NOTE

Appendices included in the print version of this thesis are not present in the electronic version.
AFFECTIVE EMPATHY IN CHILDREN:
MEASUREMENT AND CORRELATES

Kirsten R. Hunter, B. Beh. Sc., B. Psych (Hons)

Being a dissertation submitted
to the School of Applied Psychology,
Griffith University, as partial requirement
for the Degree of Doctor of Philosophy

June 2003
Abstract

Empathy is a construct that plays a pivotal role in the development of interpersonal relationships, and thus ones ability to function socially and often professionally. The development of empathy in children is therefore of particular interest to allow for further understanding of normative and atypical developmental trajectories. This thesis investigated the assessment of affective empathy in children aged 5-12, through the development and comparison of a multimethod assessment approach. Furthermore this thesis evaluated the differential relationships between affective empathy and global behavioural problems in children versus the presence of early psychopathic traits, such as callous-unemotional traits. The first component of this study incorporated; a measure of facial expression of affective empathy, and self-reported experience of affective empathy, as measured by the newly designed Griffith Empathy Measure – Video Observation (GEM-VO) and the Griffith Empathy Measure – Self Report (GEM-SR); the Bryant’s Index of Empathy for Children and Adolescents (1982) which is a traditional child self-report measure; and a newly designed parent-report of child affective empathy (Griffith Empathy Measure – Parent Report; GEM-PR).

Using a normative community sample of 211 children from grades 1, 3, 5, and 7 (aged 5-6, 7-8, 9-10, & 11-12, respectively), the GEM-PR and the Bryant were found to have moderate to strong internal consistency. As a measure of concurrent validity, strong positive correlations were found between the mother and father reports (GEM-PR) of their child’s affective empathy, for grades 5 and 7, and for girls of all age groups. Using a convenience sample of 31 parents and children aged 5 to 12, the GEM-PR and the Bryant
demonstrated strong test-retest reliability. The reliability of the GEM-VO and the GEM-SR were assessed using a convenience sample of 20 children aged 5 to 12. These measures involve the assessment of children’s facial and verbal responses to emotionally evocative videotape vignettes. Children were unobtrusively videotaped while they watched the vignettes and their facial expressions were coded. Children were then interviewed to determine the emotions they attributed to stimulus persons and to themselves whilst viewing the material. Adequate to strong test-retest reliability was found for both measures. Using 30% from the larger sample of 211 participants (N=60), the GEM-VO also demonstrated robust inter-rater reliability.

This multimethod approach to assessing child affective empathy produced differing age and gender trends. Facial affect as reported by the GEM-VO decreased with age. Similarly, the matching of child facial emotion to the vignette protagonist’s facial emotion was higher in the younger grades. These findings suggest that measures that assess the matching of facial affect (i.e., GEM-VO) may be more appropriate for younger age groups who have not yet learnt to conceal their facial expression of emotion. Data from the GEM-SR suggests that older children are more verbally expressive of negative emotions then younger children, with older girls found to be the most verbally expressive of feeling the same emotion as the vignette character; a role more complimentary of the female gender socialization pressures. These findings are also indicative of the increase in emotional vocabulary and self-awareness in older children, supporting the validity of child self-report measures (based on observational stimuli) with older children.

In comparing data from the GEM-VO and GEM-SR, this study found that for negative emotions the consistency between facial emotions coded and emotions verbally
reported increased with age. This consistency across gender and amongst the older age groups provides encouraging concurrent validity, suggesting the results of one measure could be inferred through the exclusive use of the alternate measurement approach. In contrast, affective empathy as measured by the two measures; the accurate matching of the participant and vignette character’s facial expression (GEM-VO), and the accurate matching of the self reported and vignette character’s emotion (GEM-SR); were not found to converge. This finding is consistent with prior research and questions the assumption that facially expressed and self-appraised indexes of affective empathy are different aspects of a complex unified process.

When evaluating the convergence of all four measures of affective empathy, negative correlations were found between the Bryant and the GEM-PR, these two measures were also found to not converge with the GEM-VO and GEM-SR in a consistent and predictable way. These findings pose the question of whether different aspects of the complex phenomena of affective empathy are being assessed. Furthermore, the validity of the exclusive use of a child self report measure such as the Bryant, which is the standard assessment in the literature, is questioned.

The possibility that callous-unemotional traits (CU; a unique subgroup identified in the child psychopathy literature) may account for the mixed findings throughout research regarding the assumption that deficiencies in empathy underlie conduct problems in children, was examined using regression analysis. Using the previous sample of 211 children aged 5-12, conduct problems (CP) were measured using the Strengths and Difficulties Questionnaire (SDQ; Goodman, 1999), and the CU subscale was used from the Antisocial Process Screening Device (APSD; Caputo, Frick, &
Brodsky, 1999). Affective empathy when measured by the GEM-PR and the Bryant showed differing patterns in the relationship between affective empathy, CU traits and CP. While the GEM-Father reported that neither age, CU traits nor CP accounted for affective empathy variance, the GEM-Mother report supported that affective empathy was no longer associated with CP once CU traits had been partialled out. In contrast, the Bryant reported for girls, that CU traits were not found to have an underlying correlational relationship. It can be argued from the GEM-Mother data only that it was the unmeasured variance of CU traits that was accounting for the relationship between CP and affective empathy found in the literature. Furthermore, the comparison of an altered CU subscale with all possible empathy items removed, suggests that the constructs of CU traits and affective empathy are not synonymous or overlapping in nature, but rather are two independent constructs.

This multimethod approach highlights the complexity of this research area, exemplifying the significant influence of the source of the reports, and suggesting that affective empathy consists of multiple components that are assessed to differing degrees by the different measurement approaches.
# Table of Contents

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Definitional and Conceptual Issues</td>
<td>3</td>
</tr>
<tr>
<td>The Nature of Empathy</td>
<td>5</td>
</tr>
<tr>
<td>Relationship between Cognitive and Affective Empathy</td>
<td>8</td>
</tr>
<tr>
<td>The Role of Emotions in Predicting Empathy</td>
<td>11</td>
</tr>
<tr>
<td>The Construct of Empathy as Trait or State</td>
<td>12</td>
</tr>
<tr>
<td>Affective Empathy: Developmental Perspectives</td>
<td>14</td>
</tr>
<tr>
<td>Development of Empathy and Sense of Self in Young Infants</td>
<td>20</td>
</tr>
<tr>
<td>Empathy and Gender</td>
<td>24</td>
</tr>
<tr>
<td>Environmental Influences on Empathy</td>
<td>29</td>
</tr>
<tr>
<td>Self Psychology</td>
<td>33</td>
</tr>
<tr>
<td>Attachment Theory</td>
<td>34</td>
</tr>
<tr>
<td>Social Learning Theory</td>
<td>35</td>
</tr>
<tr>
<td>Empathy and Prosocial Behaviour</td>
<td>46</td>
</tr>
<tr>
<td>Empathy and Conduct Problems</td>
<td>49</td>
</tr>
<tr>
<td>Conduct Disorder – Course and Prognosis</td>
<td>50</td>
</tr>
<tr>
<td>Biopsychosocial Influences on Conduct Disorder</td>
<td>52</td>
</tr>
<tr>
<td>Gender and Conduct Disorder</td>
<td>54</td>
</tr>
<tr>
<td>Empathy and Antisocial Behaviour in Children</td>
<td>56</td>
</tr>
<tr>
<td>The Psychopathy Construct</td>
<td>66</td>
</tr>
<tr>
<td>Psychopathy – Biological, Psychological and Social Determinants</td>
<td>69</td>
</tr>
<tr>
<td>Section</td>
<td>Page</td>
</tr>
<tr>
<td>--------------------------------------------------------------</td>
<td>------</td>
</tr>
<tr>
<td>Child Psychopathy</td>
<td>75</td>
</tr>
<tr>
<td>Callous-Unemotional Traits in Children</td>
<td>81</td>
</tr>
<tr>
<td>Child Psychopathy and Emotional Responsiveness</td>
<td>86</td>
</tr>
<tr>
<td>Measurement of Empathy</td>
<td>89</td>
</tr>
<tr>
<td>Interpersonal Reactive Index – Adult and Child Version</td>
<td>94</td>
</tr>
<tr>
<td>The Questionnaire Measure of Emotional Empathy</td>
<td>96</td>
</tr>
<tr>
<td>Bryant’s Index of Empathy for Children and Adolescents</td>
<td>98</td>
</tr>
<tr>
<td>Facial Indices of Empathy</td>
<td>100</td>
</tr>
<tr>
<td>Other-Reports of Child Affective Empathy</td>
<td>106</td>
</tr>
<tr>
<td>Convergence of Measures</td>
<td>107</td>
</tr>
<tr>
<td>The Present Study</td>
<td>113</td>
</tr>
<tr>
<td>Study One</td>
<td>122</td>
</tr>
<tr>
<td>Study Two</td>
<td>133</td>
</tr>
<tr>
<td>Study Three</td>
<td>142</td>
</tr>
<tr>
<td>Study Four</td>
<td>171</td>
</tr>
<tr>
<td>General Discussion</td>
<td>185</td>
</tr>
<tr>
<td>Clarity in Definition</td>
<td>186</td>
</tr>
<tr>
<td>Measure Development</td>
<td>188</td>
</tr>
<tr>
<td>Comparison of Affective Empathy Measures across Age and</td>
<td></td>
</tr>
<tr>
<td>Gender</td>
<td>192</td>
</tr>
<tr>
<td>Synthesis of Affective Empathy Data</td>
<td>201</td>
</tr>
<tr>
<td>Correlates of Affective Empathy</td>
<td>204</td>
</tr>
<tr>
<td>Strengths and Implications of this Study</td>
<td>212</td>
</tr>
</tbody>
</table>
### List of Tables

<table>
<thead>
<tr>
<th>Table</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Table 1</td>
<td>Developmental model of self concept (DesRosiers &amp; Busch-Rosnagel's, 1997)</td>
<td>21</td>
</tr>
<tr>
<td>Table 2</td>
<td>Correlational data between the GEM-PR (Mother and Father), and the Bryant’s Child Self-Report</td>
<td>128</td>
</tr>
<tr>
<td>Table 3</td>
<td>Facial affect across age and gender</td>
<td>144</td>
</tr>
<tr>
<td>Table 4</td>
<td>Facial matching across age and gender</td>
<td>145</td>
</tr>
<tr>
<td>Table 5</td>
<td>Self-reported affect across age and gender</td>
<td>147</td>
</tr>
<tr>
<td>Table 6</td>
<td>Protagonist’s emotions correctly identified across age and gender</td>
<td>148</td>
</tr>
<tr>
<td>Table 7</td>
<td>Self-reported matching of affect across age and gender</td>
<td>150</td>
</tr>
<tr>
<td>Table 8</td>
<td>Consistency of facial and self-reported affect</td>
<td>152</td>
</tr>
</tbody>
</table>
Table 9.  Convergence of facial matching and self-reported matching of affect

Table 10.  GEM-PR and Bryant’s child self-report across age and gender

Table 11.  Correlation of Facial matching (GEM-VO) and Mother report (GEM-PR)

Table 12.  Correlation of Facial matching (GEM-VO) and Father report (GEM-PR)

Table 13.  Correlation of facial matching (GEM-VO) and Bryant’s child self-report

Table 14.  Correlation of self-reported matching of affect (GEM-SR) and Mother report (GEM-PR)

Table 15.  Correlation of self-reported matching of affect (GEM-SR) and Father report (GEM-PR)
Table 16. Correlation of self-reported matching of affect (GEM-SR) and Bryant’s child self-report 161

Table 17. Comparison of Regression Analyses for GEM-Mother, GEM-Father and the Bryant 176

Table 18. Comparison of Regression Analyses for the GEM-Self Report and the GEM-Video Observation 178

Table 19. Bivariate Correlation (2-tailed) between the GEM-Mother, GEM-Father and the Bryant, and the CU and CU2 variables. 181
# List of Appendices

<table>
<thead>
<tr>
<th>Appendix</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appendix A</td>
<td>Griffith University Human Research Ethics Committee</td>
<td>268</td>
</tr>
<tr>
<td>Appendix B</td>
<td>Permission from participating school principal and teaching staff</td>
<td>270</td>
</tr>
<tr>
<td>Appendix C</td>
<td>Demographic information sheet and consent form</td>
<td>271</td>
</tr>
<tr>
<td>Appendix D</td>
<td>Griffith Empathy Measure – Parent Report</td>
<td>273</td>
</tr>
<tr>
<td>Appendix E</td>
<td>Griffith Empathy Measure – Self Report</td>
<td>275</td>
</tr>
<tr>
<td>Appendix F</td>
<td>Bryant’s Index of Empathy for Children and Adolescents</td>
<td>291</td>
</tr>
<tr>
<td>Appendix G</td>
<td>A brief description of each of the vignettes</td>
<td>292</td>
</tr>
<tr>
<td></td>
<td>(GEM-VO/GEM-SR)</td>
<td></td>
</tr>
<tr>
<td>Appendix H</td>
<td>Operational definition of predominant facial expressions</td>
<td>293</td>
</tr>
<tr>
<td></td>
<td>(GEM-VO)</td>
<td></td>
</tr>
<tr>
<td>Appendix I</td>
<td>Antisocial Process Screening Device (APSD; Caputo, Frick, &amp; Brodsky, 1999)</td>
<td>294</td>
</tr>
</tbody>
</table>
Appendix J  Strengths and Difficulties Questionnaire (SDQ; Goodman, 1999)  295

Appendix K  Statistical Analysis and Data File
Sources Statement

The present thesis describes original research undertaken while a postgraduate student at the School of Applied Psychology at Griffith University. The theoretical contributions and empirical data in this thesis are my own original work. This work has not previously been submitted for a degree or diploma in any university. To the best of my knowledge and belief, this thesis contains no material previously published or written by another person except where due reference is made in the thesis itself.

Signed …………………………………

xiv
Acknowledgements

I would like to sincerely thank my dissertation supervisor Dr Mark Dadds for his dedication and generous support during this research. I very much appreciate his insight, research expertise, guidance, and contagious enthusiasm. I would also like to thank the headmaster, Mr Robert Grover, teaching staff, and child and parent participants from Tewantin State School for permitting this research and accommodating the demanding research needs within this school setting. I would like to thank my research team especially Bernadette York and Blaise Deshon who were incredibly supportive with their time and effort. Finally I very much appreciate the patience, encouragement and practical support from my close family and friends who supported me through this challenging journey so typical of a Ph.D. dissertation.
There is a broad consensus that empathy is an important construct in explanations of human behaviour. Low empathic abilities have been implicated in many social problems and psychopathology, including child abuse (Chlopan, McCain, Carbonell, & Hagen, 1985), neuroticism (Eysenck & Eysenck, 1978), and aggression (Mehrabian & Epstein, 1972). Empathy and related concepts have been proposed to facilitate successful social interactions (Clark, 1980) and to be key elements of moral conduct and character (Hogan, 1969). Empathy has also become an important concept for psychotherapists. From psychoanalytic theorists who view empathy as a part of psychoanalytic cure (eg., Kohut, 1977) to humanistic theorists who perceive empathy as a necessary and sufficient condition for psychological change (eg., Rogers, 1957), empathy has been a key concept in understanding why and how therapy works. These theorists have described empathy as a process of feeling “as if one were the other person” (Rogers, 1957, p. 210), “feeling in” (Downey, 1929, p. 176), “vicarious introspection” (Kohut, 1971; 1977); assuming the internal frame of another (Traux & Carkhuff, 1967); “transposing oneself into the thinking, feeling and acting of another” (Dymond, 1950, p. 344). Researchers in the field of empathy development propose that empathy is a fundamental building block for positive social growth and development (Roth-Hanania et al., 2000; Zahn-Waxler et al., 1979).

Empathy is considered a principal motivational factor and mediator for later development of social competence (Denham, 1998; Eisenberg & Fabes, 1990), prosocial behaviour (Eisenberg & Mussen; 1989), and altruism (Hoffman, 1984; 1982). The development of empathy in children is an important domain of research in social development and has already yielded and will continue to yield important models for understanding the emergence of social behaviour (Moore, 1990). The understanding and communication of emotions and thoughts is an important aspect of
everyday social interaction. Specifically, our ability to understand the emotional states of our interaction partners influences the quality of our social interactions. Familiarity with normative development in the early years of life of these vital skills is important for understanding any deviant pattern of development. Early detection of delays in development of empathy and subsequent intervention depends on the measurement and mapping out of normative development of childhood empathy.

The development of empathy in children is also of conceptual and applied significance to both altruistic and criminal behaviour (Batson & Shaw, 1991; Hare, 1980; Eisenberg & Fabes, 1990). Current research on chronic pathways to adult psychopathy has directed attention to the role of empathy in children with conduct problems (Christian et al., 1997). A research deficit exists however, regarding the measurement of empathy in children at risk for behavioural problems associated with impaired empathy. Whilst deficiencies in empathy have long been considered characteristic of aggressive and antisocial individuals (Hare, 1978; Miller & Eisenberg, 1988), research on conduct problem youth has not kept pace with important refinements in both the operationalization and measurement of empathy and related developmental theory (Cohen & Strayer, 1996). The deficit in empathy research appears attributable to the lack of clear operational focus and effective research tools in the area. The confusion in empathy research reflects the diversity of the ways in which empathy is conceptualised. Such diversity needs to be understood but not discouraged. A good understanding of this diversity might eliminate much of the confusion.

The aim of this thesis is to critically review the empathy literature and discuss in more detail some of the theoretical obstacles and methodological weaknesses in existing empathy research. This thesis shall begin with a review of the empathy
literature, and with a discussion of the theoretical and developmental advancements relevant to the empathy research area. There is a large gap between the need for valid measures in the field of childhood empathy development, and the actual availability of research tools and developmental data. The aim of the present study is to address this research need through investigating the measurement of affective empathy in children using a new, more comprehensive multimethod measure of empathy, the Griffith Empathy Measure (GEM). This multimethod approach involved the development of a parent report measure of child affective empathy. This measure is the first parent measure of child affective empathy to be available. As affective empathy shall be the focus on this research, an observational measure was created to assess children’s affective responses to videotaped protagonists, both in the form of facial expressions coded and child self-report of emotion. This combination of parent report, child report and an observational measure of children’s affective responses provides several sources of age and gender patterns of affective empathy for comparison. The different informant effects can then be examined. Further, this thesis aimed to evaluate the differential relationships between affective empathy and global behaviour problems versus the presence of early psychopathic traits, such as callous-unemotional traits. Future research areas shall also be identified.

Definitional and Conceptual Issues

Despite the widespread recognition of empathy as an important human characteristic, there has been little consensus among theorists on formal definition. Empathy has been used to describe a variety of phenomena, with different theoretical frameworks shaping how this multidimensional construct has been broken down,
analysed and operationalized. A history of unclear communication regarding the implicit structures that underlie the various theories of empathy have allowed confusion to occur (Duan & Hill, 1996). This section shall review the disparate definitions available throughout the literature, followed by a proposed multidimensional framework for defining empathy.

Empathy has long been a concept of interest for writers both within and outside of psychology (Duan & Hill, 1996). Late in the 19th century, Robert Vischer (1883; cited in Listowel, 1934) suggested the term einfühlung, the predecessor of empathy, to mean humans’ spontaneous projection of real psychic feeling into the people and things they perceive. At the turn of the century, Lipps (1903, cited in Wispe, 1987) elaborated on this concept, believing that people knew and responded to each other through einfühlung, which was preceded by projection and imitation, and that as imitation of affect increases, einfühlung increased. Titchener (1909) coined the term empathy as a rendering of einfühlung, which he defined as a “process of humanizing objects, of reading or feeling ourselves into them” (Titchener, 1924, p. 417). Theories of empathy in psychology were largely influenced by this view (Downey, 1929; Kohler, 1929) until Mead (1934), recognized the self-other differentiation in empathy and added a cognitive component, an ability to understand, to empathize (Deutsch & Madle, 1975).

Several definitions are frequently cited in the empathy research. Feshbach and Roe (1968) defined empathy as a shared emotion concordant with that of another person. Eisenberg and Strayer (1987) defined empathy as understanding and sharing in another’s emotional state or context, while Davis (1983) stated that empathy is the ability to apprehend another person’s state of mind. Although these definitions have some degree of overlap, there is a lack of operational clarity amongst them.
Definitions vary in their reference to the sharing of one’s emotional state (i.e., Eisenberg & Strayer, 1987; Feshbach & Roe, 1968); the understanding of other’s emotional state (i.e., Eisenberg & Strayer, 1987); the communication of this understanding; and the prosocial acting on this understanding (Hoffman, 1975). Historically, research has not prioritized the importance of a clear operational definition of empathy (Sexton & Whiston, 1994). This definitional confusion has impeded research and theoretical advances in the empathy literature (Gladstein, 1983; Moore, 1990).

The Nature of Empathy

Empathy has been identified by some as primarily an affective phenomenon (Allport, 1961; Mehrabrian & Epstein, 1972; Stotland, 1969); others however, view empathy as primarily a cognitive construct (Barrett-Lennard, 1962; 1981; Borke, 1971; Deutch & Madle, 1975; Hoffman, 1977; Kalliopuska, 1986; Kohut, 1971; Rogers, 1957). Empathy as an affective phenomenon refers to a concordant emotional response stemming from another’s affective state (Feshbach, 1975). Concordant emotion in affective empathy generally requires at least the ability to recognize affective cues and may further entail either affective perspective taking or other cognitive mediation of affect (Feshbach, 1975; 1987). The affective response that stems from the apprehension or comprehension of another’s emotional state or condition, and is identical or very similar to what the other person is feeling or would be expected to feel (Eisenberg & Fabes, 1990; Hoffman, 1982). Thus, empathy in this sense, involves feeling what another person is feeling.

The cognitive aspects of empathy refer to the intellectual understanding of another’s experience, whether by means of simple association or more complex
perspective-taking processes (Hoffman, 1975). Cognitive factors represent different
dimensions such as the ability to reason about one's actions and the ability to
recognize intellectual and affective cues, which help to differentiate self from others
by putting oneself in someone else's place and understanding their feelings. A third
view holds that empathy contains both cognitive and affective components (Brems,
1988; Hoffman, 1977; Strayer, 1987) or that it can be either cognitive or affective
depending on the situation (Gladstein, 1983).

In an attempt to encourage the use of consistent and explicit terminology in
the empathy literature, Gladstein (1983) first coined the term cognitive empathy to
mean “intellectually taking the role or perspective of another person” (p. 468) and
affective empathy to denote “responding with the same emotion to another person’s
emotion” (p. 468). He stated that these two separate and distinct types of empathy
were identifiable in the social, developmental, and counselling psychology literature,
although the terms had not been used. Smither’s (1977) observation of “empathy via
contagion” and “empathy via role-taking”, and Bachelor’s (1988) identification of
cognitive and affective styles of therapist empathy (although Bachelor also found
evidence for sharing and nurturant styles of empathy), also supported Gladstein’s
classification of the two types of empathy.

Within this affective-cognitive framework of empathy, Eisenberg, Murphy and
Shephard (1996) provided a further analysis of the cognitive ability to understand
emotions. They distinguished two components of the ability to understand emotions,
namely, the ability to decode and label emotions based on perceptual cues and the
ability to use situational cues to make inferences about others’ emotions.
Understanding the minds of others usually refers to understanding their desires, their
beliefs about the state of the world, and the relation between those beliefs about the
world (especially when the beliefs are false) and the person’s behaviour in the world (Eisenberg et al., 1996).

Hoffman’s (1987, p. 48) definition of empathy as “a feeling that is more appropriate to the suffering person’s condition than to the observer’s own relatively comfortable circumstances”, avoids the question of whether that affect need be identical to the other’s affect. Batson (1990) has further distinguished among the various emotional reactions that we may have to the emotions of others. Personal distress may be one outcome, where the distress of another evokes self-focused affect. Emotional contagion is experienced when the emotion of one evokes an analogous affective experience in another. This second construct most closely approximates what is meant by affective empathy.

The label empathy has been ascribed to a diverse range of phenomena. For example, empathy has been used interchangeably with sympathy, compassion, kindness, projection, intuition, sentimentality and emotionality. The construct most frequently confused with specifically affective empathy, is the construct of sympathy. In contrast, affective empathy is “an emotional response that stems from another’s emotional state or condition and is congruent with the other’s emotional state or condition” (Eisenberg et al., 1991). Sympathy is defined as “a vicarious emotional state or situation, one that involves feelings of general sorrow or concern for the other” (Eisenberg, 1991). This concern involves the other-orientated desire for the other person to feel better and is not the same as feeling what the other person feels (i.e., empathy). While sympathy often involves anxiety and worry, affective empathy involves a minimal differentiation between self and other, with a mirroring of the similar emotion experienced by the subject.
Relationship between Cognitive and Affective Empathy

Although Gladstein’s (1983) distinction of the two types of empathy is helpful in providing a framework for studying empathy, the argument about the relationship between these two constructs continues (Feshach, 1975; Greenberg, Rice, & Elliott, 1993; Strayer, 1987). The terms cognitive empathy and affective empathy can be confusing because they may represent a false dichotomy. In fact, research investigating how cognitive and affective empathy interact, has provided mixed and confusing results (Bower, 1983; Isen, 1984). There are two schools of thought regarding the relationship between cognitive and affective empathy. While some researchers argue that cognitive and affective empathy function independently of each other, others argue that the two processes mutually influence each other.

Some research suggests that both cognitive empathy and affective empathy may independently affect interpersonal behaviour. For example, one’s affective empathic state has been found to mediate helping behaviour (Batson, Fultz & Schoenrade, 1987; Eisenberg & Miller, 1987; Krebs, 1975; Toi & Batson, 1982), and cognitive empathic state has been found to alter the pattern of attribution of others’ behaviour (Gould & Sigall, 1977; Regan & Totten, 1975). The relationship between these two types of empathy however is not yet clear. Further research findings suggest that cognitive empathy and affective empathy are independent phenomena. Mill (1984) showed that high self-monitoring individuals were more able to take the perspective of another (in this case, high ability to decode vocal cues), but they did not express more affective empathy. When empathy was defined as a cognitive or affective trait, Smither (1977) failed to find a significant correlation between the two
types. Following a review of available research, Gladstein (1983) concluded that role-taking ability (cognitive empathy) was not closely related to affective empathy.

Contrasting evidence, however, seems to allow for a hypothesis of a mutual influence of cognitive and affective empathic processes. Hoffman (1984), for instance, found that the empathiser’s attribution of the victim’s innocence (perspective taking) increases the affective empathic response in the observer. Krulewitz (1982) found that participants reacted to a rape victim more empathically when the rape was committed by a stranger rather than by a date. Social psychology research also suggests that affect can influence cognitive activities (Bower, 1983; Forgas & Bower, 1987), or vice versa (Davis et al., 1987; Stotland, 1969). People in a happy mood tend to be more charitable, loving, and positive in interpreting information about others (Bower, 1981) and tend to make lenient judgements and situational attributions of a transgression (Duan, 1988). Recently, Hill et al., (1994) showed that positive pre-session mood was positively related to client judgments of therapist helpfulness and session depth. Duan and Kivlighan (1995) also found that counsellor pre-session anxiety was positively correlated with cognitive empathy and that pre-session positive emotion level was negatively correlated with affective empathy.

In a study investigating the relationship between cognitive and affective dimensions of empathy, Freeman (1984) measured how 54 preschoolers responded to descriptive story vignettes both in terms of how they themselves felt and how the stimulus child felt. Results indicated that a significant positive correlation exists between cognitive and affective empathy with subjects expressing significantly more cognitive empathy than affective empathy.
Brems (1988) also investigated the dimensions of empathy as well as their influence on various interpersonal measures. One hundred and twenty-two college students were administered two empathy scales (The Hogan Empathy Scale, Hogan, 1969; the Interpersonal Reactivity Index, Davis, 1980), and various interpersonal measures. Results of the factor analysis revealed two orthogonal dimensions of empathy, a cognitive factor and an affective factor. The affective factor was somewhat less sophisticated than the cognitive factor, as it involved constructs that emerge at an earlier developmental level. Specifically, the cognitive factor required cognitive understanding of the other person (high scores on the Hogan Empathy Scale and Perspective Taking) as well as non-egocentric affect (low Personal Distress). The affective factor required merely that the person replicate the other’s feelings without regard to the egocentrism or cognitive nature of the response. This evidence suggests that the way in which cognitive empathy and affective empathy interact or relate can be complicated or conditional and is worth investigation.

