this study were not in support of the proposal that attachment and mentalisation are correlates of hostile attributional styles. However, the investigation of anger experience in relation to hostile attributions was more fruitful, indicating that angry emotions may have an important connection to attributions of hostility. The study would have benefited from a larger sample size, greater variation in demographic characteristics within the sample, and greater precision around measurement of constructs. At present we know very little about the precursors of hostile processing and the two constructs proposed here may still be important. Future research could explore the proposed links between attachment,

mentalisation and hostile attributions more comprehensively using larger sample sizes. It would also be interesting for studies to explore how personality traits interact with social information processing patterns. Finally I suggest that investigating relational and instrumental provocations, and how this distinction may impact upon hostile attributions, could be an important area of future research.

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## **PART III**

### **CRITICAL APPRAISAL**

### **3.0. OVERVIEW**

This critical appraisal is divided into four sections. It begins with an extended discussion which considers how attachment to peers may be relevant to the development of mentalisation, and also discusses the context surrounding the methodological limitations mentioned in the empirical paper. This is followed by a personal reflection on the research process where I consider the challenges posed by the research, my own skills development, and reflect on the recruitment process. In section three I discuss my thoughts about the possible relationship between hostile attributional styles and the social context. The appraisal ends with a brief summary of the thesis.

### 3.1. EXTENDED DISCUSSION

#### 3.1.1. Peer Attachment and Mentalisation

The transactional model of theory of mind development (Fonagy & Target, 1996), regards parental attachment as crucial to mentalisation. Attachment security and mentalisation abilities have been found to be related in a number of studies (e.g. Fonagy, Steele, Steele & Holder, 1997; Meins, Fernyhough, Russel & Clark-Carter, 1998). As described in the empirical paper, a significant association was not found between parental attachment and mentalisation in the empirical study. In trying to make sense of these findings, looking beyond the explanations already mentioned, I have considered the possibility that *parental* attachment may not be the only attachment relationship that is important to the development of mentalisation abilities in older children.

Peer attachments are important to social and psychological developments and thus I have considered whether the nature of attachments to peers during adolescence are relevant to the development of mentalisation. These ideas have also been expressed by Humfress, O'Connor, Slaughter, Target and Fonagy et al., (2002) who in relation to adolescents, suggest that "it may be that other social relationships, notably with peers, may be most connected with individual differences in mentalising" (p.880).

During adolescence autonomy from parents increases which is an anticipated developmental shift. It has been suggested that in mid- to late-adolescence, children begin to rely less on parents as attachment figures, as the peer group begins to provide a number of attachment functions (e.g. Allen & Land, 1999). Studies indicate that in

adolescence close friendships can take on qualities and characteristics that are similar to that seen in attachment relationships with parents; we see intimacy, self-disclosure and empathy (Zimmerman, 2004). The transfer of attachment to parents to other close relationships, is based on the concept of internal working models (Bowlby, 1973) and moderate to strong associations have been found between parent and peer attachment (Laible, Carlo & Raffaelli, 2000). The security of attachment to parents continues to be important for psychological well-being across the lifespan (Allen, Hauser, Bell & O'Connor, 1994), but it is arguable that peer attachments also become important to emotional and social developments during adolescence.

How might attachment to peers influence mentalisation? Reflective parenting, which includes parental mirroring and labelling of emotions, has been proposed as the mechanism linking parental attachment to mentalisation (Fonagy & Target, 1997). It may be that, within peer attachment relationships, specific interactions take place that are important to the continuing development of mentalisation during adolescence.

Relationships with peers are thought to provide unique learning opportunities, the nature of which is rarely available within the parent-child dyad. Interactions with close peers provide a forum for equality and reciprocity, and importantly provide rich opportunities for the development of perspective-taking (Esienberg & Fables, 1998). Laible, Carlo and Roesch (2004) found that secure attachments with peers were associated with high levels of empathy, and research also indicates that security of attachments to peers predicts empathy more strongly than security of attachment to parents (Laible et al., 2000). Thus empirical studies indicate that close and supportive relationships with peers – which are indicative of secure peer attachments – are associated with a number of skills, including enhanced perspective-taking abilities

and the development of empathy. Empathy and perspective-taking are constructs that are closely related to mentalisation (Mundy, 2004). If peer attachments facilitate the development of these related skills, they may also be important to the development of mentalisation.

It is possible that, when children experience close affectionate peer relationships, this leads to the development of empathy and perspective-taking, and these skills are important to the development of mentalisation abilities. In order to test the hypothesis that secure peer attachments are associated with good mentalising abilities, future research could explore whether individual differences in attachments to peers relate to variation in mentalisation ability. It would be interesting to examine these questions in adolescent children as, at this age, attachments are less exclusive to the parental relationship.

### **3.1.2. Measurement Issues**

Concerns about the validity of the instruments used to assess attachment and hostile attributional style were articulated as methodological limitations in the empirical study. However it is important to locate these measurement issues within the wider context, firstly by acknowledging the realities of conducting research within a school setting, and secondly by considering the broader issues of measurement difficulties when assessing psychological constructs.

The context of the research greatly influenced the choice of measures. Both schools were large comprehensives with high pupil intake, and working within these systems

imposed a number of logistic constraints. Successful negotiation of school involvement required presenting minimal requests in order to secure agreement. Teachers' priorities were, quite rightly, that minimal disruption be caused to the academic programme, and thus it was important that all the elements of the research could be fitted into a short time-frame. This was at the expense of more thorough and rigorous measurement of constructs. As an example, the Child Attachment Interview (CAI; Target, Fonagy, Shmueli-Goetz, Datta, & Schneider, 1998) would have added value to the study, but the administration time required would have been unacceptable to the participating schools. Similarly, obtaining objective measures from teachers was not feasible. Systemic theory was relevant when considering the relationship between the researcher and the school, and how this relationship could be managed successfully. Using systemic ideas of homeostasis (Weiner, 1965) one can understand why it was important for me to be cautious and sensitive when entering the school system, to ensure that as far as possible I operated within the 'rules' of the existing organisation and did not alter this fine balance.

The empirical context was also relevant to the measurement issues. Within both social information processing theory and attachment theory research paradigms, there is a limited choice of suitable assessments. This perhaps reflects the fact that these constructs are very difficult to measure and quantify. The broader issue of whether we can meaningfully capture these constructs using current techniques is relevant to the lack of statistical associations found in the empirical study.

The available assessments of both hostile attributional style and attachment have questionable validity. For example, Crick and Dodge (1994) have discussed how 'pen



and paper' responses to hypothetical scenarios fail to capture on-line information processing styles. Naturally occurring peer interactions are the most appropriate contexts to measure information processing patterns, but how can this be achieved? Some authors have attempted to address this issue by assessing attributional style in response to staged provocations (e.g. Steinberg & Dodge, 1983). In vivo assessment of hostile attributional style may be one way to address these validity issues, but eliciting negative arousal in this manner introduces ethical concerns. Similarly, assessment of attachment representations is open to variance and misrepresentation. When children self-report on the quality of the parental relationship certain aspects may be minimised or idealised (Zimmerman, 2004).

I feel that ultimately the constructs of attachment and attributional style are very difficult to quantify, and do not lend themselves well to empirical research. It is difficult to know what can be done from a methodological standpoint that could be feasible ethically. It is possible that we are now at a point where advances in measurement are needed before we can further our understanding of these constructs, the possible relationships between them, and some of the inconsistent findings.

## **3.2. PERSONAL REFLECTION**

### **3.2.1. Challenges and Learning Points**

Conducting this thesis has been a challenging but rewarding experience. I was initially struck by a sense of isolation. I was completing a task that my cohort was addressing simultaneously, yet individually we were experiencing it in many different ways, moving at very different paces, and facing different challenges. It was at times difficult to banish doubts about being able to complete the task, and this self-doubt was most prominent during recruitment 'dry times', it was then that continuing the momentum was paramount despite feeling de-motivated. It was difficult to balance the dual tasks of being fully immersed in the literature - in order to identify valid questions and critique the research - *and* to consider the wider context. Finding a compromise between achieving external and personal goals was problematic; my personal goal of producing a good quality thesis was at times in competition with the external goal of meeting the academic deadline.

Entering and working within school systems represented the largest challenge. It was essential that I made full use of my clinical skills in order to negotiate agreement. This was not an easy endeavour, as on the one hand it was crucial that I avoided making too many demands, but on the other hand I needed to be assertive in order to ensure that the research moved forwards. My agenda did not always fit in with schools' schedules and it was hard to manage my frustration and anxiety when things moved slowly. It was a personal disappointment when data analysis revealed a number of insignificant findings, and hard to avoid seeing this as a failure. I realised that I had become emotionally invested in my hypotheses and felt a huge sense of

disappointment when these were not all borne out by the data. I have since reflected upon this and realised that it was unrealistic to expect all hypotheses to be supported by the data. I understand now that this outcome was not surprising or unusual when one considers the empirical context; studies that find insignificant results are *not* rare, but few of these reach publication, and therefore are not prominent.