To understand empathy as a complex process, one needs to know how cognitive empathy and affective empathy interact. On the basis of the limited, often indirect evidence, one may speculate that cognitive empathy and affective empathy are separate processes that may be independent from or related to each other under different conditions (Duan & Hill, 1996). It is important however, that the cognitive and affective components do not become simplified for the sake of research as a false dichotomy. Research into the patterns and the conditions of the relationship remains inconclusive. Continuous effort is needed to understand how these two processes may exist separately, coexist, or influence each other.
The Role of Emotions in Predicting Empathy

There is ample research evidence suggesting that affects may influence individual’s thoughts, cognitive processes, and behaviour (Bower, 1983; Isen, 1975; 1984). Emotions differ on various dimensions such as pleasantness and arousal (Izard, 1977; Izard & Beuchler, 1980; Tompkins, 1962), whether or not the emotion is basic (Oatley & Johnson-Laird, 1987; Weiner & Graham, 1984), level of control and effort (Smith & Ellsworth, 1985), and so forth. Some emotions are easier to access or are more common in human experience than others (Ortony, Clore, & Collins, 1988; Strongman, 1978). Therefore, it is reasonable to speculate that some individuals may have different levels of readiness or ability to empathise with different emotions and that some emotions may be more likely to elicit empathy than others. This is developmentally important as children’s ability to understand a variety of emotions increases with age (Hoffman, 1990). However, minimal, if any, empirical effort has been devoted to this area of inquiry (Duan & Hill, 1996).

Knowledge is lacking about the power of different negative emotions in eliciting empathy. It is plausible, however, to assume that individuals may affectively empathise with someone experiencing either pleasant or unpleasant emotions because empathising with someone with positive emotion can be emotionally rewarding, and empathising with someone with negative emotions can be emotionally distressing yet morally rewarding (Duan & Hill, 1996). What needs to be understood is how the various positive and negative emotions differ in eliciting affective empathy. In comparison, cognitive empathy is probably less affected by the pleasantness of the emotion, for example, understanding the pain is probably not as aversive as feeling the pain of a suffering individual.
Duan and Hill (1996) focused on individual variations in empathy via three different constructs; empathy as a personality trait or general ability, as a situation-specific state, or as a multiphased experiential process. These three constructs may or may not overlap with each other. Some theorists refer to empathy as personality trait or general ability (Book, 1988; Buie, 1981; Danish & Kagan, 1971; Feshbach, 1975; Hoffman, 1982; 1984). In this view, empathy is conceptualized as a trait or as an ability to “know another person’s inner experience” (Buie, 1981, p.282) or to “feel (perceive) the feelings (emotions) of other people” (Sawyer, 1975, p.37). These authors have defined empathy by using terms such as “empathic disposition” (Hogan, 1969, p.309), “interpersonal orientation” (Rogers, 1957), “responsiveness…to the feelings of another person (Ianotti, 1975, p. 22), and “dispositional empathy” (Davis, 1983, p. 113). Dispositional empathy is a trans-situational personality attribute varying in strength across individuals (Batson & Shaw, 1991). The implicit assumption underlying this view is that some individuals are more empathic than others, either by nature or through development. This conceptualisation is especially pertinent to research in individual differences in understanding empathy development in children (Duan & Mead, 1996). It also supports the research effort in exploring issues such as identifying which individuals are more likely to be altruistic (Eisenberg & Miller, 1987), and exploring the influences of the developmental process or other personality characteristics on empathy (Feshbach, 1975).

The second approach conceptualizes empathy as a situation-specific cognitive-affective state (Barrett-Lennard, 1962; Greenson, 1960; 1967; Hoffman, 1984; Rogers, 1949; 1951; 1957; 1959). Implicit to the situation-specific theory is that whether considering the cognitive or affective aspects of empathy, and regardless of
one’s developmental level, empathic experience ultimately depends on the situation at hand (Duan & Hill, 1996). Situational factors or transient cues that can influence cognitive and affective empathy could range from prior attribution schemes or mood, to the effects of drugs or alcohol. These internal or external situational factors need to be studied as their influence on cognitive and affective empathy could arguably influence measurement of individual variation in empathy.

The third approach, in which theorists conceptualise empathy as a multiphased experiential process, overlaps with the prior concept of empathy reflecting situation specific factors (Barrett-Lennard, 1981; Basch, 1983; Emery, 1987). These theorists consider the moment-to-moment experience of empathy and examining the process involved in producing and communicating an empathic state. Various “stage” models propose that an individual, in experiencing empathy, goes through a process involving multiple elements (Duan & Hill, 1996). Barrett-Lennard’s (1981) cyclical model (identifying three phases of empathy: empathic resonance, expressed empathy, and received empathy), Rogers’ (1957) “temporarily living in” process (involving sensing the client’s inner world and communicating that sensing), Kohut’s (1984) two-step empathy in psychoanalytic cure (understanding-explaining sequence), Gladstein’s (1983) “multistage interpersonal process” (including emotional contagion, identification, and role taking), Marshall et al.‘s (1995) invariant stage model, and Dyck and Shochet’s (in press) three-stage process of empathic ability, empathic motivation, and empathic efficacy exemplify this effort. The focus on describing multiple stages or elements embodies the complexity of empathy.

Viewing empathy as a multistage interpersonal process implies that empathy involves a sequence of experiences. Despite the obvious clinical value of such a conceptualisation of empathy, empirical efforts to operationalize empathy as a
multistage phenomenon have been limited (Duan & Hill, 1996). Like many other stage theories, multiphased empathy is difficult to assess. Thus, theories of empathy as a multistage process have remained more descriptive than explanatory.

To summarize, empathy has been used to represent divergent constructs that can all be justified by the content and context in which they are studied. Unfortunately, when the same term is used to reflect different constructs, it leads to confusion in the literature. If there is to be a better understanding, it is necessary to avoid using the general term of empathy. To overcome this difficulty, the differential use of cognitive versus affective empathy, and dispositional empathy, empathic experience, and empathic process respectively, is proposed. With the clarification between affective empathy and cognitive empathy, research is able to investigate each of these constructs separately with more operational precision and greater depth. This study shall focus on affective empathy as it is the lesser researched of the two constructs, and is more appropriate when assessing empathy in very young children. Gladstein (1983) defined affective empathy as responding with the same emotion to another person’s emotion (p. 468). Eisenberg, Shea, Carlo, and Knight (1991) have subsequently refined the definition stating that affective empathy is an emotional response that stems from another’s emotional state or condition and is congruent with the other’s emotional state or condition. The latter definition shall be used in the present study as it is the more operationally clear and concise definition. The following is a review of developmental perspectives of childhood affective empathy.

Affective Empathy: Developmental Perspectives

An essential process in the normal development of infants is their growing capacity to relate to others. During the first and second years of life, infants show a
progressive capacity to experience and express empathic concern. Empathic responses grow in complexity throughout childhood and adolescence (Roth-Hanania et al., 2000). Hoffman’s (1990) writings on his developmental perspective of empathy have played a significant role in shaping subsequent research in the area.

From object relations theory to transpersonal psychology, there is a presumption that the newborn experiences the world in a pre-egoic fusion with the primary caregiver and the world at large (Hart, 1999). Hoffman (1990) refers to the capacity for empathic distress at this stage of development as global empathy. At this level, infants express empathic distress through various forms of emotional arousal without being able to acknowledge the fact that it is another's distress to which they are reacting. The inability to differentiate self from others results in infants responding to the other's distress as if it was theirs, or as if what has happened to the other, had actually happened to them. Empathy at this early stage (approximately 0-12 months) is the result of a contagious emotional arousal, and is therefore involuntary and automatic. For example, Kaplan (1977) observed a 9-month-old, eyes filled with tears, crawling toward her mother to be comforted by her, as a result of her seeing a younger infant fall and cry. This is primitive empathic distress but not empathic understanding, in which there is both an experience and cognition of the experience. Hoffman (1977; 1981) argued that feelings of compassion and concern emerge as a function of the child's developing perspective-taking skill and sense of the distinction between self and other. He proposed that there is a key transformation that occurs in the development of empathy at 1 to 1 1/2 years. This transformation occurs gradually as the child begins to acquire a sense of the other as distinct from the self (Hoffman, 1991).
As the self or ego differentiates, the child becomes capable of cognitive representation of others. As Hoffman (1990) describes, "the child may now begin to be aware that although he or she feels distressed, it is not he or she but someone else who is in actual danger or pain" (p. 155). From this point on children:

continue to respond in a purely empathic, quasi-egoistic manner - to feel uncomfortable and highly distressed themselves - but they also experience a feeling of compassion, or sympathetic distress for the victim, along with a conscious desire to help because they feel sorry for him or her and not just to relieve their own empathic distress (Hoffman, 1982, p. 290).

Two pieces of empirical evidence for this gradual transformation from self to other orientated distress, is that children show the following developmental progression. First, before the age at which the transformation is assumed to occur, children respond to another's distress by appearing to be unhappy and seeking comfort for themselves in the same way that they do when they are actually in distress. Second, after the age at which the transformation is assumed to occur, they still appear to be unhappy when witnessing someone in distress but their actions are more often clearly designed to help the victim (Hoffman, 1991).

There also appears to be an in-between stage, in which children show distress and try to comfort both the victim and themselves, which occurs at about the time the transformation is assumed to begin, that is, about the time they show the first dim awareness that others are physical entities distinct from themselves (Hoffman, 1990). Hoffman provides a case example to further illustrate this in-between stage. A child typically responded to both his own and another's distress, beginning late in the first year, by sucking his thumb with one hand and pulling his ear with the other. At 12
months however, on seeing a sad look on his father's face, he proceeded to look sad and suck his thumb, while pulling on his father's ear; as though he was just beginning to recognise the difference between self-in-distress and other-in-distress but the distinction was not yet clear (Hoffman, 1991). In a similar example, Zahn-Waxler, Radke-Yarrow, and King (1979) described a child who's first positive overture to someone in distress, at 12 months, involved alternating between gently touching the victim and gently touching himself.

As cognitive capacity develops, so does the ability for role-taking. "One becomes aware that other people's feelings may differ from one's own and are based on their own needs and interpretation of events" (Hoffman, 1990, p. 155). As one's own range of feeling capacity is differentiated, there grows the capacity for empathy with increasingly subtle and diverse emotions. For example, a more nebulous appreciation of pain, characteristic of more primitive empathy, may be perceived as disappointment, longing, grief, and so on (Hart, 1999). Hoffman (1990) describes such empathy for another's feeling as setting the stage for empathy for another's life condition, in which the individual combines immediate affective response with a general representation of the plight of the other outside the immediate context (e.g., an appreciation of poverty or oppression).

Hoffman (1975) has postulated a biological preparedness for empathy that is apparent in the contagious crying of newborns. Little is known about empathic expressions during the first year of life. Based on the classic study of Simper (1971) and the replication by Sagi and Hoffman (1976), Hoffman (1987) suggested that empathy emerges in early infancy, and can be observed in the reactive crying of newborns. In these studies, newborns were exposed to the sound of the cry of another infant and to the sound of a synthetic cry. The findings of both studies demonstrated
that infants who were only one day old cried significantly more when exposed to the sound of another infant's cry than to silence, or to a synthetic cry. Based on these findings, Hoffman (1976) proposed that the selective cry of neonates in response to another infant's cry is evidence for the presence of an innate empathic distress reaction. Further, it seems that at this stage in which empathy is expressed through an automatic involuntary response, it is almost strictly biological and may serve an evolutionary purpose (Brothers, 1989).

Recent research has found evidence to further support Hoffman’s theory of empathy development. Ungerer et al., (1990) addressed the question of the antecedents of empathic concern. She found that there are important individual variations at 12 months in the sorts of indices of emotional responsiveness which typically are labelled as empathic concern. Personal distress responses analogous to those observed in older children and adults were identified in one third of the sample at 12 months of age. What is most striking about this research is that these distress responses were associated with indices of poorer self-regulatory skills in social contexts at 12 months of age. The infant’s self-regulatory abilities were assessed using the Still-Face Procedure (Gianino & Tronick, 1985), which provides a measure of the infant’s self-regulatory abilities in response to an age-appropriate, moderately distressing social event that is an unresponsive mother. Gianino and Tronick (1985) identified a common organization of behaviour that represents a well-regulated response to the stress of the still-face.

This research suggests that important individual variations appear quite early in infancy via patterns of emotional responsiveness, and were interpreted within the broader framework of the development of self-regulatory strategies in the early childhood years. While other investigators have pointed to differences in
temperamental emotional lability, Ungerer et al., (1990) showed that the modulation of emotional responsiveness starts at a very early age and that differences in this self-regulatory capacity may set in motion different developmental pathways for empathic expressions.

The development of empathy during the second year of life most commonly involves increases of other-oriented responses including attempts to understand others’ distress, the expression of sympathy or concern, and the enactment of prosocial behaviours which are geared toward relieving others’ distress (Robinson, 1994; Zahn-Waxler et al., 1990). What is striking about this and related research is the relatively early and stable emergence of individual variations in the patterning of empathic processes.

Within this infant age group, twin research has found support for a biological or genetic basis for empathy. Zahn-Waxler, Robinson, and Emde (1992) compared 94 monozygotic twin pairs with 90 dizygotic twin pairs during their second year of life on their reactions to simulations of distress in others. Empathic reactions could vary from self distress (whimpering or crying for example) to prosocial acts (actual efforts to help). Participants were videotaped during simulations of distress with either the mother or an experimenter at 14 and 20 months. In support for a biological or genetic basis for empathy, monozygotic twins were found to be continuously more similar to each other over time in their empathic expressions, specifically empathic concern, at both 14 and 20 months than dizygotic pairs.

While acknowledging the role that biological factors may play in these differences, caregivers make the important contribution in socialising the child’s response to other’s distress. Zahn-Waxler et al., (1990) examined the effect of different family contexts on the development of empathic expressions. They found
that the family environment, and more specifically the ways that emotional expressions were handled within the family, shaped children’s empathic development. These two research findings from Zahn-Waxler and colleagues exemplify the complex interaction of biology and context on the development of empathic expression in children.

*Development of Empathy and Sense of Self in Young Infants*

Theoretical perspectives on empathy development propose that empathy responses are largely dependent on the development of sense of self (Hoffman, 1982; 1991). Several empirical explorations have established a correlation between self and empathy development during the first years of life. Understanding the relationship between development of sense of self and that of empathy is crucial, not only for broadening our currently somewhat limited knowledge base regarding typical development in these areas, but also for our understanding of atypical development. Autistic children, for example, are observed to have a general deficit in development of their empathic capacity as well as great difficulty in developing both a physical and representational sense of self (Roth-Hanania et al., 2000).

The stages of empathy development appear parallel to those of self concept development. It appears that the development of empathic behaviours depends on the basic acquisition of self-other differentiation (Bischof Kohler, 1991; DesRosiers & Busch-Rossnagel, 1997). Table 1 summarizes the development of sense of self in the first and second year of life in respect to its role in the development of empathy. This table follows DesRosiers and Busch-Rossnagel's (1997) developmental model of self concept as it captures both the concepts and the behaviours that occur at these early stages.
### Developmental model of self concept (DesRosiers & Busch-Rossnagel's, 1997)

<table>
<thead>
<tr>
<th>Age</th>
<th>Self concept Stage and behaviour</th>
<th>Empathy Stage and behaviour</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-12 months</td>
<td><strong>Self-other fusion and early differentiation</strong>&lt;br&gt;joint attention</td>
<td><strong>Global-automatic and nonvoluntary</strong>&lt;br&gt;reactive cry in newborns&lt;br&gt;distress cry in response to another infant’s cry</td>
</tr>
<tr>
<td>12-18 months</td>
<td><strong>Self recognition</strong>&lt;br&gt;identify own reflection</td>
<td><strong>Egocentric</strong>&lt;br&gt;concerned looks&lt;br&gt;imitate facial expressions&lt;br&gt;comforting behaviours&lt;br&gt;early prosocial interventions</td>
</tr>
<tr>
<td>18-24 months</td>
<td><strong>Self-representation (self-other differentiation)</strong>&lt;br&gt;acting upon object during pretend play</td>
<td><strong>Prosocial-active helping</strong>&lt;br&gt;active interventions on behalf of a distressed other</td>
</tr>
<tr>
<td>24-months</td>
<td><strong>Self-description</strong>&lt;br&gt;uses own name&lt;br&gt;uses me or mine</td>
<td><strong>Perspective taking</strong>&lt;br&gt;express emotions &amp; empathic concern verbally</td>
</tr>
</tbody>
</table>

One of the most important processes that characterize the normal development of infants is their growing ability to relate to others. This ability to relate to others is dependent in part on the ability to identify others as similar to, yet separated from one's self. The development of sense of self is a process that starts sometime during the first year of life and continues throughout life. Sense of self in the first years of life is an internal construct that helps infants organize their experiences. At this early developmental period, each stage of self-concept development represents more complexity in the ability to differentiate self from others as well as a growing ability to represent self and other's thoughts and feelings. DesRosiers and Busch-Rossnagel (1997) proposed that the early stages of self-concept development involve: (1) self-other fusion and early differentiation; (2) self recognition, which represents the awareness of infants of their self as a distinct physical entity; and (3) self-representation, when infants achieve the most advanced concrete realization of self-
other differentiation (see table 1). Each of these stages is important not only in terms of organizing the infant's early experiences, but also in terms of its contribution to the development of empathic concern.

Despite lack of extensive research on infants' sense of self, researchers agree that during the first years of life, infants demonstrate gradual development of self-concept (Butterworth, 1990; Meltzoff, 1990). The development of empathy is largely dependent on the developmental stage of the child’s sense of self (Zahn-Waxler & McBride, 1996). While most of the work on the development of self-concept and empathy is theoretical in essence, there have been a small number of empirical attempts to investigate the extent to which self and empathy relate to each other in their development. Only a few of these have focused on the early years, a time when both domains develop, a period that is undoubtedly crucial when considering development in general. To date, these studies have established a correlational type of relationship between self-recognition and the development of empathy in the first years of life (Bischof-Kohler, 1991; Zahn-Waxler & Radke-Yarrow, 1990). Bischof-Kohler (1991) argues that self-recognition plays an essential role in the emergence of empathy. In her study, 16- to 24-month-old human infants were tested with a minor self-recognition task and for exhibiting empathic responses during a distressful incident. The results were very straightforward: all the infants who were classified as empathizers passed the self-recognition task or appropriately named themselves. In contrast, the infants who were not able to recognize their own mirror image did not exhibit those behaviours that could qualify as empathy. Zahn-Waxler, Radke-Yarrow, Wagner, and Chapman (1992) also found children's progression on tasks of self recognition was reflected on the empathy tasks, so that as they passed more advanced self tasks. They also showed more complex empathic responses in the form of more
active helping behaviours (prosocial behaviours). The findings of this study provide further evidence for a link between the two domains.

The studies mentioned above, though encouraging in terms of the potential inherent in the investigation of the development of self and empathy in infancy, still do not provide a clear enough view of empathy at the earliest ages. It is important to note that in the study by Zahn-Waxler et al., (1992), the infants were tested starting at 18 months for prosocial behaviour, but were not assessed at earlier ages for any kind of empathic behaviour. The generalizability of these data is limited however as empathy does not equal prosocial behaviour. Empathy can be observed in infants long before any capacity for prosocial behaviour occurs (Hay et al., 1981; Sagi & Hoffman, 1976). In addition, empathy can be expressed through what is considered primitive or more basic behaviours (imitation of facial expression, concerned looks, distressed crying) that do not require the complexity of prosocial acts (Hoffman, 1982; Zahn-Waxler & Radke-Yarrow, 1982). Although there is no doubt that empathy is a precursor for prosocial behaviour, it is important to differentiate the two. In his review of studies on empathy in early infancy, Thompson (1987) concluded by saying that the body of research on this important issue is very limited and still highly speculative. Knowing more about the nature of the relationship between infants' development of self and empathy will set the groundwork for the opportunity to intervene at very early ages with the aim of enhancing children's social competence.

Once children become older and begin to improve in their ability to perceive that others have feelings and perceptions that differ from their own, they are able to experience more advanced empathy and act on it in a way that is shaped by their recognition that the other's needs may not be the same as their own. With continuing emotional, cognitive and linguistic development, this capacity continues to expand.
By late childhood, the child should be capable of empathizing with a wide spectrum of emotions, even in the absence of a victim, and of recognizing that people can experience distress not only in specific situations but also in the context of overall life experience (Litvack-Miller, McDougall, & Romney, 1997).

Children who remain very low in empathy throughout early childhood may be at risk for significant peer adjustment difficulties given the important role of empathy in regulating interpersonal relationships. The group of children who remain very high on empathy may also be at risk for over-concern and involvement in others’ distress that has been hypothesised to lead to later depressive symptomatology (Zahn-Waxler et al., 1991). While the proposition that empathic development early in the second year of life is particularly susceptible to environmental influence compared to other time points has not been tested, Robertson (1994) found that adverse family circumstances are associated with significant drops in empathic responses over time among children at both the middle and upper end of the distribution, and especially for females.

**Empathy and Gender**

Studies using normative samples have consistently reported gender differences in empathy development (Cohen & Strayer, 1996; Eisenberg et al., 1991; Gibbs et al., 1984; Hanson & Mullis, 1985). Gender differences have been highlighted in numerous reports of empathy and altruism during childhood (Brody, 1985; Zahn-Waxler, Cole, & Barrett, 1991). As early as 14 months of age, mean differences between the genders have been observed (Zahn-Waxler et al., 1992). Females display stronger expressions of interest and concern for others’ distress and are more likely to respond with prosocial action than their male counterparts. Brody (1985) has
suggested that a more general tendency toward greater emotional expressiveness in females may underlie gender differences in empathy.

Childhood research has repeatedly reported sex differences favoring females on self-report scales of affective and cognitive empathy (Bryant, 1982; Eisenberg, 1989; Eisenberg & Lennon, 1983; Lennon & Eisenberg, 1987; Livack-Miller, McDougall, & Romney, 1997; Zahn-Waxler & Smith, 1992). Research on empathy development of male and female adolescents has also shown that, across age groups, females score higher on measures of empathy than do males (Cohen & Strayer, 1996; Eisenberg & Fabes, 1998; Gibbs et al., 1984). In addition, adolescent girls' overall prosocial reasoning is higher than that of boys when prosocial stage criteria are used (Bush, 2000; Eisenberg et al., 1991).

Researchers have argued that gender differences in empathy reflect the differential socialization of females into a nurturant, emotional, and feminine role, or a more caregiving orientation (Block, 1973; Gilligan, 1982). In keeping with the feminine stereotype of nurturance and warmth, empathy is said to be indicative of the “expressive” role played by the mother in her affectional responsiveness and concern for others, which functions to maintain the family as a cohesive unit.

Chodorow and Gilligan (1978) have claimed that children’s empathy, particularly in girls, emerges from emotional connections with the mother. A close identificatory relationship with the mother gives rise to a sense of empathy. By contrast, Kohlberg (1984) has maintained that identification has only a subsidiary part in social development. Sex related attributes such as empathy and identification with the mother are said to be mediated by gender concepts. The girl discovers that her gender is stable and constant; the feminine stereotype of nurturance and warmth is
attractive to her and she strives to live up to this. Longitudinal evidence which bears
directly on the issue of empathy is however scarce.

In support of the account of Chodorow and Gilligan (1978), girls who
identified with the mother at both times, had higher empathy scores at time 2, than
those who’s identification wavered. The stability in family relationships implicit in
the expressive feminine role may be a particularly important ingredient in the
identification of the girl, since it is a salient feature in her self-definition (Siegal,
1985). Other work has shown that girls might adopt a caregiving or nurturing role in
response to maternal depression (Zahn-Waxler et al., 1984; Zahn-Waxler et al., 1990)
with girls, but not boys, displaying more prosocial behaviours in response to maternal
depression. Zahn-Waxler et al., (1984; 1990) speculated that girls display more
prosocial behaviours than do boys, because girls feel more responsible for the troubles
of others, and that, under those conditions, stereotypical gender differences in
prosocial tendencies are exaggerated.

Across the lifespan, many studies have documented a strong and consistent
relationship between gender and empathy: women report dramatically higher scores
on questionnaire items that assess self-reported affective and cognitive empathy
(Eisenberg & Lennon, 1983). The reason why women and men vary in their level of
empathy warrants further attention. Socialization processes during the younger years
have been argued to contribute to this gender gap (Brody, 2000; Thoits, 1989). For
example, girls typically are socialized to be nurturing, to express a moral sense of
caring for others, and to cultivate intimate relationships as the "anchors" of their
identity. Conversely, for younger males, emotional expression and relationships tend
to symbolize dependence and weakness (Gilligan, 1982). Early socialization may
filter men into task-oriented, competitive social roles and women into nurturing,
emotional social roles (Alexander & Wood, 2000; Brody & Hall, 1993). Adult men and women generally differ in the experience, recognition, and expression of emotions (Brody & Hall, 1993; Mirowsky & Ross, 1995) and in what they provide, acquire, and value in their social relationships (Umberson et al., 1996). Women are more likely to have a confidant, report more emotions that protect the feelings of others, tend more to disclose weaknesses, and are more sought after by both men and women for emotional support. Men tend to be less involved in others' emotional concerns, are less disclosing of weaknesses, and base friendships on non-emotional, external activities (De Vries, 1996; Kessler & McLeod, 1984; Schieman & Van Gundy, 2000).

Research on gender stereotypes lends support to these socialization theories. Qualities such as aggressiveness and competitiveness have been found to be viewed as more desirable in men, whereas women’s caring and concern for others are desirable female traits (Chase-Lansdale, Wakschlag, & Brooks-Gunn, 1995; Eagly & Steffen, 1986). These traits are reinforced by social role expectancies (e.g., emphasis on adolescent boys’ participation in competitive sports). Eagly and Crowley (1986) have suggested that different forms of caring are promoted by gender role stereotypes. Whereas females are encouraged to exhibit kindness and compassion in close personal relationships, men’s caring behaviour may be encouraged in more public ways (e.g., heroism). As research on sex differences have found that females score higher on self-report scales of both affective and cognitive empathy (Livack-Miller, McDougall, & Romney, 1997; Zahn-Waxler & Smith, 1992), one could propose that these gender differences largely reflect psychosocial rather than biological factors inherent to the child. This conclusion however is questionable by Zahn-Waxler et al.,’s (1992) findings that gender differences emerge very early in life when the
effects of socialisation has been limited. It appears again evident that there is a complex interplay between biology and the environment on the differing development of empathy across gender.

A theme pervading this literature review is the variety and complexity of the developmental evolution of empathic processes. Evidence is offered by Ungerer et al., (1990) and by Zahn-Waxler and Radke-Yarrow (1990) that the differentiation starts quite early in the child’s life and is subject to important internal and external sources of variation. Eisenberg and Fabes (1990) and Hoffman (1990) describe how with the increased cognitive sophistication of the developing child, the manifestations of affective responding are elaborated in a number of ways. An interesting additional convergence in this research is the emphasis on individual differences. From Ungerer et al.,’s (1990) suggestions regarding quite early individual variations in self-regulation of affect to the different effects of socialization elaborated by Zahn-Waxler and Radke-Yarrow (1990), there is a continuing emphasis on sources of individual variation in empathy. It appears that, among doubtlessly a number of other factors, such variables as temperamental differences in emotional lability, variations in responsiveness to external input, differences in self-regulation of affect, a number of socialization variables, differences in role-taking capacity, and structure of cognitive models of moral thought, all may be important determiners of the development of empathy in boys and girls.

One question regarding empathy that continually arises is: if we focus on the development of empathy, what is developing? It appears legitimate to question what exactly is changing – is the affective response developing or rather the subtlety of manifestations of the affective responses which appear quite early in life? If the latter, then we may not really expect a positive relationship between age and empathy.
Although the ability to apprehend others’ emotional states may increase with age in terms of decoding confounded emotions, interpreting situational regulators of affect and understanding “unexpressed” affect – the intensity of emotional reactions to others’ affect – may asymptote at a relatively young age and have a significant biological contribution. Part of the developmental process may consist of acquiring more elaborated choices of empathy behaviours (distancing, distracting, display, and avoidance patterns). Additionally it appears that to speak of mature empathy is not necessarily to speak of those individuals with the strongest affective response to the distress of others. Nor is it necessarily the case that the young children who are most “emotionally sensitive” will turn out to be the older children who are most “empathic”. The paths are complex and may require the elaboration of variety of factors to produce a comprehensive account of the development of empathy.

Understanding the early stages of empathy development is important not only in terms of typical development but also for intervention in atypical development. There are explicit behaviours, which have been identified in empirical studies that reflect empathic concern in infancy and other behaviours that represent stages of self-concept acquisition. By familiarizing ourselves with these behaviours, we can trace normal development and learn more about what is deviant from the normal track. By the same token, observing apparent deficits in the development of empathy can contribute to our understanding of the psychological processes that underlie typical development.

Environmental Influences on Empathy

Human growth and development are influenced by internal and external factors that interact from birth in different ways to contribute to the unique
individuality of each person. In explaining the mechanisms involved in the complex process of empathy development, various theoretical perspectives have been proposed. It is reasonable to assume that individual differences in empathic behaviour reflect the fusion of heritable and environmental influences. A basic caution for developmental research that seeks to demonstrate the influence of the environment is that environments are often created by individuals responding to heritable influence. Braungart, Fulker, and Plomin (1992) describe both passive genotype-environment correlations in which children “inherit” environments and genotype-environment interactions in which genetic effects are expressed through environmental stimulation.