I feel that I have gained personally from conducting this piece of research, and I think that the most valuable learning point was the importance of establishing a sound rationale from the very outset of a study. Equally identification of appropriate research questions and a feasible design are essential to ensure that a project reaches fruition. My understanding of this comes largely because I embarked upon a second thesis after an initial project was discontinued. It was a hard lesson, but I was able to profit from this experience and move forward on a second piece of research with enthusiasm because I felt confident in the study's rationale. My perseverance, determination and assertiveness skills were put to a severe test, but I have gained a great deal of confidence in my ability to problem-solve and think creatively around potential barriers to progress.

These experiences have allowed me to appreciate the value of seeking support and supervision, and to appreciate the necessity for productive breaks. Making time to step back from the thesis, and have some "downtime" can be a worry and a further pressure and threat to meeting the deadline, but is essential to be able to detach oneself at times, in order to appraise work objectively.

### **3.2.2. The Experience of Recruitment**

The recruitment process was a source of much anxiety, and in retrospect I see that my preconceived ideas about the response to the recruitment drive were somewhat naïve. I had assumed that the vast majority of children would be interested in the project and keen to participate. As I was to find, fewer children than I had expected expressed an interest in the study (31% of those approached), and this has led me to consider whether preadolescents require different kinds of incentives to participate in voluntary research. On reflection I feel that the children's models and beliefs about psychologists, which from their feedback encapsulated ideas about 'madness', also contributed to a low response rate. Some pupils may have been wary and suspicious of my motives and perhaps concerned about a potential hidden agenda. Parents, who were required to consent to participation, were possibly concerned about a psychological research project which may have had associations with a degree of stigma.

Research has shown that children and parents often share attributions of hostility (Bickett, Milich & Brown, 1996), and I have wondered whether those children (and indeed parents) with a hostile attributional style, were more likely to view my motives with suspicion and decide to not be involved in the research. If this was the case, children with hostile processing styles may well have excluded themselves from the study.

### **3.2.3. Scientist-Practitioner Split**

Clinical Psychologists are trained in a scientist-practitioner model, which I regard as a major asset to the profession. In conducting the thesis, for good reasons, these roles were split rather than merged, as my remit as a researcher did not include the provision of psychological intervention. When collecting data and liaising with both schools and parents, my engagement skills were valuable but I was of course unable to offer any interventions, even though it was requested. I knew that requests for psychological support were outside the remit of the research, but nonetheless found this personally challenging. For example, one parent expressed a concern about their child over the telephone, and a number of children expressed concerns about managing their anger, and asked me directly for help. These incidents were dealt with in the manner recommended by BPS guidelines, but nonetheless left me feeling concerned that I could not offer help to parents and pupils who expressed a need for it.

### **3.3. HOSTILE ENVIRONMENTS AND HOSTILE ATTRIBUTIONS**

It could be argued that hostility and aggression are inescapable features of modern living, and indeed one cannot help but be aware of increasing reports of violence and unprovoked attacks in the UK, particularly in major cities. The introduction of antisocial behaviour orders (ASBOs) is a reflection of current concerns about levels of externalising behaviours. This hostile social climate may be relevant to social information processing biases.

Hudley and Graham (1993) have commented on the relationship between social conditions and hostile biased processing. They studied a group of African-American boys recruited from a deprived environment and stated that “for some of our young research participants, violence and aggression are part of everyday experience. It is therefore unclear to what extent being quick to assign blame or having a low threshold for retaliatory behaviour might operate as genuine survival strategies for coping with the perilous conditions that have become common in radically isolated, economically depressed, inner-city neighbourhoods.” (p.136). Here Hudley and Graham are conceptualising hostile attributional style as an adaptive process, operating within a maladaptive environment which raises the question of whether hostile processing is related to external and cultural factors. Hostile processing may be a reflection of the social climate, in as much as it is influenced by wider social problems including the prevalence of anti-social behaviour in some communities.