A study by Robinson and Little (1994) demonstrated the moderating influence of family environmental and child temperamental characteristics by showing specific ways in which they may predispose children toward distinct paths of early empathic development. This investigation focused on a six-month period in the second year of life, with the rationale that empathy is in an emergent state during this time, and is presumed to be susceptible to environmental influence. Robinson and Little (1994) examined specific developmental patterns of affective empathy during the second year and investigated maternal style, family environment, and temperamental factors as moderator influences on these patterns of development. The sample consisted of 158 children selected from twin pairs whose empathic development had been previously studied at 14 and 20 months of age. Planned comparisons within specific groups (initially high, mid-range, or low empathy) tested the difference between children who changed versus those who remained stable. Robinson and Little found that maternal style, family climate, and child temperament variables significantly differentiated among children with different patterns of development. Child gender was an additional moderator of family influences on development among those
children whose affective empathic responses were initially low. More specifically, mothers were found to be more sensitive and less intrusive with girls than with boys; girls tended to be more sociable, cooperative, and less easily frustrated than boys; and mothers reported that girls aided their siblings and mother when in distress more often, and just observed less often, than boys; girls expressed more personal distress in response to their siblings than boys. Mothers also reported girls to be more helpful, affectionate, and willing to share with their co-twin than boys. However, girls were not rated more responsive or involving of their mothers than boys.

Robinson and Little (1994) argued that these qualities of relatedness have continuity for the child over time, accommodating his/her increasing behavioural competence and serving as an internalized template in his/her developing relatedness to others. Robinson and Little’s investigation provides support for the hypothesis that features of the mother-child dyad that are indicative of emotional availability, namely maternal sensitivity and non-intrusiveness, and child involvement and responsiveness to mother, form an integral part of the developing child's positive relatedness and empathy with mother, sibling and unfamiliar adult. While these findings support the notion that the relationship with mother serves an organizing role for the child's relatedness with others, fathers were excluded from this research and therefore the role of this paternal relationship is unknown. Fathers potentially play a very significant role on child empathy development, and as such a comprehensive investigation of environmental influences or possible moderating relationships between mothers and fathers on empathy development is not complete without inclusion of this father style data.

While examining the family as a primary socialization agent in the development of cognitive and affective empathy, it is important to also consider the
influence of constitutionally-based individual differences, such as temperament or information-processing abilities, on the course of empathic development. Some recent theoretical perspectives on infant temperament emphasise emotional organisation. Both the timing of patterned emotional responses and their intensity are considered important definitional features of temperament according to Goldsmith and Campos (1982). Rothbart (1986) defines infant temperament as constitutionally based individual differences in reactivity and self-regulation. Self-regulating features include approach-avoidance of stimuli, attention regulation and self-soothing. Both of these definitions of temperament may be relevant to individual differences in the development of affective empathy.

From the alternate perspective of the influence of environment on individual differences in children's and adolescents' levels of empathy, various sources of research have highlighted amongst other variables, the contributions of parental qualities (e.g., parents' empathy; Eisenberg, 1990; Eisenberg et al., 1992) and parent-child relationship characteristics (e.g., warmth and responsivity; Barnett, 1987; Eisenberg & McNally, 1993). Understanding how family environmental features influence the direction of development has been a core issue in the field of developmental psychology. Maternal sensitivity, maternal non-intrusiveness, and child involvement and responsiveness to the mother, are factors that form an integral part of the developing child's positive relatedness and affective empathy with their mother, siblings and unfamiliar adults (Eisenberg & Murphy, 1995). Infants experience empathy from birth as their caregivers read the infants’ cues and provide care that validates the infants’ needs (food stimulation, and comfort in response to cries of hunger, boredom, or distress). Infants who experience such empathic care
begin to demonstrate affective empathic reactions to the cues of others as early as eighteen months (Ryan, 1997).

Barnett, King, Howard, and Dino (1980), also conducted a study to explore the relation between (a) the young child’s affective empathy and (b) the parent’s self-reported affective empathy, affection, and emphasis on another individual’s feelings in discipline and non-discipline situations. Heightened empathy in 4 to 6 year old girls was associated with a particular (i.e. sex stereotyped) pattern of mother-father empathy. Barnett et al., (1980) found that affective empathy scores for daughters in the mother high empathy/ father low empathy group were significantly higher than those in the mother high empathy/ father high empathy group, or the other two groups of shared low parental empathy or low mother empathy/ high father empathy. No statistically significant correlations were found between the boys’ affective empathy scores and any measure obtained from either parent. The factors believed to enhance the development of affective empathy were reported to be more prevalent in the mother’s interaction with the child than in the father’s. The young child’s growing awareness of this sex-linked socialization pattern may contribute to the finding that females tend to respond more empathically than do males during childhood and adolescence.

Self Psychology

The above findings lend support to the self-psychological perspective, which argues that the development of the self is a lifelong process that can only occur within an empathic matrix of relationships that offers a combination of optimal empathic responsiveness and manageable empathic failures. The healthy self is derived from experience in which caregiving others, known as self-objects, meet the specific needs
of the emerging self through accurate empathy, the mirroring of the age-appropriate
grandiosity, and identification with idealized others (Flanagan, 1996). Without
relationships in which they are adequately mirrored, and in which they have someone
to idealize and feel similar to, children lack the validation, admiration, and modeling
necessary for the development of a healthy self-esteem (Hertz, 1996).

The term “holding environment” was used originally by Winnicott (1965) in
connection with the ordinary function of a mother holding her infant. It referred not
just to the actual physical holding of the infant, but also to the total environmental
 provision of reliable, predictable, empathically attuned attention to the physiological
and emotional needs of the child’s whole self; even before the child has a whole self.
Similarly, Mahler (1975) theorized that with the successful end of the rapprochement
subphase, the constant empathic stance of the mother is internalised, permitting the
needy and the omnipotent self images of the child to unite and form a realistic view of
the self. The presumptive empathic “failures” of a child’s early experience can alter
this ideal developmental course before the final stage of object constancy.

Attachment Theory

Bowlby’s (1969) attachment theory also lends itself to explaining the sort of
nurturing environment conducive to empathy development. Attachments are
individuals’ representation of their relationships with significant others, usually
primary care-givers (i.e. parents or parent-figures). Attachment relationships are
highly influenced by the quality of the parenting that children experience, beginning
in infancy and continuing into adulthood. Security of attachment refers to the degree
to which an individual has an internalised sense of significant others as trustworthy,
available and loving (Ainsworth et al., 1978; Bowlby, 1969), and as such may be

How do families engender these advances in caring? With regard to empathy and prosocial behaviour, some parental influences are similar to those related to security of attachment. Parents who are affectionate and responsive to their children’s psychological needs are likely to promote empathy by enhancing their children’s understanding of what it is like to have one’s own needs met (Barnett, 1987). Parents can be influential models of empathic behaviour (McDonald & Parke, 1984). Children also benefit when parents provide opportunities for perspective taking, offering assistance to others (Hoffman, 1976), and generally, for “experiencing and expressing a broad range of emotions” (Barnett, 1987, p. 157).

Social Learning Theory

According to Bandura (1972), “personality patterns are primarily acquired through the child’s active imitation of parental attitudes and behaviour”. Bandura (1986) proposed a paradigm for abstract modeling; this process is achieved through (1) extracting relevant attributes from social models; (2) integrating the information into a composite rule; and (3) using the rule to produce new instances of behaviour. Applying this paradigm to the modeling of parents’ empathy by their children, it is a logical conclusion that the child would be largely influenced by the parent’s level of participation in childcare and demonstrated level of empathy.

According to these postulates of social learning theory, high parent participation in childcare would allow a salient parent child relationship and increased modeling of the parent’s level of empathy by the child. Thus if a parent were highly empathic, the child would become more empathic than if the parent were low in
affective empathy and vice versa. In general, investigations into the effects of parental style reveal that power-assertive disciplinary techniques tend to impede the development of cognitive and affective empathy, while non-punitive and inductive practices tend to facilitate the development of cognitive and affective empathy (Eisenberg-berg & Mussen, 1978; Feshbach, 1975; Hoffman & Saltzein, 1967). Yet differential results from these studies relative to the sex of parent (Feshbach, 1975), and or sex of the child (Eisenberg-berg & Mussen, 1978), have led researchers to the view that a simple causative relationship between parental behaviours and cognitive and affective empathy in children is questionable.

Bernadett-Shapiro, Ehrensaft, and Shapiro (1996) studied 47 first grade boys (mean age 6.8 years) and their biological parents in intact families, to explore the relationship of father involvement in childcare with the development of affective empathy in boys. Paternal empathy was measured with the Emotional Empathic Tendency Scale (EET; Mehrabian & Epstein, 1972). Boys’ empathy was measured with Bryant’s Index of Empathy for Children and Adolescents (Bryant, 1982). Results indicated that boys’ affective empathy was significantly and positively related to measures of father participation in childcare independent of fathers’ level of empathy. Different theories predict how the development of affective empathy in boys would be mediated by child-father interactions. In general, postulates from object relations theory look at paternal involvement as the primary factor in the development of empathy in young boys (Chodorow, 1978; Rubin, 1983). The more involved the father, the greater the development of the son’s empathy. By contrast, predictions based on social learning theory rely more on data that reflect the nature of the fathers’ empathy (Bandura, 1977). Thus, low empathic fathers would produce low empathic sons. Moreover quantity of time with fathers would interact with this empathic
modeling. Within these opposing theoretical frameworks, Bernadett-Shapiro, Ehrensaft, and Sharpiro’s (1996) results indicated that object relations postulates predicted the measured level of affective empathy development more effectively. These data suggest that paternal involvement is the primary factor in the development of empathy in young boys.

Older siblings' play an important role as everyday companions and as agents in their younger sisters' and brothers' social cognitive development (Azmitia & Hesser, 1993; Dunn, 1983; McHale & Crouter, 1996). Studies of sibling roles have shown that older siblings are more likely to have a greater influence on younger siblings' social and cognitive development than vice versa (Azmitia & Hesser, 1993; Brim, 1958; Koch, 1960). In a study by Tucker (2001), the ways in which older siblings’ personal qualities and sibling relationship experiences were associated with younger siblings’ levels of empathy during early adolescence and preadolescence were investigated. Participants were 199 sibling dyads (mean years of age = 11 & 8, respectively) who were interviewed using two procedures: (a) in their homes about their family relationships and personal qualities and (b) in a sequence of seven nightly telephone interviews about their daily activities and companions. Analyses revealed that younger sisters' as compared to younger brothers' empathy was related differentially to their older siblings' personal qualities and to the nature of their sibling relationship. Analyses supported previous findings that older siblings enhance younger siblings' empathy rather than vice versa.

In terms of younger brothers' empathy, Tucker et al.,’s analyses of older siblings' personal qualities revealed that having a more empathic older brother and a more positive sibling relationship both were linked to greater empathy. Whereas younger sisters modeled their older siblings regardless of their older siblings' gender,
younger brothers focused on older brothers as role models. These findings indicate that a same-gender role model might be more important for boys’ than for girls’ empathy development. Hoffman (1971) found that boys from father-absent homes (and without male role models) scored lower on assessments of moral development than did boys whose fathers were present, a relation that was not evident for girls. Furthermore, children are more likely to copy more competent or powerful models (Eisenberg-Berg & Geisheker, 1979; Grusec, 1971), and some work has shown that older brothers are viewed as more powerful than older sisters (Bigner, 1974). Cross-gender models also might be less acceptable for boys than for girls, at least in a domain in which normative gender differences favor girls. For these reasons, younger boys might be more likely to model their older brothers than their older sisters.

Older siblings might influence younger siblings' empathy in a variety of ways. For example, like parents, an older sibling might be viewed as a respected source of knowledge (Klagsburn, 1992), and, consistent with a social learning perspective (Bandura, 1977), might serve as a role model of empathy for younger siblings. Older siblings also might encourage younger siblings' empathy through direct instruction, discipline, providing opportunities for learning empathy, and setting high standards (Eisenberg & Murphy, 1995). Older siblings differ from parents, however, because they provide different kinds of role models and different opportunities for role taking. Evidence of older siblings' influence on younger siblings' empathy development comes primarily from observational studies of sibling relationships in non-Western societies. Observations of siblings' interactions in Mexico, for example, revealed that older siblings provided culturally appropriate knowledge about the world to younger siblings, including how to recognize and interpret social situations and how to take another's point of view (Zukow, 1989).
Other relationships in the family, including the marital relationship, are also expected to influence children’s empathic development because they serve as models for caring relationships. Numerous studies have demonstrated an indirect influence for family climate features more broadly, and marital relationship more specifically, in the areas of early socio-emotional development (Easterbrooks & Emde, 1988; Goldberg & Easterbrooks, 1984; Howes & Markman, 1989) cognitive or mental development (Plomin & DeFries, 1985; Wilson & Matheny, 1983) and infant temperament (Matheny, Wilson, & Thoben, 1987). Furthermore, violent acts between spouses can influence the development of cognitive and affective empathy or aggression in children. First, there are the effects of observing one parent behave aggressively and unempathically toward the other. Modeling theory has conclusively demonstrated that children imitate the behaviour and interpersonal styles of other individuals, particularly the significant others in their lives (Hinchey & Gavelek, 1982). Future experiences, both good and bad, will be processed through the impression of the parental marital relationship, as this relationship is their initial role modeling of husband and wife, father and mother. Modeling may thus create healthy or pathological concepts of verbal and physical interactions which would facilitate or inhibit future interpersonal relations.

On more of a macro level then parental marital relationships, education is another source of socialization that shapes socio-cognitive capacities such as the development of perspective taking skills, the ability to decode emotional cues, and moral problem solving (Kohlberg, 1984; Morgan & Schwalbe, 1990; Pratt & Norris 1994). Education may cultivate the sophisticated cognitive skills and psychosocial resources necessary to understand the complexities of the self and the emotions of others (Eisenberg & Fabes, 1990; Franks et al., 1999). Education also is typically
associated with income. As resources, both education and income may enhance opportunities and resources that help people relate to the self and to others (Herzog & Markus, 1999; Skaff, 1999), and to manage various forms of emotionality (Schieman, 2000).

Research on the effects of subordinate relationships such as pet ownership on empathy development in children is another possible influencing socializing agent. Poresky (1996) found that children with progressively higher companion animal bonding scores had progressively higher affective empathy scores, suggesting that children with closer relationships with their pets tended to have higher affective empathy. Consistent with this finding, Melson (1991) reported consistent positive relationships between pet attachment and affective empathy for animals among the kindergarten children.

There has been relatively little systematic attention given to the normal development of empathic behaviour and the role played by one's upbringing, even though there is evidence that the empathic presence of the parent fosters empathic development in children (Chase-Lansdale, Wakschlag, & Brooks-Gunn, 1995; Eisenberg & McNally, 1993). Moreover, this is especially important in families where a parent suffers from a psychiatric disorder, as there is evidence of deficits in parental empathy in this population (Brodsky & Brodsky, 1981; Ladisich & Feil, 1988). The effects of parents with Borderline Personality Disorder (BPD) or with Anorexia Nervosa (AN) on the family environment are especially relevant as Kohut (1979) theoretically argues that these psychopathologies are the adult expression of not receiving adequate parental empathy and consistent nurturance as a child. Research that investigates the empathic capacity of parents of borderline women provides
support of the cyclical nature of developmental impairments in empathy due to inadequate parental attunement.

The presence of verbal, physical, and sexual abuse has been repeatedly documented in families with parental Borderline Personality Disorder (BPD; Laporte & Guttman, 1996; Zanarini, Williams, Lewis et al., 1997). Findings suggest that borderline women are lacking in parental empathy that is likely to have detrimental effects on their children’s social development of empathy. Guttman and Laporte (2000) studied empathy in the families of 27 women with BPD, 28 women with restricting Anorexia Nervosa (AN), and 27 women without a clinical diagnosis (NC). The daughters and both parents responded to the Interpersonal Reactivity Index (IRI), an instrument for assessing four dimensions of empathy. In addition, they were personally interviewed, with the Family Interview for Protectiveness and Empathy (FIPE), about the extent of empathy expressed by the parents to their daughter during her development. On the IRI, women with BPD scored highest on the immature and lowest on the mature aspects of empathy, whereas scores of AN and NC women were all within normal limits. Parents of BPDs had the lowest IRI scores, while parents of AN and NC groups were similar to each other and to criterion group scores. IRI scores of AN daughters were positively correlated with their parents' scores whereas BPDs' scores were negatively correlated with those of their parents. There were no correlations between the IRI scores of NC subjects and their parents. On the FIPE, borderline daughters and parents agreed about the relative absence of empathic parenting, whereas AN and NC daughters and parents agreed as to the presence of empathic parenting. Guttman and Laporte (2000) reported that parents of women with Borderline Personality Disorder scored lower on cognitive and affective empathy than parents of women with Anorexia Nervosa and parents of women in the control group.
When a parent suffers from BPD, the child may develop certain behaviours and attitudes either as a result of direct identification with and modeling of this parent, or because of some shared genetic vulnerability (Feldman & Guttman, 1984). Conversely, if one of the parents is emotionally constricted and unable to empathize with the child, the other parent (if present) could act as an "emotional prosthesis" for the unempathic parent, by reacting appropriately to the child and interpreting the world of the spouse from an emotional point of view, thereby mitigating the effect on the child of the spouse's emotional unresponsiveness (Guttman & Laporte, 2000).

Jones, Field, Davalos, and Pickens (1997), followed 32 children from 3 months to 3 years of age, to examine the effect of maternal depression on child empathy development. They found that children of depressed versus non-depressed mothers were less affectively empathic during simulated maternal distress. This finding is contrary to the data from Zahn-Waxler et al.,’s (1992) study which suggested greater caring behaviour in children of depressed mothers than in children of well mothers. Further, although Jones’ et al.,’s findings are based on a small sample (N=32), the children of depressed mothers showed more non-emathic behaviours as well. This discrepancy in findings is confusing and warrants a third independent study into this research question. It could be argued from Jones et al.’s study that these children may not have affectively empathized with their mothers when their mothers were crying because they were accustomed to this behaviour and did not see it as an unusual event. Interestingly two types of non-empathic behaviour were observed. The first type involved complete disregard for the mothers’ crying (“apathetic” affective empathy) and the second type involved yelling at or hitting the mother during the session (“angry” affective empathy).
In a later study, Jones, Field, and Davalos (2000), reported similar findings that children of depressed versus non-depressed mothers (aged 3-6 years, N= 55) had greater relative right frontal EEG asymmetry, a pattern that typically accompanies greater negative affect and showed less affective empathic responses to a crying infant as well as to their own mothers’ simulated distress. These data suggest that children of depressed mothers lag in the maturation of the capacity to empathize and show little concern for the mother’s distress. Children in the depressed group showed less caring, affective empathy and hypothesis testing, suggesting that these children when faced with maternal distress do not inquire about the source or try to help the mother solve the problem.

Attachment theory (Bowlby, 1969) provides a theoretical basis for examining the effects of maltreatment on infants and young children. The theory describes the importance of a secure mother-infant attachment for competent functioning throughout life and includes environmental and interpersonal aspects, thus making it compatible with the developmental perspective of empathy. It is at this primitive level that maternal depression can have its most damaging effect on children’s sense of security as well as their empathic development. Insecure attachment may result from an infant being subjected to rejection, lack of parental response, inconsistent care or the frequent experience of fear (Aber & Allen, 1987). As an example of the effects of inadequate parental responses, studies examining the response of maltreated young children to their peers have found that such children show little concern for a peer’s distress (Howes & Eldredge, 1985) and tend to respond with anger, fear or physically attacking behaviour (Main & George, 1985). One explanation for this lack of empathy has been provided by evidence that maltreated preschool children have difficulty in accurately identifying emotional expression in others (Camras, Gros, & Ribordy,
Klimes-Dougan and Kistner (1990) found that maltreated preschoolers often caused distress to others, showed more negative responses to peer’s distress, but also displayed just as many positive responses as did non-maltreated children. One can speculate that the maltreated children have to learn more appropriate empathic responses through frequent contact with non-abusive carers and peers in day-care settings. The same could be hypothesised for children of depressed mother’s who may look to outside sources to experience accurate empathy and learn themselves empathic behaviour.

Many studies have tested the hypothesis that maltreated children take on the aggressive, socially isolating and unempathic behaviours of their parents (Howes & Eldredge, 1985), thus placing them at greater risk of becoming abusive parents themselves. The lack of empathic response observed at such a young age lends further credence to the theory that maltreatment has a cyclical nature, illustrating the need for ongoing investigation of the effect of maltreatment on children’s emotional and social development. To further this area of research, the need for a reliable and valid measure of affective empathy in young children is again demonstrated.

Despite the importance of empathy in social development, there is relatively little research concerning parental influences and correlates of children’s empathy. Nonetheless, several tentative conclusions can be drawn from the existing research. Consistent with predictions based on social learning theory and the ethological view of attachment, level of empathy has been associated with the development of a secure attachment early in life (Iannotti et al., 1987), supporting parenting, and parental empathy, particularly from mothers (Fabes, Eisenberg, & Miller, 1990). Children that diverge from the developmental pathway of becoming more empathically skilled are expected to arise in the context of non-optimal or particularly unique environments in
which relationships with socializing agents are unusual in some respect (Zahn-Waxler & Radke-Yarrow, 1990). Some examples of different development pathways include the maintenance of over-aroused states in response to others’ distress which may arise from needy caregivers or the diminution of empathy expressions which may arise from socialisation practices which devalue appearing sensitive. Zahn-Waxler and Radke-Yarrow (1990) also posit that some children’s empathic development may be resilient to adverse environmental conditions. Perhaps because of constitutional factors or the existence of buffering relationships, some children, for example, may exhibit normal development even when relationships with significant caregivers are seriously impaired (Main & George, 1985).

While examining the environmental influences on empathy it should be noted that developmental research has focused primarily on very young children. Cognitive empathy has a later developmental learning curve than affective empathy due to the need to first acquire a sense of self, theory of mind, and verbal information processing skills (Roth-Hanania et al., 2000), with assessment of cognitive empathy at this young age (under 5 years old) being inappropriate and invalid. Research on environmental influences on the early development of empathy has therefore focused primarily on the development of affective empathy that is measurable from birth (Sagi & Hoffman, 1976).

To summarize, research has focused on a broad range of variables including maternal style, expressivity, family environment, child temperamental and information processing factors, parent-child relationship, parental responsiveness and involvement, parental psychopathology and siblings. From this review it is apparent that this array of variables influences the development or the impairment of affective empathy in children. In explaining the mechanisms involved in the complex process
of empathy development, various theorists such as Winnicott, Bowlby and Bandura have contributed to our understanding of the process of empathy development. Individual differences in empathic behaviour reflect this complex fusion of heritable and environmental factors.

Empathy and Prosocial Behaviour

Empathy has long been considered to be a mediator of various forms of prosocial behaviour. Investigators and theorists have long argued that the emergence of prosocial behaviour is mediated by the developing perspective-taking skills of the child. The developmental mechanism that is typically used to explain age-related trends in prosocial action is the increasing ability of the child to take the point of view of the other person. It is readily apparent as to why these variables should be seen as important determinants of altruism; most conceptions of human development emphasise the transition from an egocentric orientation in infancy to the more social orientations characteristic of later periods (Zahn-Waxler, 1991). In addition, altruism seems predicated on the ability to construe the needs of others and to weigh those needs heavily in one’s motivational and behavioural hierarchies (Moore, 1990). Clearly, acquiring the capacity to understand another’s viewpoint is an important (some would say essential) prerequisite for engaging in altruistic acts.

Although most developmental psychologists would agree that the development of role-taking capacity is central to the development of prosocial behaviour, most would also agree that role-taking ability alone is not sufficient to promote prosocial actions. Instead, the additional component of affect seems important. The distinction is one of being able to predict the actions or experience of another (cognitive empathy) versus the vicarious emotional experiencing of another’s situation (affective
empathy). Empathic responding has been the cornerstone of several theories of prosocial behaviour (Hoffman, 1975; 1981; Krebs, 1975). According to some theorists, affective responding is viewed as a primary mediator of prosocial intervention.

Empathy has recently become a construct central to the altruism–egoism debate. Psychologists have long assumed that the motivation for all intentional action, including all action intended to benefit others, is egoistic. The recent empathy-altruism hypothesis challenges the assumption that people benefit others because ultimately, to do so benefits themselves (Batson & Shaw, 1991). It claims that empathic emotion evokes truly altruistic motivation, motivation with an ultimate goal of benefiting not the self, but the person for whom empathy is felt.

Even though empathy for someone who is suffering will likely be an unpleasant, aversive emotion, the empathy-altruism hypothesis claims that empathy evokes altruistic motivation directed toward the ultimate goal of reducing the needy person's suffering (Batson & Shaw, 1991). According to the empathy-altruism hypothesis, the magnitude of the altruistic motivation evoked by empathy is a direct function of magnitude of the empathic emotion. The more empathy felt for a person in need, the more motivation to have that need reduced. Reducing the need of a person for whom one feels empathy is likely to enable the helper to gain social and self rewards, avoid social and self punishments, and reduce feelings of personal distress. But the empathy-altruism hypothesis claims that feeling empathy for the person in need evokes motivation to help in which these benefits to self are not the ultimate goal of helping; they are unintended consequences (Batson & Shaw, 1991).

Barnett, Howard, Melton, and Dino (1982) conducted a study with 112 6th graders, to explore the effects of self- and other-directed negative affect on the
subsequent helping behaviour of high- and low-empathic children. Each child was asked to discuss either (a) a sad personal experience, (b) a sad incident experienced by another individual, or (c) affectively neutral information about him or herself and another individual. Following the inducement of affect, each child was given the opportunity to construct “Colour and Activity: booklets for hospitalized children. As predicted, the highly empathic children made more booklets than their less empathic counterparts only under the condition (“sad other”) wherein the affective cues of an unfortunate other had previously been made salient.

Although there appears to be a relationship between empathy and prosocial behaviour (Eisenberg & Miller, 1987), research by Brems (1989) questions the consistency and strength of this research. Brems found a lack of a relationship between altruism and empathy (either cognitive or affective), which runs counter to previous research. This result may be related to the small sample size and the artificiality of the chosen altruism measures, or it may reflect an inherent difference between the two concepts. As such, altruism may involve a willingness to help in very concrete ways that are not necessarily implied in the ability to empathize. Empathy may be a fairly verbal but behaviourally passive way of relating and understanding, whereas altruism may require action and commitment. Further, altruism may be possible even without true empathic understanding and may be motivated by different interpersonal factors.

The mediating role played by empathy in relation to complex behaviours such as altruism or aggression is complex, and doubly so viewed from a developmental orientation. In the past decade researchers have made significant steps toward elucidating these relations and have pointed the way to a much clearer understanding of empathy.
Empathy and Conduct Problems

Conduct problems is a broad term used to describe a pattern of behaviour of children that is characterized by a variety of antisocial behaviours, including physical aggression, deception, and violation of the property rights of others (Lahey et al., 1995). It is generally considered to be a serious childhood disorder that is the primary precursor to chronic antisocial behaviour during adulthood (Kazdin, 1993). Conduct problems and antisocial behaviour cost society millions of dollars every year directly through the mental health and criminal justice systems, and indirectly through their association with substance abuse, other mental health problems, and associated disruptions to health, relationships, and personal and occupational functioning.

Disruptive behaviour disorders are common in childhood: 2-7% of school children meet diagnostic criteria for attention-deficit hyperactivity disorder or Conduct Disorder (Hinshaw, 1994), and are the most common reason for treatment of children’s mental health (Zahn-Waxler, Cole, Welsh, & Fox, 1995). Problems in peer relations are almost universal among school-aged disruptive children, affecting the lives of their families and peers, and posing a significant cost to society. For example, disruptive children’s poor peer relationships predict a number of adverse long-term outcomes, including academic failure, criminality, drug abuse, and psychiatric illness (Martens, 2000).

Antisocial behaviour can be defined as recurrent violations of socially acceptable behaviour patterns (Robins & Regier, 1991). Specific characteristics include hostility toward others, aggressive behaviour, defiance of authority figures, and persistent violations of social norms. Prevalence rates for antisocial behaviour in the general population range from 2% to 6% (Kazdin, 1993; Walker, Colvin, &
Ramsey, 1995). Juvenile delinquents commit some 55% of all crimes, with 87% of these offenders between ages 11 and 17 years meeting diagnostic criteria for Conduct Disorder (Eppright et al., 1993).

Rehabilitation effects are minimal once an extended history of offending and institutionalization has been established. As such, there is a growing consensus among researchers that preventative rather than rehabilitative strategies have the greatest potential to reduce incidence and/or consequences of severe antisocial behaviour (Frick et al., 1994; Hinshaw, 1994; Lynam, 1996; 1997; 1998). Given the host of negative outcomes confronting these children and the poor prognosis for remediation, there is increasing societal pressure to improve our understanding of the causes of CD and to develop more effective treatment and prevention programs based on this understanding (Frick, 1998).

**Conduct Disorder – Course and Prognosis**

Longitudinal studies have consistently found that adult antisocial behaviours have their roots in childhood (Loeber, 1982; 1990). There is fairly conclusive evidence linking early disruptive or aggressive behaviour to later aggressive, delinquent or antisocial behaviour (Farrington, 1991). Most of these studies have highlighted the stability of aggressiveness over time and across situations.

Chronic delinquents tend to have been children who displayed a high variety of antisocial behaviours, committed aggressive acts more severe in nature, and who showed an early onset of these behaviours (Farrington, 1990; Frick et al., 1993; Lahey et al., 1998; Loeber, 1982). Furthermore, in a review of available studies, Loeber and Farrington (2000) found that once high levels of antisocial behaviour have been established, youths tend to maintain such levels rather than to revert to lower levels of
antisocial behaviour. Studies suggest that more children drift into higher levels of antisocial behaviour than revert to lower levels. Patterns of antisocial behaviour tend to change during preadolescence and adolescence: the number of youths who engage in overt antisocial acts (fighting, disobedience, etc.) declines between ages 6 and 16, whereas in that period the number of youths who engage in covert antisocial acts (theft, alcohol and drug use, etc.) increases. This review illustrates that, although considerable continuity exists for antisocial behaviour over time, such continuity appears highest for those youths who are extremely antisocial. This lends strong support to the notion that youths whose early antisocial behaviour is extremely frequent are at highest risk for becoming chronic offenders. Moreover, there is good evidence that adolescents who turn out to become chronic offenders start their antisocial behaviour at an early age (Loeber & Farrington, 2000).

Evidence from longitudinal studies is consistent with the view that antisocial behaviour in childhood is persistent over time. For example, studies of official court records have shown that 50%-70% of youths who are arrested for delinquent acts during childhood or adolescence are arrested in adulthood (Loeber, 1990). Similarly, Zoccolillo, Pickles, Quiton, and Rutter (1992) found that 40% of boys and 35% of girls who met criteria for CD in childhood later met criteria for antisocial personality disorders in adulthood. Offord et al., (1992) also found that 45% of youths who met their experimental criteria of CD at ages 4-12 years still met criteria for CD 4 years later. Childhood Conduct Disorder has been found to be predictive of adult psychopathology (Robins & Price, 1991).

Lohey, Lober, Frick, Hart, Applegate, Zhang, Green, and Russo (1995) conducted a prospective study on the patterns and predictors of Conduct Disorder in 171 clinic referred boys. Only half of the 65 boys who met criteria for CD in year 1
met criteria again during the next year, but 88% met criteria for CD again at least once during the next 3 years. For most boys with CD, the number of symptoms fluctuated above and below the diagnostic threshold from year to year but remained relatively high. Lower socio-economic status, parental antisocial personality disorder (ASPD), and attention-deficit hyperactivity disorder were significant correlates of CD in year 1, but the interaction of parent ASPD and the boy’s verbal intelligence predicted the persistence of CD symptoms over time.

The behaviours typical of Conduct Disorder have repeatedly been found in follow-up studies to predict ASPD and substance abuse in adult life (Robins et al., 1971). In fact, people with the adult symptoms of ASPD so rarely lack a history of symptoms of CD that both the DSM-III and DSM-III-R require the occurrence of three such symptoms before age 15 for the diagnosis of ASPD (APA, 1980; 1987; 1994).

**Biopsychosocial Influences on Conduct Disorder**

The developmental trajectories of empathy and aggression may share common experiential and biological backgrounds. From a biosocial standpoint, Raine (1996) hypothesized that early environmental stress and adverse home backgrounds with a lack of psychosocial motivation may underlie autonomic underarousal and hyperactivity in antisocial individuals. Raine argues that such negative influences and a lack of positive stimulation can cause neurophysiological insensitiveness and mental indifference as an expression of self-protection. McBurnett et al., (1997) suggested that low biological arousal and deviant or rejecting parental behaviour represent distinct mechanisms having differential effects on persistent episodic aggression on inadequate internalization of social constraint.
There is a substantial literature on the presence of a familial link to antisocial behaviour (Frick, 1994). To begin to tease apart the confounding influences of genetics and environment, many behavioural genetic researchers have used twin and adoption methods to clarify the potential role of heredity in the development of antisocial behaviour. In a review paper, Mason and Frick (1994) described a quantitative summary of 12 twin studies published since 1975 which provided 21 estimates of the heritability of antisocial behaviour. Medium to large effect sizes were found for genetic influences across studies, with approximately 50% of the variance in measures of antisocial behaviour being attributable to genetic effects. Although effect sizes did not vary across different definitions of antisocial behaviour (criminality, aggression, or antisocial personality), significantly larger estimates of genetic effect were found for severe manifestations of antisocial behaviour.

One notable study on the genetic component of childhood antisocial behaviour is a study of 37 adopted children (10 girls and 27 boys), with a mean age of 11.7 years, who were diagnosed with an aggressive Conduct Disorder (Jarey & Stewart, 1985). In this study, 30% of the biological mothers and 30% of the biological fathers were diagnosed with ASPD, as compared to 0% of the adoptive mothers and fathers. It is interesting to note that 30% of affected biological parents is similar to the percentage of affected parents in family history studies of children with CD (Stewart, De Blois, & Cummings, 1980). Therefore, it seems that the rate of ASPD in the biological parents of a child with CD is similar, whether or not the child is raised by the parents.

A second study addressing the heritability of childhood conduct problems was a twin study by Ghodsian-Carpey and Baker (1987). These authors found a strong genetic component in their twin study of children between the ages of 4 and 7 years.
when severe antisocial behaviour was studied (e.g., cruelty to others/animals, destroying property), where a heritability estimate of .94 was obtained. This estimate suggests that 94% of the variance in the measure of antisocial behaviour could be attributable to heritability. Although still statistically significant, the variance attributable to heredity has been lower (heritability coefficient of .60) when less severe conduct problems (e.g., oppositional and noncompliant behaviours) have been studied.

Frick and Jackson (1993) explored the relationship between family functioning, genetic predisposing factors, and childhood antisocial behaviour. In reviewing literature on this bidirectional relationship, Frick and Jackson proposed there could be a genetic predisposition passed from parent to child and this predisposition could lead to dysfunctional elements in a child’s family environment. This model involves three assumptions: (a) there is a genetic predisposition to antisocial behaviour transmitted between parent and child; (b) this predisposition in the parent leads to dysfunctional family environments; and (c) this predisposition in the child leads to the development of antisocial behaviour. In their research review, Frick and Jackson found firm support for an intergenerational cycle to antisocial behaviour. However, with the exception of Jarey and Stewart’s (1985) adoption twin study, family history studies do not address the question of whether heredity, environment, or both lead to the behavioural similarity across generations.

*Gender and Conduct Disorder*

A large epidemiologic study of 15-year-olds (n = 1,000) reported that 7.5% to 9.5% of the girls met the DSM-III-R (APA, 1987) criteria for Conduct Disorders, compared to 8.6% to 12.2% of the boys (Fergusson, Horwood, & Lynskey, 1993).
After reviewing the data of a large epidemiologic study, Robins (1996) determined the following gender distinctions: (a) boys were younger than girls when the first conduct symptoms predictive of adult antisocial behaviour were observed, (b) early sexual activity was more predictive of adult antisocial behaviour for girls than boys, and (c) ASPD in women required a more pathological family background. For women, problems in paternal relationships predicted higher levels of antisocial behaviour (Neighbors, Forehand, & Bau, 1997). These results suggest that females react in a more destructive way to negative environmental factors, paternal criticism and immature sexual experiences then males.

The continuity of aggressive behaviour over time varies with gender. For boys, there is strong continuity between CD in childhood and ASPD in adulthood (Loeber & Dishion, 1983). For girls, a smaller percentage show stability (Cairns & Cairns, 1984). Moreover, the continuance of CPs into adulthood for females is accompanied by increased rates of internalizing disorders including anxiety, depression, and psychosexual problems (Robins, 1986). With a sample of 144 boys and girls aged 6 to 11 years, Archer, Pearson and Westeman (1988) found no overall gender differences in aggression. Boys showed significantly more physical aggression than girls, whereas girls showed significantly more verbal aggression than boys.

Swanson, Bland, and Newman (1994) studied 3,258 randomly selected persons and showed that the first signs of antisocial behaviour appeared in boys at age 7.6 and in girls at age 9.2. Similarly, Robins and Regier (1991) found that antisocial personality for boys as well as girls typically begins at about age 8 with a variety of behaviour problems at home and in school and is fully expressed by the late 20s or early 30s. There is a high rate of spontaneous recovery from the conduct problems that are often referred to as the childhood version of psychopathy. There is also a high
rate of remission, as a second wave, in the third and fourth decades of life (Robins & Regier, 1991). Rutter and Rutter (1993) found, nevertheless, that numerous studies have shown that antisocial behaviour shows an unusually strong degree of persistence over time.

Considering the chronic pathways inherent to CD, the evidence suggests that for both girls and boys there is a small window of opportunity to intervene effectively with this population. Kazdin (1987) reported that for boys and girls, antisocial behaviour is developmentally salient by age 3 and is relatively stable by age 8. Therefore, after age 8, antisocial behaviour can be viewed as a chronic disorder requiring ongoing management and support. Furthermore, antisocial behaviour has been demonstrated to be highly stable over time and extremely resistant to treatment (Gresham, 1991), suggesting that early identification and subsequent intervention are even more critical.

Empathy and Antisocial Behaviour in Children

Empathy development during childhood and adolescence and its relation to behaviour has received increasing attention in the current literature (Eisenberg & Fabes, 1998). Reviews of previous research with children and adolescents suggest a positive relationship of empathy with prosocial and socially competent behaviour (Eisenberg & Miller, 1987), with lower empathy associated with antisocial attitudes and aggression (Eisenberg & Fabes, 1998; Eisenberg & Strayer, 1987). As recognition of early origins of antisocial and oppositional patterns has increased, so too has research on factors implicated in their development (e.g., temperament, parenting, culture, social cognitions; Zahn-Waxler et al., 1995). There has been surprisingly little emphasis on the role of emotions such as empathy and guilt. The strong presence or
absence of affective states associated with interpersonal responsibility may function, respectively, as protective or risk factors for antisocial behaviour patterns (Miller & Eisenberg, 1988).

One characteristic of disruptive behaviour disorders is that children act on their negative feelings, whereas their age mates more commonly behave in accord with social norms and standards. Often this behaviour appears as low motivation or inability to take perspectives or to care about others’ needs, to understand the harmful consequences for others of their actions, and to experience appropriate guilt (Zahn-Waxler, Cole, Welsh, & Fox, 1995). Less mature moral reasoning in antisocial, delinquent youth also is commonly documented (Chandler & Moran, 1990). Although more part of formal diagnostic criteria, diminished empathy, guilt, and concern about relationships are prominent descriptions of externalizing problems (American Psychiatric Association, 1994). Child characteristics may interact with an adverse environment (e.g., exposure to violence, exploitation, abuse, or circumstances that reward aggression) to steel children against suffering and mute interpersonal sensitivity. Physically abused children, for example, responded unempathically to playmates as early as during toddlerhood and preschool (Klimes-Dougan & Kistner, 1990; Main & George, 1985). This highlights the need to consider social and biological factors that influence empathy of young children at risk for externalizing problems.

The importance of both the cognitive and affective components of the empathy response becomes evident when one examines the theoretical relationship of empathy to aggressive behaviour (Feshbach, 1975; Feshbach & Feshbach, 1972). Each component offers a distinct mechanism that leads to a prediction of a negative correlation between empathy and aggression. For example, the cognitive ability to
examine a conflict situation from the perspective of another person should result in greater understanding, accompanied by a lessening of conflict and aggression. Empirical analyses support this role of cognitive processing in individual deviant acts. Dodge (1980) found that when children attribute hostile intent to a peer provocateur, the probability of a subsequent behavioural response of aggression is .70, whereas when the same children attribute benign intent to a provocateur, the probability of aggression is just .25.

The affective component of empathy, also influenced by cognitive factors, has a special relationship to the regulation of aggression. Aggressive behaviour is a social response that has the defining characteristic of inflicting injury upon persons or objects, causing pain and distress. The observation of these noxious consequences should elicit distress responses in an affectively empathic observer even if the observer is the instigator of the aggressive act (Feshbach, 1975). The painful consequences of an aggressive act, through the vicarious affective response of empathy, should function as inhibitors of the instigator’s own aggressive tendencies. Thus, one would predict that children high in affective empathy should manifest less aggression than those low in affective empathy.

Dodge (1998) leads research in the area of applying social information processing theories to the child psychopathological disorder of conduct problems. He states that this mental process includes both cognitive and affective features. According to social information processing theories, a person’s behavioural response to a situational stimulus occurs as a function of a sequence of processing steps. These include encoding, mental representation, response accessing, and response evaluation (the decision of behavioural response, based on acceptability etc.) Although information processing theories predominantly investigate cognitive elements related
to empathy, one aspect of the third stage of response accessing, is the affect generated by the mental representation of the encoded cues. It is at this stage of the theory that this stage model becomes applicable to affective empathy.

Since empathy is a crucial factor related to prosocial development, the process of antisocial development may be associated with delays or arrests in the development of empathy. The deficiencies in empathy proposed for aggressive and antisocial individuals have at times emphasized both the affective and the cognitive components of the empathy construct (Cohen & Strayer, 1996). Despite differences across studies in types of measures, methods, and populations, reviews of previous research with children and adults generally suggest empathy deficits associated with antisocial attitudes and aggression (Miller & Eisenberg, 1988; Mehrabian & Epstein, 1972). Considered individually however, studies that have assessed empathy in Conduct Disordered children and adolescents have produced mixed results.

Research that has reported significantly lower levels of self-reported empathy in aggressive compared with non-aggressive delinquent adolescents, has not specified whether the empathy measure was cognitive or affective in nature (Ellis, 1988). Others have reported no differences depending on type of questionnaire measure and sample (Kaplan & Arbuthnot, 1985). Hogan (1969) found that adult criminal offenders scored significantly lower on his questionnaire of empathy (measured in cognitive terms as perspective-taking) than did college students low on peer ratings and personality measures. Ellis (1982) also reported significantly lower scores on Hogan’s empathy scale (Hogan, 1969) for aggressive compared with non-aggressive delinquents. Because Hogan’s measure focuses exclusively on perspective taking, little information is provided about concordantly felt emotions (affective empathy).
The focus on affect in empathy is considered central in both facilitating prosocial and inhibiting aggressive behaviour (Feshbach, 1982; Hoffman, 1987).

Using different measures, Kaplan and Arbuthnot (1985) extended the focus of empathy research with antisocial populations to include both affective and cognitive aspects. They found that delinquent adolescents scored lower than non-delinquent youth on an open-ended interview measuring cognitive aspects of empathy, such as how they should be able to identify others’ emotions and their own emotions and how they would respond to characters presented in stories depicting adolescent conflict. However, no differences were found for these same samples on Bryant’s (1982) self-report measure of affective empathy. These results may differ because of the more general task differences in self-report (in which the self is the object of reflection, e.g., “Am I a tender hearted person?”), compared with measures presenting more open-ended situations (e.g., adolescent conflicts).

A study by Ellis (1981), attempted to clarify the role of empathy in the development of antisocial and aggressive delinquent behaviour. The subjects were 331 delinquents and 64 non-delinquent controls aged 12 to 18. The delinquents were found to be significantly delayed or arrested in the development of cognitive empathy. The non-delinquent group exhibited a significant age-related increase in empathy during the adolescent period, whereas the delinquent group did not. Of three delinquent subgroups utilized, the neurotics (experiences tension and guilt over misbehaviours, hypersensitivity, depression, feelings of inferiority, and poor interpersonal relations) were least empathic, the psychopaths (manipulative, defiant, amoral, guiltless, and without loyalties) next, and the subculturals (who tended to reflect the values and accepted behaviour of the lower-class or disadvantaged culture) the most empathic; the groups differed significantly from each other. Aggressive
delinquents were significantly lower in empathy levels than non-aggressive delinquents, though differentiation by type of aggression was not significant.

The results of Ellis’s (1981) study indicate an arrest or delay in the development of cognitive empathy in two subgroups of delinquents. The relationship between aggression and cognitive empathy supports the conception of cognitive empathy as an inhibitor of aggression (Braunstein, 1975; Feshbach, 1975). The non-aggressive delinquents were higher in cognitive empathy than the aggressive delinquents. The aggressive-against-person delinquents were slightly lower in cognitive empathy than the aggressive-against-property delinquents, but not significantly. A more pronounced difference between the aggressive-against-person and aggressive-against-property groups was expected because of the interpersonal context of the aggression committed against a person. The lack of such a difference may be a function of the methodology that did not differentiate between more and less aggressive behaviours within either category. The higher percentages of aggression for the psychopathic and neurotic delinquents may provide at least a partial explanation for their lower cognitive empathy levels as well as the lack of age-related, developmental trends for both groups. The value of such information is at least twofold. First, a factor that has previously been related to prosocial development has been shown to be arrested or delayed in antisocial development. This arrest or delay suggests a breakdown in the normal developmental progression of prosocial thought and behaviour (Ellis, 1981).

Research on the empathic abilities of offender and non-offender youth has demonstrated that, at all ages, male offenders who score lower on cognitive empathy exhibit more aggression (Aleksic, 1976; Ellis, 1982) and utilize less affective role taking than their non-offender counterparts. For example, Kaplan and Arbuthnot
(1985) found that delinquent adolescents scored lower than non-delinquent adolescents on cognitive aspects of empathy such as how they would be able to identify others' emotions and their own emotions and how they respond to characters presented in stories depicting adolescent conflict. With the differences in cognitive empathy between offender and non-offender youth notwithstanding, debate continues as to the relevance of previous findings for both males and females.

In another study designed to examine differences in empathy between offender and non-offender youth, Bush et al., (2000) found a lack of support for previous research. With a sample of 76 male and 33 female juvenile offenders between the ages of 12 and 18 years, and 33 male and 33 female non-offenders between the ages of 15 and 19 years, they found the only single difference in empathy between offenders and non-offenders was for the affective component measure of empathy, namely emotional tone rather then cognitive empathy. The offender group was found to be lower in emotional tone than the non-offender group. There may be several reasons for the lack of support of previous research. First, the measures used to assess empathy in their study utilized a paper and pencil approach, which may be too limiting to capture the essence of this multidimensional construct. In addition, earlier studies of empathy development of adolescents have not used both affective and cognitive measures of empathy (Eisenberg & Fabes, 1998) and as such, earlier research may have over-represented differences based on status group participation by highlighting one dimension of this construct over the other.

Prior research has supported an inverse relationship between empathy and antisocial behaviour among youth offenders (Aleksic, 1976; Ellis, 1982; Riley, 1986; Rotenberg, 1974). The lack of differences in cognitive empathy as well as affective empathy between Bush et al.,’s (2000) two status groups suggests that differences in
cognitive and affective empathy may be less a function of offender status and more a function of unique developmental characteristics of the adolescence period. For example, adolescents are assumed to be experiencing a greater sense of self-consciousness (Eisenberg & Fabes, 1998) during adolescence, which makes it difficult for them to de-center from their own thoughts and needs and the thoughts and needs of others. Consequently, adolescent egocentrism may be more influential in empathy development than delinquency status would be. This may account for consistent relations between cognitive empathy and antisocial behaviour found in studies using adult samples and the inconsistent findings with juvenile samples (Lee & Prentice, 1988).

A study by Zahn-Waxler, Cole, Welsh, and Fox (1995) focused on cognitive and affective empathic and prosocial orientations in preschool children who vary in externalizing problems. Eighty-two 4 to 5 year old children were categorized as low, moderate, or high risk for developing disruptive behaviour disorders, depending on severity of current behaviour problems. Hypothetical and real encounters with others in distress were used to examine children’s affect, behaviour, autonomic activity, and social cognitions. When children witnessed someone in distress, affective empathic concern and prosocial behaviours were present at similar levels for all risk groups. However, moderate and high-risk children were less able than low-risk children to remain positively engaged with distress victims. Girls showed more prosocial behaviour than boys, and boys showed more anger than girls. During sadness mood inductions to assess autonomic activity, risk groups did not differ on heart rate or vagal tone. Girls showed higher skin conductance than boys, with high-risk girls showing the highest levels. Higher heart rate (and heart rate deceleration) predicted
empathic concern and prosocial behaviour, whereas lower heart rate was associated
with aggression and avoidance, irrespective of risk.

Nevertheless, the problem remains of identifying more precisely the processes
mediating the relationship between empathy and aggression. Empathy and aggression
may be behaviour traits that arise out of a common experiential background, and it
may be this commonality, rather than any inhibitory effect which empathy exerts on
aggression, that is responsible for the inverse correlation found between these two
variables (Feshbach, 1975). An examination of developmental antecedents of
empathy and aggression would help illuminate this question.

Another source of information regarding the basis for the reciprocity of
empathy and aggression is the relationship of the antecedents of these two variables to
the antecedents of other social-moral behaviours. Both empathy and aggression can be
incorporated within the broader framework of moral development, with aggression
being linked to negative moral behaviours and empathy being conceptualised as
closer to positive moral judgements and actions. Aggression in children, in terms of
its deviant social connotations and its often impulsive quality, may be viewed as an
immature moral response similar to such negative moral behaviours as lack of
resistance to temptation and cheating (Feshbach, 1975). Empathy, on the other hand,
especially in terms of its role-taking component, is seen as related to the emergence of

One issue that has become increasingly clear in this research is the great
heterogeneity within children with CD, in terms of the types of behaviours they
exhibit, the developmental course of their aggressive and antisocial behaviour, and the
causes of their behaviour problems. From a developmental perspective, this
heterogeneity is not surprising. Any behavioural pattern, such as persistent antisocial
behaviour, is likely to be the results of many different personality structures and
causal processes (Frick, in press).

The presence of inconsistent findings across studies may be the product of
both the types of measures used and the heterogeneity within the target populations.
As reviewed, differences appear in how empathy is operationalised (e.g., as either a
cognitive or emotional construct) and in measures used. There may be other reasons
for the inconsistent findings. Perhaps delinquency is an inadequate discriminator in
these studies given that it is a legal, not a psychological category, reflecting various
types of behaviour. For instance, a child can be classified as delinquent on the basis of
relatively few or minor offenses. Therefore it remains uncertain how empathy in CD
youth in particular should be interpreted across these studies. To address this deficit,
Cohen and Strayer (1996) conducted a study that found affective empathy was lower
among children with a CD diagnosis than comparison youth and was related inversely
to antisocial and aggressive attitudes for all youth tested. These findings support that a
psychosocial diagnostic construct may prove more useful than delinquency in
examining empathy in children who display behaviour on the conduct problem
continuum.

From a lifespan perspective, a subset of children who display conduct problem
behaviours go on to commit crimes as adults. Within the field of criminology,
investigation of a specific subgroup of these adults that demonstrate psychopathic
tendencies is currently seeing a second wave of academic interest. This research area
has expanded to investigations of conduct problem children exhibiting behaviour that
may predispose them to meeting this later psychopathic category.
The Psychopathy Construct

Subgrouping people who commit criminal acts based on meaningful differences in symptoms and personality traits has revealed that a disproportional number of crimes are committed by a particular subgroup (Hare, 1981). This group is labeled ‘psychopathic’ or ‘antisocial’ and is described as unsocialized, amoral, selfish, impulsive, grandiose, egocentric, manipulative, and irresponsible. This subgroup lacks the restraining influences of guilt, remorse, empathy and anxiety (Hare, 1991). Psychopathy is generally considered to be a severe developmental disorder that persists across the lifespan. Individuals who exhibit psychopathic traits commit more crimes, receive more convictions, and spend more time in prison before the age of 40 than individuals without these traits (Hare, 1993).

Psychopathy has a long and prominent history beginning with Phillippe Pinel's introduction of the construct approximately 200 years ago (Stone, 1993). Since that time, considerable theoretical and empirical attention has been directed toward understanding the psychopathic personality. Despite disagreements on whether psychopathy represents primarily a behavioural- or personality-based construct (Lilienfeld, 1994); most contemporary conceptualizations are linked, at least in part, to the seminal work of Cleckley (1941). His book, The Mask of Sanity, provides extensive clinical descriptions of the most salient characteristics of psychopathy; these descriptions have received widespread acceptance as capturing the concept of psychopathy.

An important development since Cleckley’s work has been the construction of the Psychopathy Checklist (PCL; Hare, 1985; 1991). Hare and his colleagues (Hare, 1991; Hart et al., 1992) developed the PCL by adapting components of Cleckley's conception of psychopathy and other theoretical models (Rogers, 1959). As a result of
these research efforts, substantial empirical evidence exists regarding the nature of the adult individuals who exhibit psychopathic traits within criminal institutions. Much of this research indicates that these adults are prone to both violent and nonviolent recidivism (Hare & Jutai, 1983; Hare & McPherson, 1984; Hare et al., 1988; Harris et al., 1991; Hart et al., 1988; 1994; Salekin et al., 1996).

The excessive costs that individuals with these psychopathic traits exact on society, including violence, general criminality, family dysfunction, and state and federal incurred expenses for welfare and imprisonment, as well as the difficulties that psychopathic individuals cause themselves, have resulted in an increased interest in detecting this syndrome early in its development (Lynam, 1998). Research has shown that a small percentage of offenders are responsible for the majority, approximately 50-60%, of offenses (Farrington et al., 1986) and that this group is over-represented by individuals scoring high of psychopathic traits (Lynam, 1996; 1998). With dramatic increases in youth violence and serious juvenile offending over the past decade, the early identification of psychopathy has become even more important crucial (Allen-Hagen & Sickmund, 1993; Grisso, 1996; Puzzanchera, 1998).

Indirect evidence for the psychopathy-recidivism relation among youth can be found in the adult literature, which indicates that psychopathic offenders commit more crimes and a wider range of crimes than do other offenders (Hare et al., 1988). In addition, people with psychopathic traits have a high recidivism rate once released from prison (Hart et al., 1988). In a recent meta-analysis, substantial effect sizes were found in studies utilizing the Psychopathy Checklist-Revised (PCL-R; Hare, 1991) to predict institutional violence and violent recidivism (Cohen's d = .79) as well as general recidivism (Cohen's d = .55; Salekin et al., 1996). More recently, empirical research has shown that this relation extends to adolescents (Forth & Burke, 1998).
Thus, convergent evidence suggests that adolescent with psychopathic traits may be among the most dangerous and chronic offenders.

Although the wealth of research knowledge has primarily focused on incarcerated males, more recent conceptualizations of psychopathy (Hare, 1993) have also suggested that the syndrome is neither restricted neither to incarcerated populations nor to those who engage in criminal acts. Rather, the syndrome may be found among community groups, even high achievers, such as businessmen, politicians, doctors, lawyers, and university students who, because of core features such as good social skills, high intelligence, and high socioeconomic status, may have escaped law enforcement agencies or have taken advantage of others without formally committing illegal acts (Hare, 1993; Zagon & Jackson, 1994). It is important to note that psychopathy, as originally conceived by Cleckley (1941), is not limited to engagement in illegal activities, but rather encompasses such personality characteristics as manipulativeness, insincerity, egocentricity, and lack of guilt-characteristics clearly present in criminals but also in spouses, parents, bosses, attorneys, politicians, and CEOs, to name but a few (Bursten, 1973; Stewart, 1991). Salekin et al.,’s (2001) examination of the prevalence of psychopathy within a university population suggested that perhaps 5% of this sample might be deemed to have psychopathic traits, although the vast majority of those will be male (more than 1/10 males versus approximately 1/100 females). These prevalence rates are, not surprisingly, much lower than those typically found in forensic samples (25% to 30%; Hare, 1991), and lower rates of psychopathy among females than among males has been a consistent finding in both normal (Forth et al., 1996; Zagon & Jackson, 1994) and forensic (Salekin et al., 1996; 1997) samples.
Two diagnostic systems that are often confused are psychopathy and antisocial personality disorder. Although the definitions of psychopathy and antisocial personality disorders are related to each other to a high degree, there is not complete overlap. A person with a diagnosis of ASPD could present a very different picture (history of criminal behaviour and disregard for the rights of others) from the person identified having psychopathic traits (callous, unemotional, unempathic, egocentric, dishonest, superficial charm). The DSM-IV has been criticized as having criteria that are directed too much at specific behaviour and criminality instead of at personality traits and the psychopathological aspects (Hare et al., 1991; Kernberg, 1992). The personality-based approach of psychopathy is not included in the DSM-IV (APA, 1994). Criticism of the psychopathy construct in the past has been based on the view that psychopathy was not clearly conceptualised and could not be reliability measured. Over the last decade however, there has been resurgence in research on the personality-based approach of psychopathy, along with considerable progress regarding its assessment. The development of a two-factor conceptualisation of psychopathy as proposed by Hare, Harpur, and their colleagues has aided the study of severe and chronic patterns of antisocial behaviour (Hare et al., 1991; Harpur et al., 1989). Hare’s Psychopathy Checklist Revised (PCL-R) is the leading instrument in detection of psychopathic individuals in prison populations and in accurately predicting future offending behaviour of inmates (Hare et al., 1991).