The interplay between cultural factors and individual or intrinsic factors, in relation to maladaptation, is highlighted by the developmental psychopathology framework. As

described by Sroufe (1997) “within a developmental perspective, maladaptation is viewed as evolving through the successive adaptations of persons in their environments. It is not something a person “has” or an ineluctable expression of an endogenous pathogen. It is the complex result of a myriad of risk and protective factors operating over time” (p.251). From this perspective it would be speculated that there are important relationships between social conditions and individual processing styles, which require empirical attention. For example, Lynam, Caspi, Moffitt, Wikstrom, Loeber and Novak (2000) found an interaction between impulsivity (individual factor) and neighbourhood context (cultural factor) in relation to juvenile offending, such that the effects of impulsivity on offending were stronger in economically deprived environments.

Interactions between intrinsic and cultural factors are likely to have implications for social information processing theory, and could shed light on the prevalence and function of processing biases. Hostile attributional styles are largely viewed as an example of a social information processing *deficit*, but within certain contexts such a bias may be adaptive and operate as a strategic manoeuvre. Putting on ‘rose-coloured glasses’ (Nelson & Crick, 1999) may be adaptive in an ideal world but in a hostile climate ‘giving the benefit of the doubt’ may be too risky, and could lead to adverse consequences such as the loss of social status. It is possible that for some individuals, as a consequence of current and past socialisation experiences, it is more adaptive to exercise caution, assume hostility, and as described so vividly by Dill, Anderson, Anderson and Deuser (1997), “view the world through blood-red tinted glasses”!

### **3.4. SUMMARY AND FINAL CONCLUSIONS**

This thesis has outlined the literature on social information processing patterns, mentalisation and attachment in relation to aggressive behaviours. Relationships between these separate literatures were discussed and featured as hypotheses in the empirical study. The empirical study found no evidence for a relationship between attachment and hostile processing, and attachment and mentalisation. Furthermore, the suggestion that mentalisation abilities are associated with hostile attributional style was not supported. The study did find a relationship between trait anger and the tendency to attribute hostile intentions in ambiguous scenarios. This finding is important as it raises the question of how social information processing patterns interact with personality traits and emotions. Hypotheses around the relationships between attachment, mentalisation and attributional style are worthy of further empirical attention and suggestions for further research have been made.



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## **APPENDICES**

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## Appendix A



Sub-Department of Clinical Health Psychology

**UNIVERSITY COLLEGE LONDON**

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### **INFORMATION SHEET**

Dear Parents/Guardians,

My name is Lorna Nelson. I am doing some research at University College London, which XXX School is supporting, and I would like your child to be involved.

- *What is the purpose of the research?*

The research is investigating children's ability to understand other people's emotions and behaviour, their relationships with people, and their feelings. The results of the study will help us understand children's social understanding and behaviour better and may help us to develop strategies to prevent behavioural and emotional problems in children.

- *Why has my child been chosen?*

I have asked all the children in your child's class to take part. I have asked your child to be involved only because of their age, not because of anything to do with their behaviour.

- *What will my son / daughter have to do if they take part?*

The research would involve me asking your child to complete some questionnaires and to do some tasks such as looking at photographs of eyes and guessing what feelings they are showing. The questionnaires include asking children to explain different scenarios and the reasons why people act in certain ways, to indicate their typical feelings, and to think about their relationships with others. If you would like to take a look at the questionnaires used in the study I am happy to meet with you and explain their use.

Some of these tasks can be done in a group and others individually. The things that I would like to do would take about an hour in total. We would carry these out during normal school hours so your child would not have to stay in school any longer than usual. It is very unlikely for there to be any harm from this study but if there is anything that worries your child you can call me on the number at the end of this letter. Everyone taking part has the chance of winning £30 music or sports vouchers.

- *Will I need to do anything if I agree that my child can take part?*

With your agreement, we would like to ask you some basic questions over the telephone. This will take around 5 minutes and we will ask you about your family, education, occupation and ethnicity. Your answers will be completely confidential. However, if you would rather not be contacted to answer these questions that is ok, and your child can still take part in the project without this.

- *Will my son / daughter have to take part?*

Taking part is **voluntary**. Take time to decide whether you would like your child to take part. If you do not want your child to take part you do not have to give a reason. If you decide that you do want your child to take part you, and later change your mind, you are free to withdraw your child from the project at any time.

- *What will happen to the results of the study?*

The data will be collected and stored in accordance with the Data Protection Act 1988. All the information gathered will be confidential and you would not have to let anyone know that your child was taking part if you did not want to. Names will be removed from questionnaires and the information will be stored securely. Publications and reports arising from the research will be made available to you if you express an interest.

- *Comments or concerns during the study*

If you have any comments or concerns you should discuss these with the researcher. If you wish to complain about any aspect of the way you have been approached or treated during the course of the study, you should email the Chair of the UCL Committee for the Ethics of Non-NHS Human Research ( ) or send a letter to: The Graduate School, North Cloisters, Wilkins Building, UCL, Gower Street, London WC1E 6BT, who will take the complaint forward as necessary.

- *What do I do now?*

If you would like your child to be involved then please sign the consent form. Also indicate on this form whether you would like to contribute to the research by answering questions. Following this please have your child take the consent form to the school office. Please do this by 'date'. We will then carry out the research at school.

If you are unsure about whether you would like your child to be involved and would like more information, please ring me on xxxx. I can answer any questions you have and then you can decide whether or not you would like your child to be involved.

Thank you for taking time to read this, I appreciate your help.

Yours faithfully,

Lorna Nelson  
Trainee Clinical Psychologist

**APPROVED BY UNIVERSITY COLLEGE LONDON'S COMMITTEE ON THE  
ETHICS OF NON-NHD HUMAN RESEARCH**

The researcher has undergone a criminal records check.

## Appendix B



Sub-Department of Clinical Health Psychology  
**UNIVERSITY COLLEGE LONDON**  
GOWER STREET LONDON WC1E 6BT

### INFORMATION SHEET FOR PUPILS

Dear Pupil,

After my talk today I wanted to give you some more information about my project to take home and think about.

- *Why is this research happening?*

The research is about how children in Year 7 understand other people's feelings and actions, and how they get along with other people. I am also interested in your feelings. Most children feel angry sometimes but some children feel angry a lot and might need help with this. This project will give us ideas about how to help those children who get angry and upset.

- *Why have I been chosen?*

You have been chosen because you are in Year 7 and all the children in your class have been invited to take part. I need about 70 children in your year to take part.

- *What will I have to do?*

I would like you to complete some questionnaires and answer some questions about characters in a story. I would also like you to complete some puzzles and do a task on the computer. There are no right or wrong answers and this is not a test! Everyone taking part has the chance of winning £30 music or sports vouchers.

- *Do I have to take part?*

It's up to you! If you decide you don't want to I will not mind.

- *Will information I give be kept private?*

Yes. Each person will have a number so that your name will not be written on any of the questionnaires or answer sheets. I will carefully lock everything away.

- *What do I do now?*

Talk to a parent/guardian and if you decide that you want to be involved you need them to complete the consent sheet. Please return this to the school office. If you have any questions please let your teacher know.

Thank you for your help!  
Lorna



## Appendix C



Sub-Department of Clinical Health Psychology

**UNIVERSITY COLLEGE LONDON**

GOWER STREET LONDON WC1E 6BT

### CONSENT FORM

If, once you have read the information sheet, you would like your son/daughter to be involved in the research please complete *Part A* of this slip. If you do decide that you would like your child to take part in the study you can always change your mind and withdraw him/her from the study without giving a reason. This will not affect your child's schooling in any way.

If you are also happy to be telephoned by the researcher to answer a few questions about your family, occupation, education and ethnicity, please also complete *Part B*. **This is optional.** If you would like your child to be involved but would prefer not to be contacted, please just complete Part A. **Please return this form by 'date'.**

If you would like to receive more information about the research before returning this form, feel free to contact me on XXX and I can answer any of your questions.

### PART A

Name of Pupil (BLOCK CAPITALS)

---

Name of Parent/Guardian (BLOCK CAPITALS)

---

Signature of Parent/Guardian

Date

---

---

### PART B

I agree to be contacted by telephone to answer a few questions about my family, education, occupation and ethnicity.

(Your answers will be completely confidential)

Yes / No

If yes, my contact number is:

## Appendix D



Sub-Department of Clinical Health Psychology

**UNIVERSITY COLLEGE LONDON**

GOWER STREET LONDON WC1E 6BT

(To be completed by the child)

### INFORMED CONSENT FORM

1. Have you read the information sheet?

Yes

No

2. Have you had the chance to ask questions about the project and did you understand the answers to any questions?

Yes

No

3. Do you think that you have been told enough about this project?

Yes

No

4. Did you know that you can decide to not take part in this project at any time? You don't need to tell me why and this won't make a difference to things in school.