Psychopathy – Biological, Psychological and Social Determinants

Antisocial and psychopathic personality disorders (PPD) can be linked to a number of biochemical abnormalities (e.g., serotonin, monoamine oxidase, and hormone dysfunctions), genetic and environmental influences, and psychological and
social manifestations. An increasing number of investigations demonstrate the
neurobiological underpinning of PPD and ASPD. Some brain injuries and
cerebrovascular disorders can cause antisocial and psychopathic personality changes
(Benson & Blumer, 1975; Robinson & Starkstein, 1997; Silver, Hales, & Yudofsky,
1997). Individuals with PPD and ASPD have at times a history of frontal lobe lesions
(Deckel et al., 1996; Luria, 1980; Miller, 1987; Silver et al., 1997; Stein et al., 1993).
Disturbances in prefrontal functioning may be a common biological ground that links
ASPD, substance abuse, and biological mechanisms of reinforcement (Deckel et al.,
1996). Some brain lesions, such as frontal lobe lesions, are mainly related to specific
core features of ASPD and PPDs such as impulsivity and disinhibition.

Psychopaths were viewed by Hare (1970) as suffering from dysfunctions in
the limbic system of the brain that affects the psychopaths' ability to inhibit or disrupt
ongoing behaviour. One consequence of this dysfunction is that it makes it difficult
for psychopaths to learn to inhibit an action that is known to lead to punishment. This
inhibitory deficiency was presumed by Hare (1970) to cause the preservation of the
most dominant response in any given situation; specifically, psychopaths will
continually act with their most preferred responses regardless of the consequences.
Hare employed this theory to explain why psychopaths seem unable to learn from
punishment and appear controlled by their immediate needs with no thought for the
future (Doren, 1996). The preservation theory of psychopathy was found to be well
supported by research if one accepted that psychopaths typically have cerebral
lesions. However, no strong conclusions could be drawn concerning that issue. Only
one type of relevant empirical finding emerged that did not seem to be in agreement
with Hare's formulations - that of the duration of a psychopath's preservative deficit.
Similar to other theories reviewed, this response preservation theory is lacking comprehensiveness in explaining psychopathy in its entirety (Doren, 1996).

Lykken (1995) found that psychopaths who met Cleckley's (1955; 1976) criteria showed low fearfulness, poor fear conditioning, and poor avoidance learning. These primary psychopaths demonstrated fewer physiological disturbances, as was demonstrated from electrical conductance of the skin, in anticipating the imminent painful electric shock than the nonpsychopaths and the so-called secondary psychopaths (with neurotic traits). They were also less concerned about the shock (punishment). Lykken concluded that these primary psychopaths suffered from an innate defect of the central nervous system. As a result of these less astute physiological reactions, these individuals are not able to learn from experience and cannot avoid negative life events. Lykken did not clarify why these primary psychopaths suffered from a central nervous system defect because abnormal electrodermal responses are seen as expressions of arousal and autonomic nervous system dysfunctions. The control theory of psychopathy states that two major components are necessary for the development of the disorder: cortical underarousal and partial helplessness conditioning. Although not fully independent, there is no direct link between these two. Once both of these conditions exist, a series of learning experiences combine to produce poorly socialized persons who persist in viewing people as challenges to be overcome to attain the psychopath's own immediate rewards (Doren, 1996). Most of the research supports this conceptualization of the syndrome. Many of the theoretical relationships, however, have not yet been empirically investigated in sufficient detail to allow for conclusions or support to be drawn (Doren, 1996). More knowledge concerning the neurologic and biochemical functioning of antisocial and psychopathic personalities is necessary for the
construction of biopsychosocial-oriented treatment and prevention programs (Martens, 2000).

Currently, there are two main positions on the nature of the affective characteristics of psychopathy. The "fear" position stresses the aspects of psychopathy related to stimulation seeking and insensitivity to punishment (Hare, 1970; Lykken, 1995; Patrick, 1994). A second position is the "empathy" position that stresses the aspects of psychopathy related to reduced sensitivity to the emotional signals of others, particularly sadness and fear (Blair, 1995; Blair & Frith, 2000).

Both positions provide reasonable explanations for much of the psychopathic syndrome but neither is sufficient to account for the entire constellation of traits associated with psychopathy. For example, the fear impairment position predicts stimulus seeking and explains the finding that psychopathic inmates fail to show a potentiation of startle reflex (Patrick, Bradley, & Lang, 1993) and show a significantly smaller anticipatory skin conductance to an impending shock (Hare & Quinn, 1971). However, the account fails to adequately explain why psychopathic individuals show reduced arousal responses to sad facial expressions (Aniskiewicz, 1979; Blair, 1999; Blair et al., 1997). The empathy position does explain why psychopathic individuals would fail to respond to emotional social stimuli. However, it does not explain the absence of the potentiated startle reflex in psychopathic individuals or the passive avoidance data.

Many of the affective-interpersonal traits that make up one of the subscales on the Psychopathy Checklist-Revised (PCL-R; Hare, 1991) measure have been considered to be due to a deficit in the neurophysiological systems modulating fear behaviour (Fowles, 1988; Hare, 1993; Patrick, 1994; Trasler, 1978). In support of the suggestion that there is such a deficit, research has shown psychopathic individuals to
be deficient in the acquisition of anxiety responses to threatening stimuli and, when anticipating aversive shock, to show reduced electrodermal responses (Hare, Frazelle, & Cox, 1978; Lykken, 1957; Ogloff & Wong, 1990). In addition, they have been found to show reduced skin conductance responses, relative to nonpsychopathic controls, during the imagery of unpleasant and fearful experiences, and reduced potentiated startle after the presentation of visual threat primes (Patrick, Bradley, & Lang, 1993; Patrick, Cuthbert, & Lang, 1994). An alternative way to interpret the affective-interpersonal traits that are part of the psychopathy construct is to consider them to be due to a deficit in the neurophysiological systems modulating empathy (Blair, 1995; Gibbs, 1987). Recently there has been an attempt to more precisely characterize empathy in both information processing and anatomical terms. This approach involves the integration of the fear and empathy positions within the expanded, neurocognitive Violence Inhibition Mechanism model (Blair & Frith, 2000; Blair et al., 1999). This model was prompted by work suggesting that most social animals possess mechanisms for the control of aggression (Lorenz, 1981). They noted that submission cues displayed to a nonspecific aggressor terminate attacks, for example, an aggressor dog will cease fighting if its opponent bares its throat. The term, Violence Inhibition Mechanism (VIM), thus refers to the mechanism's putative evolutionary roots in the control of nonspecific aggression; in this sense, sad facial affects (i.e., distress cues) function as a human submission response. At its simplest, the VIM is thought to be activated whenever distress cues, the sad and fearful expressions of others, are displayed (Blair, 1995; Blair et al., 1997). In addition, Blair and colleagues suggested that, in typically developing children, sad and fearful expressions act as punishments for acts that cause these expressions (e.g., hitting others).
According to the model, moral socialization occurs through the pairing of the activation of the mechanism by distress cues with representations of the acts that caused the distress cues, that is, moral transgressions (Blair, 1995). A process of classical conditioning results in these representations of moral transgressions becoming triggers for the mechanism. The appropriately developing child thus initially finds the pain of others' aversive and then, through socialization, thoughts of acts that cause pain to others are aversive. It is thought that a failure in the conditioning process is the fundamental cause of the difficulty of the psychopathic individual to be socialized. Children who are less sensitive to these expressions will be less punished by them and thus more likely to engage in acts that cause them. Such children may develop psychopathic tendencies. Indeed, some recent findings have indicated that although the type of parenting predicts level of antisocial behaviour in healthy children, it does not predict the level of antisocial behaviour in children with the affective impairment associated with psychopathy (Wootton et al., 1997).

At the anatomical level, the neural circuit that mediates the violence inhibition mechanism is thought to include the amygdala (Blair & Frith, 2000). Recent neuroimaging studies have demonstrated that the amygdala does respond to sad and fearful facial expressions (Blair et al., 1999; Morris et al., 1996). Consequently, it has been proposed that early amygdala dysfunction may result in the development of psychopathic affective-interpersonal traits.

The suggestion that early amygdala dysfunction may result in the development of psychopathic tendencies allows the integration of the results of both the fear and empathy positions. The classical fear conditioning impairments demonstrated in psychopathic individuals also were seen in patients with amygdala lesions (Bechara et al., 1995). In addition, patients with amygdala lesions have shown reduced augmented
startle reflexes (Angrilli et al., 1996). Functional imaging studies have shown that the amygdala is involved in processing sad and fearful expressions (Blair et al., 1999; Morris et al., 1996). Moreover, work with adult patients with acquired amygdala lesions indicated that these patients are typically impaired in the recognition of fearful, and frequently sad, facial expressions (Adolphs et al., 1994; Calder et al., 1996; Fine & Blair, 2000). Thus, if individuals with psychopathic tendencies have amygdala dysfunction, then it can be predicted that these individuals will show difficulty processing not only sad expressions but also fearful ones.

**Child Psychopathy**

Existing research on psychopathy has focused almost exclusively on adult forensic populations with relatively little attention to childhood psychopathy. Psychopathy in youth has received increased recognition as a critical clinical construct for the evaluation and management of troubled adolescents (Frick, 1998). Attempts to identify the psychopath in childhood or adolescence have also stemmed from the belief that early prevention and intervention of psychopathy are more prognostically promising than is treatment of adults whose personality styles are more solidified (Birchwood et al., 1998; Caspi & Brems, 1990; Edwards & McGorry, 1998; Elmy et al., 1994; 1991; Lorion, 1993; Lykken, 1995; Lynam, 1996). Early identification of psychopathy may provide the basis for therapeutic intervention and even prevention that produces a net reduction in dangerous and high rate offending.

Several prominent researchers (Forth, 1998; Forth et al., 1990; Frick, 1998; Lynam, 1998) have advanced our understanding of psychopathy in childhood. These researchers developed three measures for childhood and adolescent psychopathy: the Antisocial Process Screening Device (APSD; Caputo, Frick, & Brodsky, 1999), the
Childhood Psychopathy Scale (CPS; Lynam, 1997), and the Psychopathy Checklist-Youth Version (PCL-YV; Forth et al., 1994). Their research has primarily involved a downward extension of the concept of psychopathy under the assumption that psychopathy in childhood and adolescence will most closely resemble psychopathy in adulthood (Lynam, 1998).

Research devoted to the identification of child psychopathy has proceeded with the assumption that traits closely resembling those of adult psychopaths manifest at an early age. An innovative study by Frick, O’Brien, Wootton, and McBurnett (1994) was the first to explicitly test the two-factor model of psychopathy in school-aged children. They worked with Hare to adapt the PCL-R to be relevant to children. This measure was called the Antisocial Process Screening Device (APSD; Caputo, Frick, & Brodsky, 1999). This research suggests that psychopathy can also be indexed behaviourally in children.

Factor analysis conducted in a sample of 95 clinic-referred children between the ages of 6 and 13 years, revealed that the APSD captured two dimensions of behaviour similar to those found in studies of adults. The first dimension depicted a Callous/Unemotional (CU) interpersonal style consisting of lack of guilt, lack of empathy or remorse, and superficial charm. These personality features are considered primary in clinical description of psychopathy and closely resemble Factor 1 of the PCL-R (Cleckley, 1976; Hare, 1991). The second factor was named the Impulsivity/Conduct Problem (ICP) factor. This captured a dimension of behaviour that included poor impulse control (e.g. becomes angry when corrected, acts without thinking), and delinquent behaviours (e.g. engages in illegal behaviours). These characteristics are in line with the diagnostic criteria for Conduct Disorder in the
DSM-IV and the characteristics of Factor 2 of the PCL-R for adults. Consistent with the findings of Hare et al., the correlation between factors was $r = .50$.

However, despite the similarities between the APSD and PCL-R, it is premature to suggest the two are isomorphic. There are some content differences reflecting the fact that the measures were designed to be age appropriate. Thus, some PCL-R items have no APSD counterparts (pathological lying, parasitic lifestyle and lack of realistic, long term goals). Likewise some APSD items have no PCL-R counterparts (concerned about schoolwork, keeps the same friends, teases other people). However, it is important to note that the neurocognitive impairments that have been found in adult psychopathic individuals are also being found in children with psychopathic tendencies (Blair, 1999; Fisher & Blair, 1998; O'Brien & Frick, 1996).

As shown in adult data, each factor of the APSD displayed its own unique correlates. The severity of conduct problems and DSM-III-R diagnosis of CD and ODD were positively correlated with scores on the I/CP factor and less strongly related to scores on the CU factor. Theoretically, this makes sense because diagnoses of CD and ODD are based on behavioural criteria, as is the I/CP factor of APSD. Sensation-seeking behaviour was positively correlated with the CU factor. Consistent with adult research, an inverse relationship between measures of psychopathy and anxiety was found (Harpur et al., 1989). This study supports Hare’s contention that psychopathy taps into the affective psychological dimensions as opposed to the purely behavioural indices of antisocial behaviour such as the DSM-IV category of ASPD in adults and CD in children (Hare et al., 1991).

Frick and colleagues’ (1994) study established CU traits as a separate, yet correlated ($r = .50$) psychological dimension to behavioural definitions of conduct.
problems and provided evidence that psychopathic personality features and conduct problems are independent, yet interacting, constructs in children, analogous to findings in the adult literature, that have divergent etiologies. The implications of this study are great, raising questions about the possible mechanisms involved in the development of these disorders. Previously clear theories of children’s acquisition of antisocial behaviour are now under question and may only apply to a select group of Conduct Disordered children. A similar asymmetric relation to that of adults has emerged when comparing CD and psychopathy as measured by the Psychopathy Checklist - Youth Version (PCL-YV; Forth et al., 1994). Forth and Burke (1998) reported that nearly all adolescent offenders (97-100%) qualify for a diagnosis of CD; however, only 20-30% of the CD young offenders met criteria for psychopathy (i.e., >30) on the PCL-YV.

Stevens et al., (2001) investigated the ability of children with emotional and behavioural difficulties, divided according to their Antisocial Process Screening Device scores (Caputo, Frick, & Brodsky, 1999), to recognize emotional facial expressions and vocal tones. Nine children with psychopathic tendencies and 9 comparison children were presented with 2 facial expression and 2 vocal tone subtests from the Diagnostic Analysis of Nonverbal Accuracy (Nowicki & Duke, 1994). These subtests measure the ability to name sad, fearful, happy, and angry facial expressions and vocal affects. The children with psychopathic tendencies showed selective impairments in the recognition of both sad and fearful facial expressions and sad vocal tone. In contrast, the two groups did not differ in their recognition of happy or angry facial expressions or fearful, happy, and angry vocal tones. Previous studies have shown that children with psychopathic tendencies and adult psychopathic individuals show reduced skin conductance responses to sad faces when compared
with control groups (Aniskiewicz, 1979; Blair, 1999; Blair et al., 1997; House & Milligan, 1976). Steven’s et al., (2001) research was the first to show that this impairment, at least in children, extends even to the recognition of sad facial expressions and sad vocal tones. In addition, their study was the first to demonstrate that children with psychopathic tendencies also show reduced recognition of fearful facial expressions. The results are interpreted with reference to the suggestion that the development of psychopathic tendencies may reflect early amygdala dysfunction (Blair et al., 1999).

There are some similarities between Blair's model of the development of morality (VIM; reviewed in previous section) and Kochanska's work on the interaction of temperament and socialization practice on the development of conscience. Kochanska has proposed that the effects of temperament and socialization practices on conscience development may be twofold (Kochanska, 1993; 1997). First, the child's temperament may directly influence the ability of the child to develop a conscience. Kochanska has stressed the role of fearfulness as the important temperamental factor. Indeed, she and others have found fearful children to show higher levels of conscience using a variety of measures (Asendorpf & Nunner-Winkler, 1992; Kochanska, 1997; Kochanska et al., 1994; Rothbart, Ahadi, & Hershey, 1994). Second, Kochanska has stressed that different socialization practices may promote conscience development in children with different temperaments (Kochanska, 1993; 1997). In line with this, she found that for fearful children, maternal gentle discipline promoted conscience development. In contrast, for "fearless" children, alternative socialization practices, presumably capitalizing on mother-child positive orientation (secure attachment, maternal responsiveness), promoted the development of conscience (Kochanska, 1997). As mentioned in regards
the VIM model, it is suggested that the amygdala is the primary locus of dysfunction in psychopathic individuals (Blair et al., 1999; Blair & Frith, 2000; Patrick, 1994). The amygdala is crucial for the formation of emotional classical and instrumental associations (Everitt et al., 2000). The suggestion is that the amygdala is crucial for associating the aversive unconditioned stimulus of another's distress with representations of the act that have caused that distress and it is this process that allows socialization (Blair et al., 1999; Baumrind, 1971; Hoffman & Saltzstein, 1967). The temperamental variable "fearfulness" that Kochanska (1997) stresses reflects the functioning of the amygdala although fear conditioning per se may not be involved in moral socialization. Thus, within her model, findings of correlations between fearfulness and conscience development reflect correlations between the functioning of the amygdala (including the VIM) and conscience development rather than a causal role of fearfulness in conscience development.

The amygdala is certainly involved in the forms of fear and empathic processing that are impaired in individuals with psychopathy (Blair & Frith, 2000). Patients with amygdala lesions, like psychopathic individuals, show impairments in aversive conditioning and reduced potentiation of startle reflex by visual primes (Angrilli et al., 1996; Bechara et al., 1995; Hare & Quinn, 1971; LaBar et al., 1995; Patrick, 1994). In addition, functional imaging studies have shown that the amygdala responds to sad and fearful expressions but not to angry or disgusted facial expressions (Blair et al., 1999; Calder et al., 1996; Morris et al., 1996; Phillips et al., 1997). Moreover, patients with amygdala lesions have been reported to show difficulties in recognising negative emotions (primarily fearfulness but the second most commonly affected expression is sadness; Fine & Blair, 2000). Psychopathic adults and children with psychopathic tendencies show reduced skin conductance
responses to sad but not angry expressions (Aniskiewicz, 1979; Blair, 1999; Blair et al., 1997). Moreover, children with psychopathic tendencies have been found to show selective recognition difficulties for sad and fearful expressions but not for angry, disgusted, surprised, or happy expressions (Blair & Coles, 2000; Stevens, Charman, & Blair, 2001).

Callous-Unemotional Traits in Children

The limitations of existing methods of subtyping children with CD for designating a group of children who more closely approximate adult conceptualizations of psychopathy, has led research to focus explicitly on the presence of CU traits within the childhood-onset group as a means of designating this potentially important subtype of CD (Frick, 1998). One reason that extending the concept of psychopathy to children has been such an important focus of research is that, in adult samples, measures of psychopathy have designated antisocial individuals, who show an especially severe and violent pattern of behaviour and who show a poor response to treatment (Hare et al., 1991). Therefore a key question is whether CU traits would also designate a severe subgroup of children with CD or a severe subgroup of juvenile delinquents.

Findings suggest that CU traits are not captured well with the DSM definitions. In two studies, the relations between the poor impulse control and narcissism dimension of psychopathy to DSM-III-R (Frick et al., 1994) and DSM-IV (Frick et al., in press) definitions of CD were tested. In both studies, the problems of impulse control and narcissism were highly associated with DSM criteria, whereas the callous and unemotional dimension was only moderately associated with DSM criteria after controlling for the other two dimensions. These findings suggest that CU
traits are not captured well within DSM definitions. However, they do not address the critical issue of whether or not the presence of these traits can be used to designate a unique subtype of CD.

A study by Christian and colleagues (1997) investigated the research question of whether CU traits could be used to identify a unique subgroup of children with conduct problems (CP) consistent with the concept of psychopathy. Using a sample of 120 consecutive outpatient clinic referrals between the ages 6 and 13 (mean = 8.63, SD = 2.07), Christian et al., were able to isolate two distinct groups of children with conduct problems using cluster analysis. It was found the CU traits were partially independent from DSM-III-R symptoms of CPs. Cluster analysis isolated a distinct group of children who exhibited high rates of CPs (all of whom had a diagnosis of CD or ODD, who also showed high scores on the CU dimension). This group of children was found to exhibit significantly more CPs, more police contact, and a greater variety of CPs than children with CPs who did not show CU traits. These children with CU traits also displayed a higher rate of parental ASPD and higher intelligence scores than the impulsive CP group. The intelligence of the CU group was not significantly different from the control cluster suggesting that lower intelligence may play a causal role in the development of impulsive CPs but may only apply to children without CU traits. These findings are significant because the number of CPs (Frick & Loney, 1999; Loeb, 1982; 1991), early police contact (Farrington et al., 1988) and a family history of ASPD (Lahey et al., 1995) have all predicted poorer outcomes for children with CD. However, these findings should be interpreted cautiously given the modest sample sizes of the two conduct problem clusters (i.e., N=29 and N=11, respectively).
The ability of CU traits to designate a severe group of antisocial youth has been tested in two institutionalized samples. In a sample of 69 incarcerated male adolescents, high levels of CU traits differentiated violent sex offenders from other violent offenders, and from non-violent offenders (Caputo, Frick, & Brodsky, in press). The three groups did not differ in the other aspects of psychopathy, such as impulsivity and narcissism that were assessed. Similarly, Kruh, Frick, and Clements (1999) studied 100 inmates in an adult prison, all of whom had been incarcerated for crimes committed as a juvenile but, because of the severity of the crime, had been processed through the adult legal system. All of the participants had an extreme history of offences as juveniles, including a high rate of violent offences. Further, the frequency of violent offences prior to being institutionalized was correlated with scores on the APSD, as was the variety of violent acts while being incarcerated.

Extending upon this work, several researchers have designed studies to test the theory that children with CU traits comprise a distinct sub-group of children with severe conduct problems (Frick, Christian, & Wootton, 1999; Loney et al., 1998; Wootton et al., 1997). For example, Loney et al., (1998) provided evidence that intellectual deficiencies found in Conduct Disordered CU children differed from those found in non-CU children with conduct problems. One hundred and seventeen clinic-referred children aged between 6-13 years were assigned to one of three groups on the basis of parent and teacher report of misconduct and CU traits. Amongst children qualifying for a diagnosis of ODD or CD with APSD (Caputo, Frick, & Brodsky, 1999), CU factor scores in the upper quartile were assigned to the CU/CP group and the remaining Conduct Disordered children were assigned to the CP-only group. Children who did not meet ODD or CD diagnostic criteria, none of whom were implicated as CU, were assigned to the clinic control group. Whereas CP-only
children were deficient in verbal reasoning skills relative to clinic control, CU children were indistinguishable from the latter group on that dimension. As opposed to a deficiency in verbal reasoning skills, children with CU traits tended to have weaker non-verbal abilities than clinic-control children. Loney et al., (1998) interpreted their findings to suggest that children with CU traits comprise a distinct sub-group of children with conduct problems, and that this subgroup of children develop antisocial behaviours through different processes.

A study by Wootton, Frick, Shelton, and Silverthorn (1997) examined the role of ineffective parenting in the development of conduct problems. They found that ineffective parenting was associated with increased numbers of conduct problems only in children without CU traits. Children with CU traits exhibited high rates of conduct problems regardless of the type of parenting they received. At present the most successful treatment of CD occurs through the modification of parenting practices (Sanders & Dadds, 1989). However, this study indicates that parent-focused treatment is unlikely to be effective in those children with CU traits. These results are consistent with the model positing that children with CU traits develop antisocial behaviour through casual factors that are distinct from other children with conduct problems. Wootten et al., (1997) hypothesized that children with CU traits may have a unique motivational and affective style that makes them less responsive to socialization practices. This research demonstrates the potency of CU traits in children and the need for further investigation.

Research demonstrates that the concept of childhood psychopathy provides information above and beyond that provided by the number or type of conduct problems (Caputo, Frick, & Brodsky, 1999; Christian et al., 1997; Harpur et al., 1989; Frick et al., 1994; Loney et al., 1998). Therefore, the two constructs psychopathy and
conduct problems should not be considered interchangeable (Lynam, 1997). The presence of personality characteristics considered to be paramount to the psychopathic personality (as identified in the CU factor of the APSD) provides early evidence for a severe and enduring pattern of antisocial behaviour. Such personality features include superficial charm, lack of empathy or remorse, low anxiety, and high sensation seeking. These psychopathic personality features are easily measured, they delineate a subgroup of children with more severe conduct problems than those without these personality features, and they predict severe and stable patterns of antisocial behaviour throughout the lifespan (Lynam, 1997; Christian et al., 1997).

Wootton et al.,’s (1997) results are consistent with the model positing that children with CU traits develop CPs through casual factors that are distinct from other children with CPs. Specifically, children with CU traits are hypothesised to have a unique motivational and affective style that make them less responsive to typical socialization practices (Kochanska, 1993). These results illustrate that by separating children with CU traits from the other children with CPs, one can begin to get a clearer picture of factors that may be associated with the development of CPs primarily in children without CU traits. By ignoring the moderating influence of CU traits, past studies may have underestimated the association between parenting and conduct problems for children without these traits and overestimated the association for children with these traits (Wootton et al., 1997). It is quite possible that this could account for some of the discrepancies in the literature on the relative importance of ineffective parenting for explaining the development of CPs in various samples (Frick et al., 1992).
The processing of emotional expressions is fundamental for normal socialization and interaction. In line with Loney’s (1998) finding that children with CU traits tended to have weaker non-verbal abilities than clinic-control children, Blair (1995) found that reduced responsiveness to the expressions of sadness and fear has been implicated in the development of psychopathy. Blair et al., (2001) investigated the sensitivity of children with psychopathic tendencies to facial expressions. Children with psychopathic tendencies and a comparison group, as defined by the Antisocial Process Screening Device (APSD; Caputo, Frick, & Brodsky, 1999), were presented with a cinematic display of a standardised set of facial expressions that depicted sadness, happiness, anger, disgust, fear, and surprise. Participants observed as these facial expressions slowly evolved through 20 successive frames of increasing intensity. They found that the children with psychopathic tendencies presented with selective impairments; they needed significantly more stages before they could successfully recognise the sad expressions and even when the fearful expressions were at full intensity were significantly more likely to mistake them for another expression. Blair et al., (2001) interpreted these results with reference to an amygdala and empathy impairment explanation of psychopathy.

In line with predictions, children with psychopathic tendencies showed selective expression recognition impairment relative to the comparison group. Children with psychopathic tendencies made significantly more errors when processing fearful expressions than the comparison group. In other words they were more likely to misclassify fear as one of the other five basic emotions. They were also
significantly less sensitive to sad expressions than the comparison group, as indicated by increased response stage to sadness.

Previous data have consistently demonstrated that children with psychopathic tendencies and adult psychopathic individuals show selective difficulties in the processing of sad and fearful facial expressions. Stevens et al., (2001) and Blair and Coles (2001) found that children who scored high on psychopathic tendencies made significantly more errors in recognising sad and fearful facial affect than the comparison children. Blair et al., (2001) found that psychopathic adults were less sensitive to fearful expressions. Both children with psychopathic tendencies and adult psychopathic individuals have been found to show reduced skin conductance responses to sad, but not angry, facial expressions (Aniskiewicz, 1979; Blair, 1999; Blair et al., 1997).

The results of this study were predicted by the neurocognitive VIM model. This model suggests that the locus of impairment for psychopathic individuals is the amygdala. This model predicts that children with psychopathic tendencies should have selective impairments in the processing of sad and fearful expressions; neuroimaging studies have revealed that the amygdala is activated by sad and fearful expressions but not disgusted or angry expressions and happy expressions result in reduced amygdala activation (Blair et al., 1999; Calder et al., 1996; Morris et al., 1996; Phillips et al., 1997). Of course, other brain lesions have also been found to impair the recognition of facial expressions, including sad and fearful expressions. In particular, lesions that include right somatosensory cortex disrupt the ability to recognise facial expressions (Adolphs et al., 2000). However, such lesions tend to have a generalized effect rather than a specific one for sad and fearful expressions. Moreover, such a position would not explain the constellation of other impairments
shown by individuals with psychopathy that are also shown by patients with amygdala damage. The results of Blair and colleagues’ study also strengthen claims that psychopathy is a neurocognitive disorder that is apparent across the lifespan. The same, or similar, selective impairments shown by the children in the current study have also been found in adult psychopathic individuals (Blair et al., 1997; Blair et al., 2001). Thus, not only does the behavioural profile of psychopathic adults show similarities to that of children with psychopathic tendencies (Frick et al., 1994; Hare, 1991) but also the neurocognitive impairments may present in a comparable way across the lifespan.