Yes

No

5. Do you want to take part in the project?

Yes

No

Name\_\_\_\_\_

Signature\_\_\_\_\_

Today's Date\_\_\_\_\_ Date of birth\_\_\_\_\_

Name of researcher\_\_\_\_\_

Signature of researcher\_\_\_\_\_

Date\_\_\_\_\_

## Appendix E

### **WHY CHILDREN DO THINGS**

**DIRECTIONS:** You will be reading several stories. Pretend that the things that are happening in each story are happening to you. Then answer the questions after each story. Put a circle around your answer.

#### **Radio Story**

Imagine that you brought your new radio to school today. You saved up your pocket money to buy the radio and you want to show it to the other pupils at school. You let another child play with it for a few minutes while you get a drink of water. When you get back you realize that the child has broken your brand new radio.

1. Why did the child break your radio?
  - a. The radio wasn't made well.
  - b. It was an accident.
  - c. The child was angry at me.
  - d. The child was jealous of me.
  
2. In this story, do you think the child was
  - a. Trying to be unkind?
  - b. Not trying to be unkind?
  
3. How upset or angry would you be if the things in this story really happened to you?
  - a. Not upset or angry at all.
  - b. A little upset or angry.
  - c. Very upset or angry.

## Playground Story

Imagine that you are looking for your friend in the playground. You can't wait to find your friend because you have an important secret to share. By the time you find your friend, your friend is already playing with someone else— a child that you don't like very much.

1. Why did your friend play with someone else instead of you?
  - a. My friend was angry at me.
  - b. My friend didn't know that I wanted to play with them.
  - c. My friend wanted to get back at me for something.
  - d. My friend didn't see me on the playground.
  
2. In this story, do you think your friend was
  - a. Trying to be unkind?
  - b. Not trying to be unkind?
  
3. How upset or angry would you be if the things in this story really happened to you?
  - a. Not upset or angry at all.
  - b. A little upset or angry.
  - c. Very upset or angry.

## **Milk Story**

Imagine that you are sitting at the lunch table at school, eating lunch. You look up and see another child coming over to your table with a carton of milk. You turn around to eat your lunch, and the next thing that happens is that the child spills the milk all over your back. The milk gets your shirt all wet.

1. Why did the child get milk all over your back?
  - a. The child slipped on something.
  - b. The child just does stupid things like that to me.
  - c. The child wanted to make fun of me.
  - d. The child wasn't looking where they were going.
2. In this story, do you think that the child was
  - a. Trying to be unkind?
  - b. Not trying to be unkind?
3. How upset or angry would you be if the things in this story really happened to you?
  - a. Not upset or angry at all.
  - b. A little upset or angry.
  - c. Very upset or angry.

## **Corridor Story**

Imagine that you are standing in the corridor one morning at school. As you are standing there, two children from your class walk past. As they walk past you, the two children look at you, whisper something to each other and then they laugh.

1. Why did the two children laugh when they walked past you?
  - a. The children were making fun of me.
  - b. The children were laughing at a joke one of them told.
  - c. The children were just having fun.
  - d. The children were trying to make me angry.
  
2. In this story, do you think that the two children were
  - a. Trying to be unkind?
  - b. Not trying to be unkind?
  
3. How upset or angry would you be if the things in this story really happened to you?
  - a. Not upset or angry at all.
  - b. A little upset or angry.
  - c. Very upset or angry.

## Trainers Story

Imagine that you are walking to school and you're wearing your new trainers. You really like your new trainers and this is the first day you have worn them. Suddenly, you are bumped into from behind by another child. You stumble and fall into a muddy puddle and your new trainers get muddy.

1. Why did the child bump into you from behind?
  - a. The child was being unkind.
  - b. The child was messing around and pushed too hard by accident.
  - c. The child was running down the street and didn't see me.
  - d. The child was trying to push me down.
  
2. In this story do you think that the child was
  - a. Trying to be unkind?
  - b. Not trying to be unkind?
  
3. How upset or angry would you be if the things in this story really happened to you?
  - a. Not upset or angry at all.
  - b. A little upset or angry.
  - c. Very upset or angry.

## Party Story

Imagine that you are in the toilet one day after break. While you are in there, two other children from your class come in and start talking to each other. You hear one of the children invite the other one to a birthday party. The child says that there are going to be a lot of people at the party. You have not been invited to this party.

1. Why hasn't the child invited you to the birthday party?
  - a. The child doesn't want me to come to the party.
  - b. The child hasn't had a chance to invite me yet.
  - c. The child is trying to get back at me for something.
  - d. The child was planning to invite me later.
  