In a study on the psychopathy dimension of CU traits, Wootton et al., (1997) proposed that CU traits are related to a temperamental style characterized by a lack of fearful inhibitions (Hoffman, 1983; Kochanska, 1993), which makes a child less responsive to cues of punishment. The development of CU traits then places a child at higher risk for showing antisocial behaviour. An absence of empathy, a lack of guilt, and a callous use of others make a child more likely to act against parental and societal norms and to violate the rights of others. However, not all children who develop conduct problems show CU traits (Frick et al., 1994) or the temperamental style, that Wootton et al., propose, underlies these traits (O’Brien & Frick, 1996). Therefore, CU traits are viewed as designating a group of children with CPs who develop their problematic behaviour through a process that is somewhat distinct from other children with CPs.

**Summary**

As there is increasing emphasis on diagnosis and treatment of children with conduct problems, normative data on the role of empathy and possible developmental
impairments has begun to receive research attention. As children with CU traits may represent a subgroup with a different developmental trajectory to conduct problem children with low CU traits, further information about this construct of CU traits is needed. Further, as not all children who develop conduct problems show CU traits (Frick et al., 1994), research into affective empathy amongst conduct problem children should involve separating these two subgroups (CP + high CU & CP + low CU). The relationship between conduct problems, CU traits, and affective empathy warrants research attention to further untangle these constructs.

Callous Unemotional traits may play a pivotal role in explaining the mixed findings in the literature regarding whether CP children demonstrate impairment in their affective empathy. Perhaps once those children with CU traits are partialled out of the equation, children with CP would no longer be found to have impairments in empathy. The specific relationship between empathy and CU traits also requires further research attention as the question of how these two constructs are qualitatively different has yet to be addressed.

Measurement of Empathy

The variety of adult empathy measures is striking yet understandable given the many ways in which empathy has been defined. Instruments have been used to measure empathy as a relatively stable human ability or personality trait (Davis, 1979; 1980; Hogan, 1969; Mehrabian & Epstein, 1972), a state (Barrett-Lennard 1962; Batson, 1987; Eisenberg et al., 1987), or a multicomponent phenomenon (Cochrane, 1974; Elliott et al., 1982). In some of these measures, empathy is viewed as cognitive (Hogan, 1969; Traux & Carkhuff, 1967); affective (Bryant, 1982; Mehrabian & Epstein, 1971) and, in still others; it is viewed as containing both cognitive and
affective elements or subscales (Davis, 1979; 1980). Empathy has been measured through self-reports (Barrett-Lennard, 1962; Batson, 1987), reports of others (e.g. clients; Barrett-Lennard, 1962; Truax & Carkhuff, 1967), observer ratings (Carkhuff, 1969), and physiological measures (Eisenberg et al., 1987; Stotland, 1969).

The focus of this section shall be a review of measures that predominantly assess affective empathy. Affective empathy is not only the focus of this research, but greatly lags behind cognitive empathy in the advancement of measurement techniques. Furthermore, many argue cognitive empathy is synonymous with cognitive perspective taking (Hoffman, 1990; Gladstein, 1983), a field that already boasts a long history of cognitive and developmental research and measurement techniques. This review will highlight the relative infancy of research in the affective empathy area. Furthermore, the measurement of empathy in the adult population has received more research attention than the measurement of child or adolescent empathy, with far more adult measures having been created and tested. Within this larger adult literature, this paper shall only review key adult measures that have shaped the development of child empathy measures.

Although a considerable amount of effort has been devoted to assessing affective empathy, valid measures of child affective empathy are still lacking. Gaps between how empathy is defined and measured often exist. Problems appear at both a theoretical and methodological level. In developing a valid measure it is necessary to specify exactly what is to be measured; trait or experience, state or stage, cognitive or affective constructs. Moreover, because self-report measures depend on self or informant perspectives, the adequacy and accuracy of this traditional scale approach to assess empathy, when it is defined as an inner experience (cognitive or affective) or
a sequence of experiences (inner and outward), must be questioned. Alternative approaches need to be developed.

Various attempts to assess affective empathy as “vicarious emotion” have been reported in social and developmental psychology research (Batson, 1987; Stotland, 1969). Miller and Eisenberg (1988) identify four methods traditionally used to assess child affective empathy. These include: (a) picture/story methods, whereby individuals respond using a self-report technique to hypothetical stories, they are scored in terms of how their affect matches that of the story’s protagonist; (b) experimental induction procedures designed to elicit affective empathic responses such as prosocial behaviour in an observational setting; (c) individuals self-report on questionnaires or scales that measure affective empathy across a variety of events and situations; and (d) facial affect/gestural reactions to others emotions as depicted in films or picture/story stimuli. In looking at the above assessment tools of affective empathy, picture story measures and self-report measures have relied on children reporting their level of empathic responses, which creates difficulties in young children due to the confounds of limited verbal ability (Iannotti, 1975) and introspective skills (Thompson, 1987). Facial affect measures for young children may be used to overcome this confound, as they do not rely on self-reports. This method has been used in assessing children above the age of five (Strayer, 1993; Strayer & Roberts, 1997).

There are many advantages to measuring empathy using self-report. Self-report measures are easy to administer and use, and can be completed in a relatively short amount of time. The value of self-report measures rests on the assumptions that the research participants are aware of what they are feeling and can (and will) report feelings accurately. There are, however, several good reasons for questioning these
assumptions. First, concern must be raised regarding the degree to which individuals can decipher and accurately communicate their emotional states. This concern is especially strong when self-report is used with young children who may have difficulty comprehending questions or producing accurate responses regarding their emotional states. Moreover, children’s ability to differentiate among closely related emotional states might be limited.

A second concern regarding the reliability of self-reports is the previously mentioned bias that may result from self-presentation and social desirability biases. This disadvantage may increase in importance during the preschool years as children (particularly boys) become increasingly reluctant to express negative affect such as fear and sadness (Brody, 1985). Thus, subjects’ self-reports often may tell us as much about how respondents want to see themselves, or be seen, as how they actually feel or respond in empathy-inducing contexts. Developmental psychologists have utilized a variety of techniques, both self-report and observational, to assess affective empathic reactions in children (Davis & Franzoi, 1991). With adolescent and adult samples, however, self-report measures have been most popular (Hogan, 1969; Mehrabian & Epstein, 1972).

The relation between children’s emotional expressions and their reported experience of emotions is relevant to multi-component models of both emotion and empathy development. Emotional experience, as assessed by facial and physiological measures, and awareness of one’s emotional experience, have been said to be two major components of emotional development (Lewis & Michalson, 1983). Although physiological indices seem promising as measures of emotional experience (Eisenberg et al., 1988), facial expressions provide more specific information
regarding the type of emotion than do more general arousal measures (Izard, 1982; Lewis & Michalson, 1983).

Facially expressed and self-appraised emotions are considered to be different aspects of a complex unified process (Bowlby, 1969; Laird, 1984; Lewis & Michalson, 1983). Facial expressions can be reliably measured in infants (Strayer & Roberts, 1997), but assessing awareness of emotional experience requires a verbal subject. For children to be able to provide both measures, a major and persistent question has been the extent to which verbally reported emotions (i.e., subjective experience) correspond to other measures of emotional experience. A related issue is whether facial and verbal measures of emotion and empathy show similar trends across age and gender (Strayer & Roberts, 1997).

The study of emotion is inherently difficult because emotion implies a specific subjective experience. Thus, measurement of emotion is somewhat indirect; inferences must be made on the basis of self-report, facial, gestural or tonal, or physiological responses. The assessment of young children’s emotion is particularly difficult, given that children may be unaware of, unable to articulate, or deny their feelings. Given the clear problems with the self-report approach to the assessment of affective empathy in young children, it seems unlikely that significant progress can be made in our understanding of empathy and related responses if we did not turn to a different methodology. To overcome these limitations and capitalize on the strengths of each of these measurement approaches, there is a strong argument for the advantages of using a variety of indices. The following is a review of the relatively scarce and limited number of measures of affective empathic responding in the early years of childhood.
A leading self-report measure of adult empathy is the Interpersonal Reactive Index (IRI; Davis, 1980). Davis’s questionnaire measure of empathy, which was later to be adapted into a child version, makes important distinctions between different kinds of empathic responses. The IRI is a 28-item inventory that consists of 4 subscales, each of which taps a separate facet of empathy. The Perspective Taking (PT) subscale explicitly measures the cognitive tendency to see things from the point of view of others, without necessarily experiencing any affective response. The Empathic Concern (EC) subscale measures the tendency to experience the affective reaction of sympathy and compassion for others. The Personal Distress (PD) subscale also taps emotional response, but of a different type: it measures the tendency to experience personal feelings of distress and uneasiness in reaction to others’ distress. Salter (1988) argues that it is more accurate to view this subscale as measuring an individual's inability to cope with negative feelings rather than to identify with them per se. The Fantasy (FS) Subscale taps the tendency to imaginatively transpose oneself into the feelings of fictitious characters in movies, books, and plays. As such, it seems closer in tone to the two “emotional” subscales than to the more cognitive perspective-taking measure.

Responses are made along a 5-point Likert-type scale, reflecting the extent to which each test item accurately describes them. The four-factor structure of this measure has been confirmed in two separate investigations (Carey, Fox, & Spraggs, 1988; Davis, 1980). Bush et al., (2000) reported alpha coefficients for these subscales ranging from .68 to .78 for males and from .73 to .79 for females. Each scale reliably measures the identified variable and has adequate internal reliability, with an alpha coefficient ranging from .71 to .77 (Davis, 1983; Davis & Oathout, 1987; Litvack-
Miller, McDougall, & Romney, 1997). Guttman & Laporte (2000) also reported the level of internal reliability across the four factors as adequate, ranging from .63 to .70 in the French version and from .68 to .81 in the English version. The IRI has been steadily growing in popularity, in large part due to its explicitly multidimensional nature. Unlike unidimensional measures, the IRI provides separate assessments of both the emotional and cognitive facets of empathy, and thus allows easy examination of the different roles played by these constructs.

Litvack-Miller, McDougall, and Romney (1997), adapted the adult IRI for use with children from grades 2 to 6. To adapt the IRI for their study, Litvack-Miller, McDougall and Romney reworded some of the items for children without affecting their essential content. They constructed this adaptation by conducting a pilot study, in which the original items were read aloud to 22 first-grade children and revised in response to feedback until all items were properly understood. The items are rated on a 5-point Likert-type scale ranging from “not at all like me” to “exactly like me”. The items are organized into four subscales that measured the four components of empathy (perspective taking, fantasy, empathic concern, and personal distress). After an interval of 5 weeks, individual test-retest reliabilities for the child version’s 22 items retained for analysis ranged from .33 to .68. Internal reliabilities for the six subscales ranged from .44 to .64, and test-retest reliabilities ranged from .58 to .64. These values are rather low; however, for the sixth-grade respondents, test-retest reliabilities (.53-.76) approached the values reported by Davis (1980) in his work with adults.

As widely used and psychometrically supported as this measure is, the actual constructs being measured need to be examined. The measure explicitly incorporates a cognitive empathy scale (perspective taking subscale); however the empathic
concern subscale does not measure affective empathy, but rather a more general negative affective response of sympathy and/or compassion. Affective empathy requires the individual to mirror the emotion experienced by the subject, to put oneself in the affective shoes of another. Sympathy however, as was previously discussed, is a much less specific response, that does not involve the vicarious experience of the other’s emotion. One could therefore argue that the child version of the IRI is a reliable and valid measure of child cognitive empathy and sympathy, but not a valid measure of child affective empathy.

The Questionnaire Measure of Emotional Empathy

In a thorough review of empathy measures, Choplan, McCain, Carbonell, and Hagen (1985) concluded that the Mehrabian and Epstein Questionnaire Measure of Emotional Empathy (QMEE; Mehrabian & Epstein, 1972) was one of the two adult empathy measures (the other was the cognitive Hogan scale; 1969) having the most extensive support in terms of reliability and validity. The QMEE was designed with the view of empathy as the ability to vicariously experience the feelings of another (affective empathy). This review shall incorporate the QMEE, as a widely used and well-reputed child measure of affective empathy was derived from this adult measure. Within the predominantly cognitive framework of empathy measures available, Mehrabian and Epstein (1972) noted the lack of an adequate measure of affective empathy and thus set out to develop their measure (QMEE). The QMEE is a 33-item test in which the respondent answers each item on a scale from very strong disagreement (-4) to very strong agreement (+4). Each item on the scoring key is designated as a positive or negative item. Once the negatively phrased items are reverse scored, all 33 items are summed. Thus a high score indicates high affective
empathy. The items were selected from a larger pool of items on the basis of three factors. First the item had to have a non-insignificant correlation with a measure of social desirability (Crowne & Marlowe, 1960). Second, the item had to have a significant correlation with the total test score at the .01 level. Third, the item must have achieved content validity determined partly by factor analysis of the total item pool. Mehrabian and Epstein reported a split half reliability of $r = .84$, and they demonstrated its validity by showing that scores on the measure predicted both aggression (low empathy subjects showed greater aggression than high empathy subjects) and helping behaviour.

The group of studies relating the QMEE with other personality measures has shown some consistent patterns that point to an underlying mechanism termed arousability (Mehrabian, 1977). The most consistent result is that those who are highly empathic on the QMEE tend to score high on neuroticism measures (Eysenck & Eysenck, 1978). Also, high affectively empathic individuals tend to show a great amount of social concern and tend to screen irrelevant environmental information less (Mehrabian & O’Reilly, 1980). The mechanism that seems to tie these findings together is arousability. Specifically, high affectively empathic people tend to be more arousable in general. Further studies indicate that high scorers on the QMEE are more socially aware, volunteer more to help others, and have higher moral development than those who score low on the QMEE (Eisenberg-Berg & Mussen, 1978; Van Ornum et al., 1981). The QMEE consistently distinguished characteristics of moral conduct thought to be related to affective empathy from characteristics of moral conduct thought not to be related to affective empathy. Results are more consistent for males than for females.
A study by Notarius and Levenson (1979) points to the usefulness of including a behavioural response measure such as facial reactivity, and provides some validation of the QMEE. The finding is congruent with Mehrabian and Epstein’s (1972) report that overt responsiveness is a primary characteristic of those who score high on the affective empathy scale. Affectively empathic people, they argue, look similar to the way they behave.

**Bryant’s Index of Empathy for Children and Adolescents**

The Bryant’s Index of Empathy for Children and Adolescents was originally adapted from the adult version of the Questionnaire Measure of Emotional Empathy (QMEE; Mehrabian & Epstein, 1972) for use with children and adolescents. The Bryant Index is a self-report measure and contains 22 items. Each of the seventeen items adapted from the QMEE were reworded in order to be appropriate for use with children.

In a study involving 258 male and female children (grade 1, 4, and 7), the measures’ reliability and validity were assessed (Bryant, 1982). Internal consistency computing Cronbach alpha coefficients was .54, .68 and .79 for grade 1, 4 and 7 respectively. Evidence of construct validity was also found with convergent validity with Feshbach and Roe’s (1968) measure of empathy. Correlations were .33, .54 and .76 for the three age groups respectively. The correlation obtained for the female first graders however did not achieve significance at $p < .05$. Non-significant correlations with reading achievement scores also supported the Bryant’s discriminant validity. As the Bryant Index yielded age and sex differences consistent with previous research, the measure’s construct validity was further supported. The Bryant was not found to
be correlated with social desirability measures. Results also indicated satisfactory test-retest reliability (Bryant, 1982).

Although the Bryant is predominantly used for its total score of affective empathy, the measure was originally designed to consist of seven subscales. These subscales include; susceptibility to emotional contagion, appreciation of the feelings of unfamiliar and distant others, extreme emotional responsiveness, tendency to be moved by other’s positive emotional experiences, tendency to be moved by other’s negative emotional experiences, sympathetic tendency, and willingness to be in contact with others who have problems. The subscale intercorrelations are all significant at the .01 level and exceed 0.30 in all instances. The split-half reliability for the entire measure is 0.84. The total empathy scale has a correlation of 0.06 with the Crowne and Marlowe (1960) social desirability scale (discriminant validity).

The QMEE and the Bryant child measure were designed with the premise that the assessment of affective empathy as a general emotional dispositional characteristic is usually based on the view that the more affectively empathic a person is, the higher will be his/her score across questionnaire items tapping emotional expressiveness, tender feelings for others in distress, affective perspective taking, and imaginal involvement in movies and books (Bryant, 1982; Mehrabian & Epstein, 1972). The assessment of affective empathy as a responsive measure focuses on the variability of empathic responsiveness across different emotions and situations, and frequency, with the question of whether the occurrence of affective empathy motivates prosocial behaviour in the same context (Barnett, 1982; Eisenberg & Miller, 1987).

In most of the existing research, self-report indices of affective empathy and related responses were the sole measure of emotional responding, particularly in research with children. However, based on a recent meta-analytic review (Eisenberg
& Miller, 1987), it has become clear that there are substantial problems in using solely self-report indices of empathy, particularly with children. To summarize briefly, contrary to theory, children’s self-reports of affective empathy in emotionally evocative contexts and their scores on the commonly used picture-story indices of empathy are unrelated to their prosocial behaviour (Eisenberg and Fabes, 1990). Picture-story indices involve presenting a child with stories and/or pictures depicting another person in an emotionally evocative context and then asking the child how he or she feels. Children who report feeling what the story protagonist would be expected to feel are said to have affectively empathized. Children’s self-reports on picture-story indices appear to be affected by demand characteristics (Eisenberg-Berg & Hand, 1979) or other factors such as sex of the experimenter (Eisenberg & Lennon, 1983). Another limitation of the more traditional measures of affective empathy is that young children lack the cognitive and/or verbal abilities to respond to picture/story or item methods of self-report questionnaires (Miller & Eisenberg, 1988).

As mentioned previously, in most of the existing research self-report indices of affective empathy were the only measures used. Because of the substantial problems of relying solely on subjects’ self-reports of affective empathy, researchers have begun to incorporate a variety of nonverbal indices into their research. Given the important progress made in recent years toward the development of reliable facial and physiological indices that can be used as markers of empathy-related emotions, questions have been raised as to which indices best measure affective empathy.

*Facial Indices of Empathy*

Facial responses are highly accessible indices of individuals’ emotional responses. Considerable research has established the universality and reliability of
some facial emotional responses and inter-rater agreement generally has been high on measures of facial empathy across various emotional stimuli (Marcus, 1987; Strayer, 1993). Because facial measures of empathy can be controlled in ways that make them less subject to self-presentation or social desirability bias (e.g., collected through a one-way mirror or with hidden cameras in the absence of the experimenter), they may have an edge over self-report measures of empathy.

To measure affective empathy (defined as the experience of vicarious emotions), the match between the empathizer’s emotion and the empathizee’s emotion is the criterion. Emotional experience, as assessed by facial and physiological measures, and awareness of one’s emotional experience, have been said to comprise of two major aspects of emotional development (Lewis & Michalson, 1983). Using the match between specific emotions experienced by the empathizer and empathizee, may be a way to tap into affective empathic experience without involving flawed self-perception, social desirability effects and allowing for the distinction of other personal reactions such as personal distress (Batson et al., 1987) or sympathy (Wispe, 1986).

Facial emotional responses of emotional responding however can be falsified (e.g., they can be neutralized or masked; Shehnnum & Bugental, 1982). Similar to the findings regarding the verbal expression of negative affect, negative facial expressions of empathy, sympathy and personal distress appear to be increasingly masked with age during the primary school years (Strayer, 1983), which decreases the strength of their productiveness. Moreover, individual differences in facial expressiveness may limit its predictive power. Notarius and Levenson (1979) found that those individuals who naturally inhibited their facial expressions tended to show less facial expressivity when exposed to a threat of shock, than did those individuals who were judged to be natural expressers. Thus, the productiveness of facial indices
may vary according to the stimuli, the subjects, and the context in which they are measured (Fabes et al., 1990).

In pursuit of reliable and valid facial and physiological indices of affective empathy, several researchers have designed measures to assess affective empathy or empathy-related behaviour. Parallel to this line of research is the assessment of the child’s awareness of their emotional experience (self-report of affect). Strayer and Roberts (1997) have led research in this area with a study of children’s facial and verbal responses to emotionally evocative videotapes. The aim of their study was to investigate the extent to which facial and verbal indices of empathy converge and whether they are related in similar ways to age and gender. Facial empathy was assessed as the number of exact matches between the predominant emotions expressed on the children’s faces and the vignette character’s faces. Verbal empathy was assessed as the number of exact matches between emotions the children attributed to themselves and to vignette characters. The focus of Strayer and Roberts’s study was therefore primarily on affective, rather than cognitive aspects of empathy. Seventy-three children (aged 5, 9, and 13 years) were unobtrusively videotaped while they watched videotape vignettes and their facial expressions were coded. Children were then interviewed to determine the emotions they attributed to stimulus persons and to themselves.

Similarly, Feshbach (1982) designed a measure called the Feshbach and Powell Audiovisual Test of Empathy, which consists of 10 minute videotaped segments displaying stories about children experiencing different events and emotions. Each one of the segments focuses on the protagonist experiencing one of five emotions. After watching each segment, the child is requested to report how he or
she feels. This task was designed to provide a measure of the child’s empathy and emotional responsiveness.

Strayer (1993) conducted two studies (N=138, 5-13 year olds) focused on age-related changes in children’s emotional and cognitive responses to stimulus vignettes presenting people in emotionally evocative contexts. The three main topics examined were: the extent to which children report experiencing emotions similar in kind and intensity to emotions observed in others, age-related changes in children’s reasons or attributions for these emotions, and the impact of perceived emotional intensity of children’s responses. Results across studies confirmed age-related increases in children’s emotional and cognitive responses. There were limited increases with age in concordant emotion, and continuous increases in the frequency and kinds of attributions explaining such emotion.

Jones, Field, and Davalos (2000) designed a study where a simulated maternal distress task was used to assess empathy. This procedure involved mothers pretending to cry for 2 minutes. If the child inquired about the reason for the crying, the mothers were asked to say she was not feeling well. They were also asked not to instruct the child to perform any specific actions but to let the child respond naturally to their distress. The children’s behaviour was then combined as empathic or non-empathic, with an overall rating of empathy versus non-empathy given. The mothers were also scored on the degree of credibility/drama.

Strayer (1980) also conducted a study that involved naturalistic observations during free-play periods at a child centre for 2 hours approximately twice a week for 8 weeks, totalling 30 hours. The entire groups were scanned at 5-minute intervals. Event sampling was used to record the frequency of empathic behavioural interaction,
defined as the presence of a prosocial response to a peer’s display of one of four categories of affect – happy, sad, angry or hurt.

Two story/picture measures are Dekovic and Gerris’s (1994) story measure and the Feshbach and Roe (1968) Affective Situations Test (FASTE). This design relies on responses to stories read; Dekovic and Gerris (1994) presented four stories in which a character (always a child) was hurt or upset. Following each story the child was shown five faces depicting the emotional expression of happy, sad, afraid, angry, and normal and the interviewer asked the child to select the face that best described how he or she would feel in that situation (seeing the child hurt or upset) if he or she was a bystander. The children were also asked to indicate on a 3-point scale (1 = a little bit to 3 = very much) the intensity of their feelings, except if they said that they would feel normal. Internal consistency (Cronbach’s alpha) for empathy scores was .86. Another frequently used measure is the Feshbach and Roe (1968) Affective Situations Test (FASTE) which consists of four pairs of narrated slide sequences showing young children in situations designed to elicit happiness, sadness, anger, and fear. A series of pictures is presented, accompanied by stories, and children are asked how they feel and how a child in the story feels. Each response is rated on a 0-2 scale for the degree to which it matches the affect of the child featured in a slide sequence. Inter-rater agreement was found to be 97.5%.

The face is dynamic and shows a range of expressive movements that affords the possibility of numerous facial efference processes. Facial expressions in motion (i.e., in vivo, video stimuli) provide more information to the observer than static faces (i.e., pictures, slides). Picture/story measures such as Dekovic and Gerris’s (1994) story measure and the Feshbach and Roe (1968) Affective Situations Test, are therefore limited as they do not provide dynamic facial expressions as their stimulus.
One could argue that it is necessary to provide visual stimuli of dynamic facial expressions to study the influence of facial mimicry on recognition accuracy and emotional contagion, especially as the most naturalistic setting is the optimal methodological design.

The different characteristics and responses to different emotions are, while not the focus of this research, an important area to acknowledge. Variability in emotional responsivity to different emotions is a function of age, gender, contextual factors and socialization. For example, in a related area of children’s responses to adult conflict, Cummings, Vogel, Cummings, and El-Sheikh (1989) found that anger is not a homogeneous stimulus, but varies on a variety of dimensions and domains. Their study examined children’s responses to anger as a function of: (a) the mode of expression of anger (nonverbal, verbal, verbal-physical), and (b) whether or not anger between others was resolved. Children were present with videotaped segments of angry and friendly interactions and asked questions concerning their responses. Cummings et al., (1989) found all angry interactions, including non-verbal anger, were perceived as negative events and elicited negative emotions. Unresolved anger was perceived as a far more negative event than resolved anger and induced greater feeling of anger and distress in children. Verbal-physical anger was perceived as the most negative form of expression of anger. Boys reported more angry feelings in response to anger than girls. Distress responding was greater in children from homes in which there was interparental physical aggression and in children with behaviour problems. Cummings et al., (1981) also found that anger between parents (including physical hostility) elicits more distress from 2 year olds than anger that is expressed in an entirely verbal manner. This research illustrates that when assessing affective responses to emotions it is important to be aware of the differential effects of each
emotion (i.e. sad vs. angry) and that both the context and the medium in which the emotion is expressed influences children’s affective responses (Dunn & Munn, 1986).

Other-Reports of Child Affective Empathy

A review of the child measurement of affective empathy literature reveals a striking deficit in other-reported measures of child empathy. The lack of parent report measures is the most surprising, considering the advantages of this source of information. Parents are able to draw on dispositional and situational information about the child’s empathic responses and behaviour. They have, unlike young children the cognitive and verbal capacity to complete the measure. They have a more objective perspective then their child, and a more informed perspective then perhaps a teacher report. Select few studies have incorporated teacher reports in their research designs. Barnett, Howard, Melton, and Dino (1982) designed a nine-item teacher’s rating scale which was adapted from the Mehrabian and Epstein (1972) adult empathy measure. This measure consisted of brief description of empathy-relevant behaviours. For each child, each description was rated on a 5-point scale ranging from 1 (extremely uncharacteristic) to 5 (extremely characteristic). A comparable parent report of child empathy however has escaped the focus of research attention. Such observer ratings however have the shared limitation of mainly capturing the outward expression of inward empathic experiences, which may be confounded by the empathizer’s communication skills (Alexander et al., 1976; Rice, 1965). Because of this limitation, these measures may fail to tap whether the person has entered “the private perceptual world” (Rogers, 1975, p. 4) of the other.
A crucial issue in the study of affective empathy in children concerns whether or not there is an optimal informant in rating this complex interpersonal phenomenon. In the related field of emotional and behavioural problems of children and adolescents, various studies have reported that different informants such as mothers, fathers, children, teachers and peers have been found to differ in the information they provide for child and adolescent assessments (Achenbach, McConaughy, & Howell, 1987). The common finding of low correlations between parent and child reports is not that surprising considering the many differing factors that influence these informants’ perspectives (developmental age, corresponding differences in sociocultural pressures, self vs. other report etc; Sawyer, Baghurst, & Clark, 1992). The comparison of mother and father reports are however more interesting due to the assumption that the shared parental experience would increase convergence between these informant sources.

Achenbach and colleagues (1987) conducted a comprehensive meta-analysis on the cross-informant rating of emotional and behavioural problems in children and adolescents. Using a sample of children ranging in age from 6 to 18 years, they found that mother and father reports of behaviour correlated moderately but significantly. Furthermore, when comparing younger children (age 6-11) and adolescents (ages 12-18), there was higher mother-father agreement for the younger age group. In another meta-analysis containing 60 studies, Duhig, Renk, Epstein and Phares (2000) found that maternal and paternal ratings exhibit moderate correspondence in ratings of internalizing behaviour problems in children and large correspondence in ratings of externalizing and total behaviour problems in children. In an attempt to explain disagreement between mothers and fathers in the ratings of their children, Bartels et
al., (2003) proposed a psychometric model that assumes that each parent assesses rater-specific aspects of the child behaviour. When there is discrepancy in informant reports, rather than assume one rater is accurate while another is inaccurate, one could argue that the information received from different informants is unique and important in conceptualizing the construct of affective empathy in children.

To further examine the question of convergence of affective empathy measures, one must also examine how information from observational measures corresponds to questionnaire measures of affective empathy. Holmgren, Eisenberg, and Fabes (1998) posed the question of whether situational empathy-related responding assessed in the laboratory taps into dispositional empathy. In the few relevant studies, there has been a moderate correlation between children’s self-reported dispositional empathy and their reports of empathy when viewing an empathy-inducing film (Eisenberg et al., 1988; Eisenberg et al., 1991). In addition, heart rate deceleration in response to an empathy-inducing film, a marker of empathy, has been associated with children’s self-reported empathy (Eisenberg et al., 1988) and boys’ (but not girls’) dispositional sympathy (Eisenberg et al., 1991). Thus, it is likely that the situational measures of empathy do reflect, at least to some degree, children’s dispositional empathy-related reactions.

In another study of convergence, Strayer and Roberts (1997) sought to investigate the extent to which children’s facial expressions of emotions (children’s videotaped facial expressions in response to stimuli vignettes) converged with their verbally reported emotions (subsequent interview regarding the emotions they felt and attributed to stimulus persons whilst watching the vignettes). As facially expressed and self-appraised emotions are considered to be different aspects or components of a unified complex underlying process (Bowlby, 1969; Laird, 1984), it follows that they
should provide coherent information. Or if they fail to converge, then their divergent information should be related in lawful, orderly ways, which could include the influences of context, the consequences of socialization experiences (Lewis & Michalson, 1983), and coping processes such as denial. Although researchers have recognized the need for multiple measures of emotion in the study of empathy (Hoffman, 1982), few studies have used both verbal and facial measures. Even more limited is the use of multiple measures of empathy in children.

Strayer and Roberts (1997) found that convergence of facial and verbal emotions failed to improve with age, with a substantial overlap in the kappa confidence intervals for the three age groups (aged 5, 9 & 13 years). There was also an unexpected gender difference in convergence. Facial expressions and verbal reports converged at above chance levels for girls, but not boys and their respective kappas were significantly different. Specifically, girls showed better-than-expected convergence for happy, sad and afraid; in contrast, convergence for boys was better than chance only for happy. In addition to limited convergence, the two methods produced distinct patterns of overall responses. There was substantial divergence between facial and self-report measures for all emotions except sad and disgusted. Specifically, children were more likely to describe themselves as happy, angry, or startled than they were to be coded as such; whereas their facial expressions were more likely to be coded as neutral, afraid, or concerned than they were so to describe themselves (Strayer & Roberts, 1997). Thus there were both modest convergence and systematic patterns of divergence in facial expressions and self-attributions of emotion.

In contrast to facially coded emotions, which showed no significant gender differences, Strayer and Roberts (1997) found marked gender differences for verbally
reported emotions, all of them consistent with sex role stereotypes. Girls were more likely than boys to describe themselves as sad or afraid and boys were more likely than girls to describe themselves as feeling neutral or angry. Differences for other emotions were not significant. As hypothesized children became more facially expressive with age. Expressions of fear also declined with age. In contrast, expressions of facial concern increased with age, as one would expect. Age differences for facial codes of happy and sad were nonsignificant. In summary, age changes in facial and self-reported emotions showed a rough correspondence. Children reported fewer positive and more negative emotions with age. Consistent with this, facial codes of neutral declined and expressions of concern increased. Notwithstanding these similarities, trends for particular emotions always differed by source, suggesting that facial and self-reported emotions may follow somewhat distinct developmental pathways.

Strayer and Roberts (1997) operationalised verbal empathy as the number of exact matches between emotions the children attributed to themselves and to vignette characters. Facial empathy was the number of exact matches between the predominant facially expressed emotions of children and vignette characters. These indices of facial and verbal empathy have shown reasonable levels of construct validity, as they have been found to relate to other measures of empathy, and both showed expected relations with prosocial behaviours (Strayer & Roberts, 1994).

In applying these empathy indices, emotions verbally attributed to self and to vignette characters showed low to moderate levels of a agreement: 42% across all vignettes, kappa =.29. Agreement between facial emotions expressed by self and the vignette characters facial expressions was significantly weaker: 20%, kappa=.10. Children were more likely to describe themselves as feeling neutral or happy than
they were so to describe the vignette characters, and they were more likely to describe 
others as feeling sad or afraid. Children were equally likely to describe themselves 
and the vignette characters as angry. Similarly, facial codes also diverged strongly. 
Children were frequently coded as expressing concern or no emotion, whereas these 
were never predominant for the vignette characters. Children were also coded as 
being happy of sad less often than vignette characters expressed these feelings. There 
were no differences in facial expressions coded as fear for neither the child 
participants nor the vignette characters. Thus while there were important similarities 
in the emotional experiences of these children and the vignette characters they 
viewed, both on a verbal and facial-expressive level, self-other differentiation were 
also salient in Strayer and Roberts’ (1997) data set.

Strayer and Roberts (1997) reported that facial and verbal empathy measures 
failed to converge. Verbal empathy was not completely unrelated to facial emotions 
however. Verbal empathy occurred more often than expected when facial expressions 
were coded as happy. Although it has been suggested that facial concern should be 
associated with higher levels of reported empathy, this did not occur. Verbal empathy 
also differed from facial empathy in that it occurred more frequently.

As expected, age was positively related to verbal empathy, while age was 
unrelated to facial empathy. Consistent with reports from other samples, girls had 
higher average scores than boys for both verbal and facial empathy. It is possible that 
these differences arose in part because boys found it more difficult to empathize with 
the protagonists as they were predominantly female (females portrayed in five of six 
vignettes; boys were portrayed in two of six). Strayer and Roberts (1997) argue 
however that several of their findings suggest that the vignette character gender was a 
relatively unimportant factor in eliciting empathic responses. Boys were less likely
than girls to respond empathically during the vignette that featured a male protagonist. Further, boys were as empathic to four of five protagonists in other vignettes as they were to the male protagonist in one of the vignettes. Strayer and Roberts therefore argue that the gender differences reported were not simply artifacts of protagonist gender, but reflect more general factors. Strayer and Roberts (1997) conclude from their research and that of similar studies, that efforts to find converging measures of emotion and empathy should be redirected to study the semi-independent development of facial and verbal emotional responses to the same events.

Strayer and Roberts’ (1997) findings of modest although statistically significant convergence of facial and verbal measures of emotion are comparable to findings reported by other studies (Caseys, 1993; Chisholm, 1991; Eisenberg et al., 1988; Eisenberg et al., 1989; Fabes et al., 1990). For example, Eisenberg et al., (1988) reported only eight significant correlations out of 46 comparisons between self-report and facial measures of emotions. These findings indicate an important issue for both method and theory, because it implies a possible disjunction between self perceptions of emotional responses (as reflected in verbal measures) and evaluations of these emotional responses by others, based on facial expressions. An explanation for low facial-verbal convergence is that children, like adults, often find it difficult to identify their feelings accurately (Schacter, 1964). One reason for this is that socialization, from infancy onwards often encourages the dissociation of felt and displayed emotion (Campos et al., 1983).

From Strayer and Roberts’ study, no conclusion can be made as to which measure is a better index of empathy. The use of facial measures in the study of empathy may underestimate the extent of concordant emotion that exists. Eisenberg et al., (1988) also reported that facial empathy scores were significantly lower than
verbal empathy scores. On the other hand, facial empathy scores may be less subject to distortion by gender role stereotypes. Because facial measures are particularly useful in the study of very young, nonverbal children, the possibility of systematic differences in facial and verbal data needs to be taken into account when considering measure-specific findings. In a review of available research, Holmgren, Eisenberg, and Fabes (1998) also state they found it common in the literature, for there to be relatively few inter-relations among facial and self-report measures. Further research is needed to investigate the lack of convergence found between facial, verbal and self-report measures of affective empathy. The different age and gender developmental pathways also warrant further investigation.

The Present Study

Research on empathy is characterized by conflicting constructs, miscommunication, problems with measurement, and lack of systematic replications of various promising research evidence. In addition, only limited developmental research on the effects of age and gender on affective empathy has been conducted. There is a need to return to empathy research, as our understanding of the role of empathy in child behaviour problems, mental health problems and altruistic behaviour is far from sufficient. The lack of coherence between the theoretical importance of empathy and empirical evidence available, argues for the return to empathy research.

Understanding empathy as a complex interpersonal process has proved difficult as each of the components of empathy (cognitive and affective), as well as their interplay, are in need of research in their own right. More empirically derived, explanatory theories of empathy are necessary if there is to be a better understanding and use of the concept of empathy. If theory building is to be facilitated, it is
necessary to understand the predictors as well as functions of empathy as a trait, an
experience, or a process and as a cognitive, affective, or multistage and
multicomponent phenomenon. Investigating empathy as a broad construct is not only
ambitious, but has the potential to not provide adequately detailed analysis of each of
the construct’s components (i.e., cognitive vs. affective; as a multistage process). The
purpose of this thesis is therefore to separate and specifically investigate affective
empathy in young children.

Although a multidimensional approach to empathy seems a clear direction to
follow, many questions about the measurement of affective empathy in children still
remain unanswered. Previous research has indicated that both facial and verbal
measures provide distinct but important indices of information regarding affective
empathy (Eisenberg et al., 1988; Holmgren et al., 1998; Strayer & Roberts, 1997).
The present study was designed to incorporate a comprehensive assessment of
affective empathy using a variety of measurement approaches. This research was
designed to incorporate measures of facial expression of affective empathy, self-
reported experience of affective empathy, traditional self-report questionnaires and a
newly designed parent-report of child affective empathy. As children of this young
age are unable to fluently read, interpret and report on the questions, the reliance on
the parent’s report of their child’s empathy is even more pronounced. The need for a
parent report of child empathy has escaped previous research attention. Perhaps this is
due to the difficult area of empathy measurement, or a lack of acknowledgment for
the need for early detection of empathic problems in children. The need for parent
report to substantiate very young children’s self-reporting abilities is further supported
by Bryant’s findings the children’s report of empathy may not be as accurate in the
younger grades as their scores did not correlate with other tests of empathy as much
as the older age groups (Bryant, 1982). An aim of the present research was to investigate the utility of this multimethod approach to the assessment of affective empathy.

Affective factors include the ability to both experience and recognize a wide variety of emotions in oneself and in others (Bush, 2000; Hoffman, 1982). The purpose of this study was to assess the relationship between two theoretically distinct aspects of children’s emotional responses (Lewis & Michalson, 1983), their emotional experience (via verbal report) and emotional state (via nonverbal expression), in response to emotion-evoking stimuli. A related aim was to assess the concordance of these two verbal and nonverbal measures as indices of empathy, i.e., affective responses consistent with those of stimulus persons. The present study involves assessment of children’s facial and verbal responses to emotionally evocative videotapes. One of the aims of this study was to investigate the extent to which facial and verbal measures of emotions converge and the degree to which they are related in similar ways to age and gender. A subsequent question is whether facial and verbal indices of empathy converge and whether they are related in similar ways to age and gender. Children were unobtrusively videotaped while they watched videotaped vignettes and their facial expressions were coded. Children were then interviewed to determine the emotions they attributed to stimulus persons and to themselves.

The present research extends the work done by Strayer and Roberts (1997) to further explore this multimethod approach to the study of emotional expression and affective empathy. First, replication of this research was needed to affirm the robustness of the reported results. Second these measures of facial and verbal indices of affective empathy have only been used with local samples in Canada and needed to be assessed for their generalisability to other, in this case, Australian samples.
Compared to prior research that has assessed emotional responses to filmed emotional stimuli, the present study used a larger stimulus set of eight vignettes presenting a larger range of different emotions. This study further improved on prior sample sizes used (e.g., Strayer & Roberts; N=73), with the present study using a sample size of 211. It is possible that Strayer and Roberts’ (1997) findings that girls scored higher than boys for both verbal and facial empathy, arose in part because boys found it difficult to empathize with the predominantly female protagonists (portrayed in five of six vignettes; boys were portrayed in two of six). This potential confound shall be controlled for by having an equal amount of male and female protagonists in the stimulus material across the different emotions.

As discussed earlier, the development of empathy in children is of conceptual and applied significance to both altruistic and criminal behaviour (Batson & Shaw, 1991; Eisenberg & Fabes, 1990; Hare, 1980). Whilst deficiencies in empathy have long been considered characteristic of aggressive and antisocial individuals (Hare, 1978; Miller & Eisenberg, 1988), current research on chronic pathways to adult psychopathy have directed their attention to the role of empathy in children with conduct problems. More specifically callous-unemotional (CU) traits, one of the factors of the two-factor model of child psychopathy, have been found to designate a severe group of antisocial youth (Caputo et al., in press; Christian et al., 1997; Kruh et al., 1999).

To allow for detection of this unique subgroup of children with severe conduct problems and for informed alterations to current interventions, the mechanism underlying CU traits needs to be investigated. In line with the theory underlying models of psychopathy and the theoretical definition of CU traits (Frick et al., 1994), one of the most likely constructs underlying the dimension of CU traits is a deficiency
in empathy. As the inconsistency in past research regarding the relationship between empathy and CP may be due to CU traits, a subsequent focus is the assessment of empathy in children with conduct problems and high CU traits compared with children with conduct problems and low CU traits and controls. These previous failures of research to produce consistent findings between empathy and conduct problems in children may also be attributed to measurement difficulties, which themselves derive from a unidimensional and developmentally static conceptualization of dispositional empathy. The possibility that CU traits account for the inconsistency in research findings on empathy in conduct problem children is investigated in the present study. Once the variability of CU traits is partialled out of this complex relationship, a more consistent relationship between conduct problems and empathy might emerge from the research.

Furthering our current understanding, detection, and remediation of early psychopathic traits in young children may represent an important preventive effort for mental health and criminology sciences in Australia. Only recently has the potential to identify psychopathy in the early stages been shown; the present study has the potential to advance the field theoretically and develops several applied assessment and technologies that can be instantly translated into clinical and preventive strategies.

To summarize, in addition to examining the utility of this multimethod design, the present study aims to investigate the psychometric properties of the newly designed parent self-report measure and experimental facial and verbal measure of affective empathy. The convergence of the developmental age and gender trends reported by each measure shall then be examined. In applying these measurement advances to the conduct problem area, it is also an aim to assess the relationship between empathy and conduct problems, when controlling for the construct of
callous-unemotional traits. This research aims to further explain this complex relationship and further expand our theoretical understanding of the CU construct within the child psychopathy literature.

This investigation aimed to explore affective empathy in children in four phases:

**Study One**: The aim of the first phase of the research was to develop a valid and reliable parent-report measure of child affective empathy. It was hypothesized that the parent-report measure would display adequate convergence between mother and father reports, and low, positive convergence between the parent and child reports of affective empathy, as well as strong internal consistency, and test-retest reliability.

**Study Two**: The second phase of research involved developing a new multimode measure of affective empathy for use in young children that involves coding of facial expressions of affective empathy, and self-reported experiences of affective empathy. This phase compared the data derived from the facial measure (Griffith Empathy Measure – Video Observation; GEM-VO) and the self-report measure (Griffith Empathy Measure – Self Report; GEM-SR) of affective empathy. Age-related increases are expected in children’s concordant emotions with stimulus persons, operationalized as “facial match”. Both the presence and degree of facial match across stimuli should increase with age because increased social experience and understanding of emotional contexts and personal experiences should increase one’s ability to share similarly in the emotions conveyed (Selman, 1980). Also, children’s interest in the psychological aspects of both self and others develops mutually with age (Youniss & Smollar, 1990), possibly reflected in their increasingly “trying on” the
emotions conveyed by others, hence increasing affect match with age. Facial match across ages also should correlate with self-report of emotion experienced, given that cognitive and emotional processes develop interactively at all ages (Piaget, 1981).

It was hypothesized that the age and gender patterns of both measures will converge, with the Video Observation and Self Report measure reporting an increase in affective empathy with age. Facial expressiveness and verbal expressiveness are hypothesised to decrease with age due to the increase in masking of facial emotion and socialization pressures which increase with age. The child participant’s ability to correctly identify the emotions of the protagonists from the video stimulus is hypothesised to increase with age as research suggests a continued advancement in cognitive empathy throughout childhood (Hoffman, 1991). It was hypothesised that females shall score higher on affective empathy then males on both measures. Investigations of age-related developments is particularly important given a recent review concluding that we do not know whether empathy develops with age (Lennon & Eisenberg, 1987) and noting both the scarcity of comparable studies across age and the equivocal findings regarding age effects for affect match.

**Study Three:** The third phase of the research aimed to investigate the convergence of the new multimode empathy measure (GEM-VO & GEM-SR) with the new parent-report measure (GEM-PR) and traditional child-report measure of affective empathy (Bryant’s Index of Empathy for Children and Adolescents). An additional aim of this study was to examine the differences across age and gender amongst these various measures of affective empathy.

It was hypothesized that the GEM-VO and the GEM-SR would converge with the GEM-PR and the Bryant’s child self-report, with the GEM-SR demonstrating a
stronger convergence with the child and parent report measures then the GEM-VO. A further hypothesis was that age and gender patterns shall be comparable across measures, with affective empathy increasing with age and being higher in females.

Study Four: The final phase of the research aimed to use the available measures of affective empathy to investigate the complex relationship between affective empathy, conduct problems (CP) and the concept of callous-unemotional traits (CU) from the child psychopathy literature. To allow for a more indepth analysis of the role of empathy within these two constructs, the two variables CP and CU were examined with the variance of the alternate variable partialled out. The aim was to develop a further understanding of why the conduct problem literature reports disparate results regarding whether children with conduct problems have impaired empathy.

Therefore, firstly it was hypothesized that children with high CP’s would score low on affective empathy, secondly it was hypothesized that children high on CU traits would also score low on affective empathy. A third hypothesis however was that once the CU traits were controlled for, low affective empathy would no longer be found in the CP group. When CP are controlled for however, it is hypothesized that CU traits would continue to report low levels of affective empathy. To summarise it was hypothesised that it is the CU construct within the CP subgroup that will account for low levels of affective empathy. This finding would suggest that the disparate findings in the CP literature are due to the influence of the CU construct within the CP sample.

To rule out any item overlap between the CU variable and affective empathy, the items that measure empathy within the CU measure shall be removed, with the
analysis performed again. It is hypothesised that with this alternate version of the CU variable, the findings will remain the same.
STUDY ONE

The aim of the first phase of this study was to develop a reliable and valid parent report measure of child affective empathy. More specifically the aim of study one was the assessment of the Parent Report Measure’s internal consistency and concurrent validity with a previously established child self-report measure of affective empathy.

Method

Participants

A pilot study was conducted to assess the reliability and validity of the Griffith Empathy Measure – Parent Report. Participants consisted of a normative community sample of 211 children from grades 1, 3, 5, and 7. The age groups that these grades correspond to are the ages 5-6 (girls N=18, boys N=29), 7-8 (girls N=17, boys N=34), 9-10 (girls N=31, boys N=29), and 11-12 (girls N=28, boys N=25). Children were recruited from a state primary school in a coastal suburb one hour from Brisbane, Australia. The sample comprised of 116 male and 95 female children. Overall the mean age for girls was 9 years 6 months (SD=2.16), while the mean age for boys was 8 years 9 months (SD=2.12). Ages ranged from 5 years 5 months to 13 years 6 months.

The school district selected covered a diversity of socio-economic and ethnic families. Exclusion criteria included children from a non-English speaking background and children with any pervasive developmental disorder. Of the 308 families invited to take part in the study, 211 families agreed to participate, resulting in a participation rate of 69%, an excellent participation rate considering the sample
was drawn from a school setting. Within these families 148 mothers and 24 fathers were involved in the study.

English was the first language spoken by 83% of the families who participated in the study. The child’s placement in the family was recorded with 5.2% being an only child, 37% the youngest child, 16.5% the middle child, and 28% the oldest child. Biological families (biological mother and father both living with the child) accounted for 60.2% of families, with 19% being single parent families, 6.2% blended families (step parent) and 1.9% of children living with grandparents or guardians. Mothers’ education levels were recorded as the highest education level obtained; 12% junior certificate, 37% senior certificate, 7% trade or apprenticeship, 21% tertiary level. Two percent recorded no schooling, while 6% were currently undertaking study. Fathers’ education levels were; 10% junior certificate, 22% senior certificate, 22% trade or apprenticeship, 12% tertiary level. One percent had recorded no schooling, with 1% currently undertaking study. The range of family income was as follows; under $20 000, 23%; $20 001-$30 000, 16%; $30 001 - $40 000, 11%; $40 001 - $50 000, 7%; and income greater then $50 000, 18.5%.

Children were included in the study after their parents provided written consent. Each family was eligible to win a family weekend at a fun park and resort in appreciation for their participation. Permission to conduct the research was obtained from the Griffith University Human Research Ethics Committee (Appendix A), and from the participating school principal and teaching staff (Appendix B).
Materials

Demographic information

The demographic information sheet (Appendix C) requested information such as the child’s age and gender, details of family members, parent’s education levels, and family socio-economic status.

Griffith Empathy Measure

The Griffith Empathy Measure (GEM) is a new measure of empathy designed to more comprehensively investigate the measurement of affective empathy in children using a combination of parent reports, child reports, and an observational measure of children’s affective responses to videotaped protagonists. The Griffith Empathy Measure consists of the Griffith Empathy Measure – Parent Report (GEM-PR; Appendix D), Griffith Empathy Measure – Video Observation (GEM-VO), and Griffith Empathy Measure – Self Report (GEM-SR; Appendix E). The GEM-VO and the GEM-SR shall be investigated at length in a study two.

Griffith Empathy Measure – Parent Report

The Griffith Empathy Measure –Parent Report (GEM-PR; Hunter, Dadds, & Rushmore, in press) was adapted from Bryant’s Index of Empathy for Children and Adolescents (1982). The 23 item measure requires the parent to reflect on their child’s empathic responses to various proposed situations, such as “my child becomes sad when other children around him/her are sad”. The GEM-PR is a 23 item measure in which the respondent answers each item on a nine-point Likert scale from strongly disagree (-4) to strongly agree (+4). The GEM-PR adopted the original nine-point Likert scale used in Mehrabian and Epstein’s (1972) original adult version (QMEE),
as it yielded more valid and reliable information than the simple yes/no format used in
Bryant’s Child and Adolescent version (1982). With provision for the items that need
reverse scoring (3, 6, 13, 17, 20, 21, 23) the scores for all of the items are summed,
with a high score indicating high empathy. The maximum score obtainable is 92, with
the minimum being -92. The original measure was designed for children aged 5 to 12
years and has demonstrated satisfactory reliability and construct validity. Questions
were reworded so that they were in third person format, rather than a personal
reflection. For example in Bryant’s item “I get upset when I see an animal being hurt”
was changed to “My child gets upset with he/she sees an animal being hurt”.

This questionnaire method was designed to assess empathy in a way that the
items tap individual’s responses to a wide variety of situations. This questionnaire
method does not require a direct empathic response to others in a specific hypothetical
or actual situation. The measure gathers information on the general style in which
children respond to others in a number of personally relevant events. For example, “It
makes my child sad to see another child who can’t find anyone to play with”.

Bryant’s Index of Empathy for Children and Adolescents (1982)

The Bryant’s Index of Empathy for Children and Adolescents (Appendix F)
was originally adapted from an adult version of the Questionnaire Measure of
Emotional Empathy (QMEE; Mehrabian & Epstein, 1972) for use with children and
adolescents. The Bryant’s is a self-report measure and contains 22 items. Each of the
seventeen items adapted from the QMEE were reworded in order to be appropriate for
use with children, e.g., “I often find public displays of affection annoying” became
“People who kiss and hug in public are silly”. When required, the Bryant’s adapted
version used one item with a designated male stimulus and a parallel item with a
female stimulus. This was based on the previous finding that boys and girls are more empathic towards their similar sex (Bryant, 1982). When this measure was used on children of school age (grade 1, 4, & 7), a version using a yes/no format was substituted instead of the QMEE’s Likert scale. The items 2, 3, 9, 10, 15, 16, 17, 18, 20, 21, and 22 are reverse scored, with the higher the total score reflecting greater empathy. Strengths of the Bryant include the ease of administration and the option of comparable age versions (child, adolescent, adult) which allows for the attainment of developmental data.

In a study involving 258 male and female children (grade 1, 4, and 7), the measures’ reliability and validity was assessed (Bryant, 1982). Internal consistency computing Cronbach alpha coefficients ranged was .54, .68 and .79 for grade 1, 4 and 7 respectively. Evidence of construct validity was also found with convergent validity with Feshbach and Roe’s (1968) measure of empathy. Correlations were .33, .54 and .76 for the three age groups respectively. The correlation obtained for the female first graders however did not achieve significance at $p < .05$. Non-significant correlations with reading achievement scores also supported the Bryant’s discriminant validity. As the Bryant’s found age and sex differences consistent with previous research, the measure’s construct validity was further supported. The Bryant’s was not found to be correlated with social desirability measures (Bryant, 1982). Results also indicated satisfactory reliability; test-retest reliability was $r (53) = .74$ for the first graders, and $r (108) = .83$ for the fourth grader using the yes/no format. Using a nine-point response format, test-retest reliability was also reported for seventh grade children ($r (80) = .83$; Bryant, 1982). These results indicate the Bryant’s has an adequate degree of stability over time.
Procedure

A package consisting of an information sheet, a consent form, a demographic form and the Griffith Empathy Measure - Parent Report (Mother and Father copies) were sent home to families to be completed by parents. Information sheet and consent forms (Appendix C) were sent home to families invited to participate in the study. The information sheet explained the nature of the research and the requirements of the participants and their families. Both mothers and fathers were invited to complete the Griffith Empathy Measure - Parent Report. The total time for parents to complete this measure is approximately 5 minutes. Children whose parents had completed the consent forms were then invited to participate in the study. Participants were advised that they were free to withdraw at any stage, and that the data would remain confidential.

The Bryant’s Index of Empathy for Children and Adolescents, a child self-report of affective empathy, was administered within the school. The children in grades 1 and 3 were interviewed individually with assistance with completing the Bryant’s Index of Empathy for Children and Adolescents, while children in grades 5 and 7 completed this measure in their class groups.

Results

Griffith Empathy Measure - Parent Report and Bryant's Child Report

The internal consistency of the GEM-PR was examined using Cronbach’s Alpha. The GEM-Mother Report was found to have an alpha of .81, while the GEM-Father Report was .61, indicating moderate homogeneity across the measure’s items for both parents. As a measure of concurrent validity, strong positive correlations were found between the Mother and Father GEM - Parent Reports for grade 5 and 7.
boys and girls of all age groups (see table 2). The Bryant’s Index of Empathy for Children and Adolescents was included to allow for further comparison of parent and child self-reports of affective empathy. Analysis of the Bryant’s internal consistency provided support for the previous reports of the measure’s internal reliability (alpha = .80). Curiously, although not significant, a negative relationship was found between child and parent reports of empathy, especially between the Bryant child self-report and the father report.

Table 2.

| Correlational data between the GEM-PR (Mother and Father), and the Bryant’s Child Self Report |
|-----------------------------------------------|-----------------------------------------------|-----------------------------------------------|-----------------------------------------------|-----------------------------------------------|
| Grade | Grade | Grade | Grade |
| 1 & 3 | 5 & 7 | 1 & 3 | 5 & 7 |
| Male | Male | Female | Female |
| GEM-PR Mother & GEM-PR Father | \( r = .20 \) (N= 33) | \( r = .55^* \) (N= 31) | \( r = .54^* \) (N= 16) | \( r = .37^* \) (N= 38) |
| GEM-PR Mother & Bryant’s Child Self Report | \( r = -.08 \) (N= 45) | \( r = -.06 \) (N= 38) | \( r = -.09 \) (N= 27) | \( r = -.21 \) (N= 47) |
| GEM-PR Father & Bryant’s Child Self Report | \( r = .07 \) (N= 31) | \( r = -.36 \) (N= 27) | \( r = -.23 \) (N= 15) | \( r = -.26 \) (N= 38) |

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

In summary, the GEM-PR displays moderate convergence between mother and father reports of child affective empathy. A negative non-significant relationship was found between the GEM-PR (mother and father) and the Bryant’s Index of Empathy for Children and Adolescents, a child self-report measure of affective empathy. The GEM-PR was also found to demonstrate adequate to excellent internal consistency.
Test-Retest Reliability of GEM-PR

A second pilot study was conducted to further assess the reliability of the Griffith Empathy Measure – Parent Report. Participants consisted of a convenience sample of 31 parents with children aged 5 to 12 (grades 1, 3, 5 & 7). Parent participants were acquired through acquaintances of the research team who had children in the appropriate age range. No participants were included who had participated in study one. Parents and their children were all from a working to middle class, Caucasian background. All participated on a voluntary and anonymous basis. The Griffith Empathy Measure – Parent Report, as described in study one was given to the parents on both test and retest occasions. Parents were given two copies of the Griffith Empathy Measure - Parent Report, with clear instructions to complete the second copy of the measure a week following the first. To ensure that this time gap was adhered to, participants were instructed to date the completion of the measures and were followed up one week after being given the measures, to prompt completion of the retest measure.

Results

Parents completed the GEM-PR twice, with one week between administrations. Data from these first and second administrations were compared to assess test-retest reliability. The reliability of the GEM-PR was assessed with a paired samples bivariate correlation analysis. The measure demonstrated a strong positive correlation between administrations ($r = .95, p < 0.01$). In summary, these findings suggest that the GEM-PR is a reliable measure with a one-week test-retest period.
Test-Retest Reliability of Bryant’s Index of Empathy for Children and Adolescents.