2. In this story, do you think that the child was
  - a. Trying to be unkind?
  - b. Not trying to be unkind?
  
3. How upset or angry would you be if the things in this story really happened to you?
  - a. Not upset or angry at all.
  - b. A little upset or angry.
  - c. Very upset or angry.



## Paint Story

Imagine that you have just finished an art project for school. You've worked on it a long time and you're really proud of it. Another child comes over to look at your project. The child is holding a jar of paint. You turn away for a minute and when you look back the child has spilled paint on your art project. You worked on the project for a long time and now it's ruined.

1. Why did the child spill paint on your project?
  - a. The child is unkind.
  - b. The child bumped into the paint by accident.
  - c. The child is quite clumsy.
  - d. The child wanted to ruin my project.
  
2. In this story, do you think that the child was
  - a. Trying to be unkind?
  - b. Not trying to be unkind?
  
3. How upset or angry would you be if the things in this story really happened to you?
  - a. Not upset or angry at all.
  - b. A little upset or angry.
  - c. Very upset or angry.

## Lunch Story

Imagine that you are at lunch one day and looking for a place to sit. You see some children you know at a table across the room. The children are laughing and talking to each other and they look like they are having a good time. You walk over to their table. As soon as you sit down, the children stop talking and no one says anything to you.

1. Why did the children stop talking when you sat down?
  - a. They were waiting for me to say something first.
  - b. They didn't want to talk to me.
  - c. They were saying unkind things about me before I got there.
  - d. They were finished talking.
  
2. In this story, do you think that the children were
  - a. Trying to be unkind?
  - b. Not trying to be unkind?
  
3. How upset or angry would you be if the things in this story really happened to you?
  - a. Not upset or angry at all.
  - b. A little upset or angry.
  - c. Very upset or angry.

## Race Story

Imagine that you are in the playground. You and some other children are having a race. Another child is standing on the side, bouncing a ball. The next thing you realize is that the child has bounced the ball and it rolls under your feet, making you fall. You graze your knee and someone else wins the race.

1. Why did the child bounce the ball under your feet?
  - a. The child wanted to get back at me for something.
  - b. The child didn't see me coming.
  - c. The ball accidentally got away from the child.
  - d. The child wanted me to lose the race.
  
2. In this story, do you think that the child was
  - a. Trying to be unkind?
  - b. Not trying to be unkind?
  
3. How upset or angry would you be if the things in this story really happened to you?
  - a. Not upset or angry at all.
  - b. A little upset or angry.
  - c. Very upset or angry.

## Walk Story

Imagine that you are going for a walk in the area where you live one day. After you walk a few streets, you see two children that you know from school. You walk over to the children and say "hi". The two children act as if you are not there -- they don't say anything to you. Then they say something to each other that you can't hear and they walk the other way.

1. Why didn't the two children say hello to you?
  - a. They didn't see me standing there.
  - b. They didn't hear me say hi first.
  - c. They were mad at me about something.
  - d. They don't like me.
  
2. In this story, do you think that the children were
  - a. Trying to be unkind?
  - b. Not trying to be unkind?
  
3. How upset or angry would you be if the things in this story really happened to you?
  - a. Not upset or angry at all.
  - b. A little upset or angry.
  - c. Very upset or angry.

Appendix F

QUESTIONS ABOUT MY PARENTS

Last Name:

First Name:

practice

Date (mm/dd/yyyy)

Circle (X) the word or words below that best describe how you feel about each statement. You may circle more than one word.

My parents respect my feelings.

My parents are successful at parenting.

jealous

NEVER  
TRUE

SOME  
TIMES

SOME  
TIMES  
OFTEN

ALWAYS  
TRUE

<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

scared



relaxed

hate

## Appendix G

### QUESTIONS ABOUT MY PARENTS

Last Name:

I.D. #:

First Name:

DATE (dd/mm/yy):

Read each of the statements below. Think about your parents. How often is each statement true for your parents?

	NEVER TRUE	SELDOM	SOME- TIMES	OFTEN	ALWAYS TRUE
1. My parents respects my feelings.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. I feel my parents are successful as parents.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. I wish I had different parents.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. My parents accept me as I am.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5. I have to rely on myself when I have a problem to solve.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6. I like to get my parent's point of view on things I am concerned about.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
7. I feel it's no use letting my feelings show.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
8. My parents sense when I'm upset about something.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
9. Talking over my problems with my parents makes me feel ashamed or foolish.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
10. My parents expect too much from me.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
11. I get upset easily at home.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
12. I get upset a lot more than my parents know about.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
13. When we discuss things, my parents consider my point of view.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
14. My parents trust my judgement.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
15. My parents have their own problems, so I don't bother them with mine.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
16. My parents help me to understand myself better.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
17. I tell my parents about my problems and troubles.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
18. I feel angry with my parents.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
19. I don't get much attention at home.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**QUESTIONS ABOUT MY PARENTS**

	NEVER TRUE	SELDOM	SOME- TIMES	OFTEN	ALWAYS TRUE
20. My parents encourage me to talk about my difficulties.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
21. My parents understand me.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
22. I don't know whom I can depend on these days.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
23. When I am angry about something my parents try to be understanding.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
24. I trust my parents.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
25. My parents don't understand what I'm going through these days.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
26. I can count on my parents when I need to get something off my chest.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
27. I feel that no one understands me.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
28. If my parents know something is bothering me, they ask me about it.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

## Appendix H

### **Self-Rating questionnaire**

This questionnaire has 3 parts. In each part there are sentences that people use to describe how they feel and how they behave. Please give the answer that best describes you. There are no right or wrong answers. If you need help with any of the sentences please ask.

#### **PART 1**

Read each sentence carefully and then put a tick in the column that best describes how you feel RIGHT NOW. There are no right or wrong answers. Do not spend too much time on any one sentence, but give the answer which seems to best describe your feelings AT THIS VERY MOMENT.

If you change your mind, cross it out.

HOW I FEEL RIGHT NOW	very much	somewhat	not at all
1. I am furious			
2. I feel irritated			
3. I feel angry			
4. I feel like yelling at somebody			
5. I feel like hitting someone			
6. I feel annoyed			
7. I feel like kicking someone			
8. I want to smash something			

Please turn over



## PART 2

Read each sentence carefully and then put a tick in the column that best describes how you feel **GENERALLY**. There are no right or wrong answers. Do not spend too much time on any one sentence, but give the answer which seems to best describe how you **USUALLY FEEL**.

If you change your mind, cross it out.

HOW I USUALLY FEEL	hardly ever	sometimes	often
1. I have a bad temper			
2. I get angry very quickly			
3. I get angry when I have to wait because of other's mistakes			
4. I feel annoyed when I am not given recognition for a job well done			
5. I fly off the handle			
6. When I get angry, I say nasty things			
7. I get angry when I'm told I'm wrong in front of others			
8. I feel infuriated when I do a good job and get a poor evaluation			

### PART 3

Everyone feels angry or furious from time to time, but people act in different ways when they feel this way. Read each sentence carefully and then put a tick in the column that best describes how you feel or act **WHEN YOU ARE ANGRY**. There are no right or wrong answers. Do not spend too much time on any one sentence, but give the answer which seems to best describe your feelings **USUALLY, WHEN YOU ARE ANGRY**.

If you change your mind, cross it out.

WHEN I'M ANGRY .....	hardly ever	sometimes	often
1. I express my anger			
2. I hide my anger			
3. I feel like crying			
4. I withdraw from other people			
5. I do things like slam doors			
6. I argue with others			
7. I am angry, but I don't show it			
8. I can stop myself from losing my temper			
9. I get calm faster than others			
10. I hold my anger in			
11. I attack whatever makes me angry			
12. I control my angry feelings			
13. I take a deep breath and relax			

Please turn over

WHEN I'M ANGRY .....	hardly ever	sometimes	often
14. I do something to calm down			
15. I try to relax			
16. I do something that relaxes me			

## Appendix I



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

Head of the Graduate School

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27 January 2005

For the attention of: Dr Stephen Butler & Ms Lorna Nelson

Sub-Department of Clinical Health Psychology  
UCL

Dear Dr Butler & Ms Nelson

### **Re: Notification of Ethical Approval**

#### **Project ID: 0203/001: Attachment, mentalisation and hostile attributions in pre-adolescence: Implications for social adjustment**

Thank you for satisfactorily addressing the Committee's comments. The above research has now been given ethical approval 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 the Ethics Committee Administrator ( ), 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. On completion of the research you must submit a brief report (maximum of two sides of A4) of your findings to the Committee. Please comment in particular on any ethical issues you might wish to draw to the attention of the Committee. We are particularly interested in comments that may help to inform the ethics of future similar research.

Yours sincerely

**Chair of the UCL Committee for the Ethics of Non-NHS Human Research**