Participants consisted of a convenience sample of 31 children aged 5 to 12. Child participants were again acquired through acquaintances of the research team who had children in the appropriate age range. No participants were included who had participated in study one. Children were all from a working to middle class, Caucasian background. All participated on a voluntary and anonymous basis. The Bryant’s Index of Empathy for Children and Adolescents, as described in study one was given to the children on two occasions with one-week interval. Children were administered the Bryant’s Index of Empathy for Children and Adolescents, with the children under age eight given individual assistance to complete the measure. Child participants were readministered the measure one week later, again with children younger children given individual assistance.

Results

The results of this pilot study of the Bryant’s Index of Empathy for Children and Adolescents provided support for the hypothesis that the measure would demonstrate adequate test-retest reliability. Comparison of the first and second administrations of the Bryant’s Index of Empathy for Children and Adolescents attained test-retest reliability. Reliability was assessed using a paired-samples bivariate correlation. The Bryant’s demonstrated a positive correlation between administrations. ($r = .69$, $p < 0.01$). These findings support prior research that has reported the Bryant’s having adequate to strong test-retest reliability (Bryant, 1982).
Discussion

The results of the pilot study of the Griffith Empathy Measure - Parent Report provided support for the hypothesis that the measure would show convergence between mother and father reports. This finding is consistent with the data from the meta-analysis conducted by Achenbach, McConaughy, & Howell (1987) and Duhig, Renk, Epstein and Phare (2000) that reported moderate convergence between mother and father reports of their child’s emotional and behavioural problems. Achenbach and colleagues also reported that their younger age group (6-11 years) had a higher correlation between parent measures than the older adolescent age group. This finding is consistent with the high level of convergence in the present study. The finding that the parent report and the child report did not significantly correlate is again consistent with the literature (Sawyer, Baghurst, & Clark, 1992). Differences in these informant responses may reflect the personal characteristics of the informants. Not only are there the differences of a self and other report, but also there is a large difference in the informants’ ages, emotional maturity, interpersonal insight and vocabulary, role within the family and socio-cultural pressures.

While the question of whether or not there is an optimal informant in rating this complex interpersonal phenomenon remains of crucial importance, the potential richness and wealth of information that is obtainable from multiple informants should not be overlooked. Indeed Bartels et al., (2003) argue that each parent assesses behaviours that are specifically relevant to that parent. These findings support the use of a multimethod approach to the assessment of affective empathy in children as one could argue that rather then searching for the more accurate source, the information received from different informants is unique and important in conceptualizing the complex construct of affective empathy in children.
There have been no comparative studies that have assessed the convergence of a parent measure and child self-report measure of affective empathy. As this is a new area of research these findings must be interpreted with caution. Although previous research has found that social desirability does not confound child reports of empathy (Bryant, 1982), the effects of social desirability on parent reports of child empathy have yet to be assessed. Social desirability measures were not included in the research design due to the earlier cited findings that this construct was not found to influence child self-reports on empathy. As with all new research tools, the social desirability construct needs to be re-examined when looking at the parent report measures.

An alternate informant option is a teacher report of child affective empathy. Teachers would of course have the advantage of the adult cognitive capacity to judge the items, as well as possibly providing a more objective assessment of the child’s affective empathy. The teacher report also has the hindrance or possible advantage of being based on information that is of relevance to the teacher.

The results of the pilot study of the Griffith Empathy Measure – Parent Report support the hypothesis that the inventory would have strong test-retest reliability. While these results support the measure, it is interesting to explore the factors involved in consistent parent appraisals of child affective empathy. This test-retest reliability suggests that contextual or situational factors that may have changed between time one and time two, such as the parent’s mood toward the child due to child behaviour or environmental stress, have not influenced the parent’s report of their child’s affective empathy.
STUDY TWO

The aim of the second study was to assess the reliability and validity of the newly developed multimode measure of child affective empathy (Griffith Empathy Measure - Video Observation & Griffith Empathy Measure - Self Report). In addition to adequate inter-rater reliability, despite there being no research precedence, it was hypothesized that the GEM-VO and GEM-SR would have adequate levels of test-retest reliability proving stability over time.

Test-Retest Reliability of the GEM-VO and GEM-SR

A pilot study was conducted to assess the reliability of the Griffith Empathy Measure - Video Observation and the Griffith Empathy Measure - Self Report. Participants consisted of a convenience sample of 20 children aged 5 to 12, from grades 1, 3, 5, and 7. Child participants were acquired through acquaintances of the research team who were in the appropriate age range. No participants were included who had participated in study one. The children were all from a working to middle class, Caucasian background. All participated on a voluntary and anonymous basis. The Griffith Empathy Measure – Video Observation and the Griffith Empathy Measure – Self Report were administered to the child participants.

The Griffith Empathy Measure – Video Observation

The Griffith Empathy Measure – Video Observation (GEM-VO; Hunter, Dadds, & Deshon, in press) is an observational measure of children’s affective responses to videotaped protagonists. The children’s facial expressions were unobtrusively videotaped as they watched the protagonists expressing a range of emotions.
emotions. The GEM-VO is similar to Strayer and Roberts’s (1997) measure as it consists of 8 vignettes portraying the predominant emotions of happy, sad, fear and angry. Two vignettes portrayed predominantly sad, two portrayed happy, three portrayed fear and one portrayed angry. Each emotion featured both male and female protagonists. This measure design accounts for the previous finding that girls and boys are more empathic to protagonists of their own gender (Strayer & Roberts, 1997). Simple and straightforward vignette storylines were specifically chosen to cater for the developing cognitive abilities of the younger grades. A brief description of each of the vignettes is provided in Appendix G. As children have been more found to be empathic towards other children rather than adults (Strayer & Roberts, 1997), the protagonists’ ages approximated those of the participants (4 to 9 years) to allow for the younger age group to identify with the video stimulus.

To ensure that the younger children maintained optimal attention, an alternate younger version on the video measure was used for grade 1. This version included a group exercise of standing up and shaking their hands to re-energise and refocus their attention on the next vignette. This version was trialled with the grade 3 participants but proved not to be necessary. The two happy vignettes were placed at the end of the measure, to neutralise any carry over effects of the previous negative emotion vignettes. A uniform beeping noise was used to cue the participants that the next vignette was about to play. Each vignette runs for approximately 1.5 minutes. The duration of the video stimulus that did not include the standing up exercise (grades 3, 5 & 7) is approximately 15 minutes.

For coding purposes the four emotion categories depicted on the video were used (happy, sad, angry, and fearful) in addition to neutral. Facial expressions filmed whilst watching the vignettes were scored by three coders (two female and one male)
trained in Izard’s Facial Coding System (Izard & Dougherty, 1982). To allow for uniform coding of the predominant facial expressions, the expressions were operationally defined (Appendix H; Strayer & Roberts, 1997). As emotional expressions are fluid, an overall predominant emotion was coded. Strayer and Roberts (1997) also found this coding approach most appropriate, with the predominant emotion defined as the most frequent non-neutral emotion expressed. If several emotions were displayed the most frequent emotion was coded as predominant. Neutral was coded if no other emotions were evident. The rationale of this coding system is that frequency is not indicative of facial matching, rather it is the accuracy of the facial reflection of the protagonist’s emotion, and therefore a display of emotion overrides a more frequent neutral expression. A three-minute baseline tape for each participant was viewed initially to familiarise the coders with any idiosyncratic facial characteristics. Coders had all completed a psychology honours undergraduate degree. Coders were blind to additional data collected from the participants. With the use of the operational definitions of each emotion (see Appendix H), coders underwent thorough training, until the practice coding resulted in constant results across independent raters.

For purposes of analysis the emotions of fear, sadness and anger were categorized as negative emotions, while happy was categorized as a positive emotion. The emotions confused and surprised which were originally included to add breadth the response options, were later recoded as neutral as the response rate of these emotions was negligible.

Apart from comparison with other measures of empathy, two key sources of information derived from the GEM-VO include the effects of age and gender on facial
affect displayed and the age and gender effects on this facial indice of empathy (correct facial mirroring of protagonist’s facial expression).

The Griffith Empathy Measure – Self Report

The Griffith Empathy Measure – Self Report (GEM-SR; Hunter, Dadds & Rushmore, in press) involves children reporting the emotions they believed the video protagonist from the GEM-VO stimuli felt and how they felt while watching the vignettes. The participants were individually interviewed after first watching all of the vignettes. This self-report measure was adapted from Strayer and Roberts (1997). A picture of the vignette character/s cued the participant’s recollection of each vignette story. The children were then asked to describe the vignette’s content in their own words as a check of their memory and comprehension. They were asked to report each character’s emotion and its intensity, and whether they themselves felt neutral (“OK”, “just regular”) or an emotion and its intensity in response to the vignette. The purpose of the GEM-SR is for the participants to self-report their empathic responses to each video vignette. Simple cartoon faces depicting different facially expressed emotions were offered to help especially the younger children verbalize and select emotions. The memory check and interview questions are carried out for each vignette in turn.

The emotions confused and surprised, which were originally included to add breadth the response options, were later recoded as neutral as the response rate of these emotions was negligible. Scores of these measures are represented as percentages. Various sources of valuable information were obtained such as the participants’ ability to correctly identify the protagonist’s emotions, the self-reported affect of emotion of the participant (how frequently the participant attributed
experiencing an emotion whilst watching the video stimulus), and the degree to which the participants matched their own emotion experienced with the protagonist’s emotion (self-reported matching of affect).

Information from the GEM-VO and the GEM-SR allows the researcher to compare: 1) the age and gender patterns that emerge from both measures (verbal and facial indices of empathy), 2) the consistency between the emotion displayed (GEM-VO) and the emotion that the children report they felt (GEM-SR), and 3) the convergence between this facial and verbal measures of empathy.

Procedure

The GEM-Video Observation was conducted with children in groups of one to three in a quite lounge setting. A small video camera was unobtrusively mounted directly on top of the television covered by a dark sheet of material. The children were seated to ensure each child’s face was in clear view of the camera. After the participants were seated they were informed that they were going to watch a video and were later going to be asked a few questions about the video. The children were encouraged to watch carefully, with an incentive stamp given at the end of the video. After the children viewed the video, the investigator debriefed the group asking them which scenes they liked and disliked. The children were then presented with a brief statement which indicated a happy ending to each of the scenarios. A research assistant remained in the room and unobtrusively supervised the children while they watched the video.

After viewing the GEM video vignettes, each child was taken aside and interviewed individually with the GEM-Self Report. During the interview, each child was cued by a picture of the protagonist from each vignette and then as a memory and
comprehension check asked what happened in that specific vignette. A positive check was awarded if the child could accurately explain the theme of each vignette. If a positive recall of the vignette was achieved the participants were then asked to identify the predominate emotion displayed by the protagonist and then asked to report on how they felt while watching each vignette. Each record sheet displayed cartoon pictures of faces showing the emotions of sad, angry, surprised, scared, happy and confused. Interviewers used these to help prompt the participants if needed.

To allow for test-retest analysis, the GEM-VO and The GEM-SR were readministered a week following the first completion following the same procedure outlined. The GEM-VO and the GEM-SR were then coded as previously described in study one and above, respectively.

Results

Children were shown the same video stimulus at time 1 and time 2 to test stability of responses to the video material over the two assessment sessions. At time 1 the child participants displayed facial affect forty-nine percent of the time across all vignettes (range 20% - 65%). At time 2 the children continued to be reacting to the video stimulus with a similar degree of facial affect (mean = 51%, range 20% - 65%). These data suggest that although children had watched the video stimulus their interest and responsiveness to the video stimulus was maintained.

The data from the GEM-VO were analysed as the percentage of times the child showed the same predominant facial expression across test 1 and test 2 for each of the vignettes. For vignette 1 through to 8 the percentage of facial expressions that matched across the two testing session was 75%, 85%, 85%, 80%, 40%, 50%, 80%, 80%, 80%.
and 80%, respectively. The average across all 8 vignettes was 72% indicating adequate to strong test-retest reliability for the GEM-VO.

As the GEM-SR consists of the child reporting how they perceived the vignette character to be feeling for each of the vignettes (character report), and reporting how they were feeling while watching each to the vignettes (participant report), the test-retest findings shall be broken down into these two components. For the character report matches, the percentage of matches between time 1 and time 2 were 90%, 90%, 85%, 90%, 75%, 90%, 90% and 90%, across the 8 vignettes respectively, averaging at 87.5%. The percentage of matches across both testing sessions for the participant self-report (participant report) component was 70%, 60%, 65%, 70%, 55%, 65%, 80% and 70%, respectively, averaging at 67%. As would be expected due to the effects of habituation to stimulus material the test-retest reliability of the participant self-report was not as strong as the more consistent character report. The findings remain at significant levels however for both of the components of the GEM-SR, demonstrating the measure’s satisfactory reliability over time.

Inter-Rater Reliability of the GEM-VO

Of the 211 participants from study one, thirty percent of the sample were later coded for inter-rater reliability (N=60). As described in the previous study, the GEM-VO was administered to the child participants within the school setting. Children were randomly assigned to groups of 3 to 5 to watch the Griffith Empathy Measure – Video Observation, in a quite classroom set aside for the research. A small video camera was unobtrusively mounted directly on top of the television covered by a dark sheet of material. The required numbers of chairs were placed in two lines in front of the television with the taller children sitting at the back to ensure each child’s face was in
clear view of the camera. After the participants were seated they were informed that they were going to watch a video and were later going to be asked a few questions about the video. The children were encouraged to watch carefully, with an incentive stamp given at the end of the video. After the children viewed the video, the investigator debriefed the group asking them which scenes they liked and disliked. The children were then presented with a brief statement that indicated a happy ending to each of the scenarios. A research assistant remained in the room and unobtrusively supervised the children while they watched the video.

The training of coders involved the same procedure as previously outlined. A three-minute baseline tape for each participant was viewed initially to familiarise the coders with any idiosyncratic facial characteristics. Coders were blind to additional data collected from the participants, and to each other’s coding. With the use of the operational definitions of each emotion (see Appendix H), coders underwent thorough training, until the practice coding resulted in constant results across independent raters.

Results

The inter-rater reliability of the GEM-VO was assessed for each of the predominant emotions for 30% of study one’s sample (N=60). Using a kappa coefficient, there was agreement between the two coder’s with scores of .90, .88, .86, .89 and .80 for the emotions happy, sad, fear, anger, and neutral, respectively. These results suggest robust inter-rater reliability, which is essential to observational research of this nature.
Discussion

The hypothesis that the GEM-VO and the GEM-SR would demonstrate adequate test-retest reliability and inter-rater reliability was supported by the analysis. Previous research using observation and self-report measures has not provided test-retest data. As a result, the hypothesis proposed was not based on evidence provided by research and the outcome was of particular theoretical and methodological interest. If affective empathy is partially due to situational contexts then it would be expected that due to the changed context at time two, such as the child having seen the video stimulus on a prior occasion, or changes in mood and environmental context, there would be a change or possibly a dramatic decrease in affective empathy at time two. The data however suggests a consistent level of facial affect and reliable facial expression and self-report data across the two time periods. This lack of habituation indicates that the children remained sensitive to the video stimulus protagonists. The reliability of this measure permits the measure to be readministered to children if needed in a treatment or assessment setting (i.e., pre and post measure). Because there was no increase in facial emotions or self-reported emotion from time 1 to time 2, a practice effect doesn’t appear to be evident.
STUDY THREE

The aim of the third study was to investigate and compare the data derived from the GEM - Video Observation, the GEM - Self Report, the GEM - Parent Report and the Bryant Index. Information derived from the GEM-VO and the GEM-SR consists of 1) the age and gender patterns that emerge from both measures (facial and self-reported matching of affect), 2) the consistency between the emotion displayed (GEM-VO) and the emotion that the children report they felt (GEM-SR), and 3) the convergence between facial and self-reported matching of affect. Additional constructs such as facial affect, self-reported affect and the ability to correctly identify protagonist’s emotions are also investigated across age and gender.

This multimethod approach allows comparison of the age and gender trends as reported by the various measures of child affective empathy. It was hypothesized that the GEM-VO and the GEM-SR would converge with the GEM-PR and the Bryant’s child self-report, with the GEM-SR demonstrating a stronger convergence with the child and parent report measures then the GEM-VO. A further hypothesis was that age and gender patterns shall be comparable across measures, with affective empathy increasing with age and higher in females.

Method

Participants

Study three utilized the same participant sample as study one. The information pertaining to these 211 children from grades 1, 3, 5, and 7 is outlined in study one. Children were included in the study after their parents provided written consent. Permission to conduct the research was obtained from the Griffith University Human
Research Ethics Committee, and from the participating school principal and teaching staff.

**Materials**

The demographic form, consent form and all four measures of child affective empathy were used in study three’s design. The Griffith Empathy Measure – Video Observation, Griffith Empathy Measure – Self Report, Griffith Empathy Measure – Parent Report, and the Bryant’s Index of Empathy for Children and Adolescents have been outlined in study one and two.

**Procedure**

A package containing an information sheet, consent form, demographic form and Griffith Empathy Measure – Parent Reports for both mother and father, were issued to parents of children who were in grade 1, 3, 5 & 7. Those parents who were willing to participate then returned the completed forms to the school. Children whose parents had completed the consent forms were then invited to participate in the study.

The Griffith Empathy Measure – Video Observation, the Griffith Empathy Measure – Video Self Report and the Bryant’s Index of Empathy for Children and Adolescents were administered to children within the school setting. These measures were administered as outlined in prior study procedures.

**Results**

*GEM-VO -Facial Affect across Age and Gender*

Facial affect was measured as the degree to which a child displayed a non-neutral facial expression (i.e. happy, sad, angry) over a neutral expression. When
interpreting the data from the GEM-VO, it is important to first identify age and gender trends in facial affect. Facial affect included any emotion expressed, irrespective of what emotional stimulus was being presented. These data explore the question of whether children’s facial affect changes with age and gender.

Table 3.

Facial affect across age and gender

<table>
<thead>
<tr>
<th></th>
<th>Grade 1 &amp; 3</th>
<th>Grade 5 &amp; 7</th>
<th>Grade 1 &amp; 3</th>
<th>Grade 5 &amp; 7</th>
<th>Grade 1 &amp; 3</th>
<th>Grade 5 &amp; 7</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Male</td>
<td>Female</td>
<td>Male</td>
<td>Female</td>
<td>Total</td>
<td>Total</td>
</tr>
<tr>
<td>Facial affect (pos. and neg. emotions)</td>
<td>67.9 (26.3)</td>
<td>66.5 (22.5)</td>
<td>46.2 (28.7)</td>
<td>40.0 (27.2)</td>
<td>67.3 (24.6)</td>
<td>42.6 (27.8)</td>
</tr>
<tr>
<td></td>
<td>(N= 55)</td>
<td>(N=32)</td>
<td>(N= 42)</td>
<td>(N= 54)</td>
<td>(N= 87)</td>
<td>(N= 96)</td>
</tr>
<tr>
<td>Facial affect – positive emotions</td>
<td>25.7 (22.6)</td>
<td>22.5 (14.4)</td>
<td>24.6 (25.9)</td>
<td>21.5 (19.5)</td>
<td>24.4 (19.7)</td>
<td>22.8 (22.3)</td>
</tr>
<tr>
<td></td>
<td>(N= 55)</td>
<td>(N=32)</td>
<td>(N= 42)</td>
<td>(N= 54)</td>
<td>(N= 87)</td>
<td>(N= 96)</td>
</tr>
<tr>
<td>Facial affect – negative emotions</td>
<td>42.2 (23.6)</td>
<td>44.0 (23.7)</td>
<td>21.6 (21.9)</td>
<td>18.5 (19.7)</td>
<td>42.9 (23.5)</td>
<td>19.8 (20.6)</td>
</tr>
<tr>
<td></td>
<td>(N= 55)</td>
<td>(N=32)</td>
<td>(N= 42)</td>
<td>(N= 54)</td>
<td>(N= 87)</td>
<td>(N= 96)</td>
</tr>
</tbody>
</table>

NB: Values expressed as mean (standard deviation) are derived from the percentage of facial expression across all 8 vignettes.

Table 3 shows means and SDs of facial affect across age and gender. It was hypothesised that facial affect would decrease with age due to an increase of masking of expressed emotion. These findings that across both genders children tend to decrease their level of facial affect across age, supports this hypothesis. Although facial affect of positive emotions remained stable across the age groups for both genders, the expression of negative emotions and positive and negative emotions combined shows a dramatic decrease in grades 5 & 7 compared to grades 1 & 3 for both boys and girls. Results were examined using ANOVA’s to test age and gender effects on facial affect of positive emotions, negative emotions, and all emotions combined. There was no main effect for gender or interaction with age for facial
Affect of any emotion type. A main effect for age was found for the facial affect of negative emotions, $F(1, 211) = 36.92, p < .001$, and positive and negative emotions combined, $F(1,211) = 27.71, p < .001$. These data support the argument that with age children are more inclined to mask the expression of their emotion.

**GEM-VO - Facial Matching across Age and Gender**

Facial matching is the match between the participant’s predominant facial expression and the vignette character’s predominant emotion. This is a measure of the tendency of the participant to facially mirror the emotion depicted by the vignette characters facial expression. The data examining the age and gender effects on facial matching can be found in table 4.

<table>
<thead>
<tr>
<th>Facial matching across all vignettes</th>
<th>Grade 1 &amp; 3 Male</th>
<th>Grade 5 &amp; 7 Male</th>
<th>Grade 1 &amp; 3 Female</th>
<th>Grade 5 &amp; 7 Female</th>
<th>Grade 1 &amp; 3 Total</th>
<th>Grade 5 &amp; 7 Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>52.4 (27.1) (N= 57)</td>
<td>34.1 (22.8) (N= 44)</td>
<td>57.2 (26.3) (N= 33)</td>
<td>31.0 (22.9) (N= 56)</td>
<td>54.2 (26.8) (N= 90)</td>
<td>32.4 (22.8) (N= 100)</td>
</tr>
<tr>
<td>Facial matching across negative vignettes</td>
<td>52.1 (30.4) (N= 57)</td>
<td>30.7 (26.4) (N= 44)</td>
<td>54.6 (33.7) (N= 33)</td>
<td>27.9 (26.9) (N= 56)</td>
<td>53.0 (31.5) (N= 90)</td>
<td>29.1 (26.6) (N= 100)</td>
</tr>
<tr>
<td>Facial matching across positive vignettes</td>
<td>54.4 (44.6) (N= 57)</td>
<td>44.3 (42.1) (N= 44)</td>
<td>65.2 (36.4) (N= 33)</td>
<td>40.2 (37.4) (N= 56)</td>
<td>58.3 (41.9) (N= 90)</td>
<td>42.0 (39.4) (N= 100)</td>
</tr>
</tbody>
</table>

NB. Values expressed as the mean percentage of matches (standard deviation) of participant facial expression with vignette protagonist’s facial expression.

Table 4 shows means and SDs for facial matching across age and gender. Age and gender effects on facial matching across negative vignettes, positive vignettes and
combined vignettes were examined using ANOVA’s. No main effect for gender or interaction effect with age was found for any of these variables. A main effect was found for age for all three variables: total facial matching score $F(1,211) = 36.49, p < .001$; negative and positive vignettes, $F(1,211) = 30.73, p < .001$ and $F(1,211) = 8.41, p < .001$, respectively. These data address the question of how differentially effective the positive and negative vignettes were at inducing empathically correct facial expressions. In contrast to the hypothesis that facial matching would increase with age it was found that children are more facially empathic in the younger age groups then in the older age groups. This finding is especially pronounced amongst the negative vignettes with young children much more inclined to demonstrate facial matching involving negative emotions then the older children. Between genders, for both positive and negative vignettes, it appears that in the grade 1 & 3 groups; girls demonstrated higher facial matching, however in the older age groups, despite the general downward trend in facial matching with age, boys scored higher in facial matching then girls.

**GEM-SR – Self Reported Affect across Age and Gender**

Self-reported affect is a measure of the likelihood of a child to self-report feeling an emotion such as anger or sadness rather then reporting they felt neutral when watching the video stimulus. Table 5 which shows means and SDs, outlines the changes in self-reported affect across age and gender.
Table 5.

Self-reported affect across age and gender

<table>
<thead>
<tr>
<th>Grade</th>
<th>Male</th>
<th>Grade</th>
<th>Male</th>
<th>Grade</th>
<th>Female</th>
<th>Grade</th>
<th>Female</th>
<th>Grade</th>
<th>Total</th>
<th>Grade</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Self-reported affect (pos &amp; neg emotions)</td>
<td>55.4 (31.1) (N= 39)</td>
<td>43.6 (31.7) (N= 35)</td>
<td>66.0 (26.2) (N= 27)</td>
<td>70.8 (24.8) (N= 48)</td>
<td>59.7 (29.5) (N= 66)</td>
<td>58.9 (30.6) (N= 83)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Self-reported affect (neg emotions)</td>
<td>21.0 (21.7) (N= 39)</td>
<td>26.1 (23.5) (N= 35)</td>
<td>33.0 (27.7) (N= 27)</td>
<td>45.1 (20.7) (N= 48)</td>
<td>25.8 (24.8) (N= 66)</td>
<td>37.2 (24.7) (N= 83)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Self-reported affect (pos emotions)</td>
<td>34.5 (27.2) (N= 39)</td>
<td>17.4 (10.8) (N= 35)</td>
<td>33.0 (22.8) (N= 27)</td>
<td>24.7 (15.3) (N= 48)</td>
<td>33.9 (25.3) (N= 66)</td>
<td>21.7 (14.0) (N= 83)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

NB. Values expressed as the mean percentage (standard deviation) of times the participant reported feeling a non-neutral emotion while watching each vignette.

The hypothesis that self-reported affect would decrease with age was partially supported. Results were examined using ANOVA’s to test age and gender effects on self-reported affect across negative emotions, positive emotions and negative and positive emotions combined. No interaction effect between age and gender was found for self-reported affect for positive emotions, negative emotions, or positive and negative emotions combined. A main effect for gender was found for the verbal expression of negative emotions, $F(1,211) = 15.36, p < .001$, and negative and positive emotions combined, $F(1,211) = 14.0, p < .001$. A main effect was also found for age for verbal expression of negative emotions $F(1,211) = 4.76, p < .05$, and positive emotions $F(1,211) = 13.81 p < .001$, but not the combined score of facial affect.

These findings indicate significant differences in self-reported affect across age, gender and type of emotion expressed (see table 5). In contrast to the stated hypothesis, both boys and girls expressed more negative verbal emotion in the older age groups then the younger age groups, with girls expressing significantly more negative emotions then boys across all age groups. In contrast verbal expression of
positive emotions decreased with age across both genders. The hypothesis that self-reported affect would decrease with age was therefore supported in regards to expression of positive emotions, but not supported in regard to negative emotions. There was a marked decrease in the degree of variability in responses in the older age groups with a standard deviation of 10.8 and 15.3 for boys and girls, respectively. These data suggest a larger range in self-reported affect in the younger age groups. Similarly to negative emotions, girls also expressed more positive emotions than boys in the grade 5 & 7 age groups. Boys were found to more frequently verbally report feeling neutral as opposed to an emotion, then girls across all age groups.

**GEM-SR – Correctly Identifying Protagonist’s Emotions.**

The GEM-SR requires the participant to identify the emotion of the protagonists in each vignette before reporting how they themselves felt whilst watching the vignettes. Below are the data pertaining to the child participant’s ability to correctly identify the protagonist’s predominant emotion across the negative and positive emotional vignettes (see table 6).

Table 6.  
**Protagonist’s emotions correctly identified across age and gender**

<table>
<thead>
<tr>
<th></th>
<th>Grade 1 &amp; 3 Male</th>
<th>Grade 5 &amp; 7 Male</th>
<th>Grade 1 &amp; 3 Female</th>
<th>Grade 5 &amp; 7 Female</th>
<th>Grade 1 &amp; 3 Total</th>
<th>Grade 5 &amp; 7 Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>All emotions</td>
<td>87.0 (13.4)</td>
<td>96.1 (6.5)</td>
<td>84.5 (17.0)</td>
<td>93.5 (11.4)</td>
<td>86.0 (14.9)</td>
<td>94.6 (9.6)</td>
</tr>
<tr>
<td></td>
<td>(N= 53)</td>
<td>(N= 42)</td>
<td>(N= 34)</td>
<td>(N= 55)</td>
<td>(N= 87)</td>
<td>(N= 97)</td>
</tr>
<tr>
<td>Negative emotions</td>
<td>83.9 (16.9)</td>
<td>95.6 (8.3)</td>
<td>80.2 (22.3)</td>
<td>91.3 (15.3)</td>
<td>82.5 (19.2)</td>
<td>93.2 (12.9)</td>
</tr>
<tr>
<td></td>
<td>(N= 53)</td>
<td>(N= 42)</td>
<td>(N= 34)</td>
<td>(N= 55)</td>
<td>(N= 87)</td>
<td>(N= 97)</td>
</tr>
<tr>
<td>Positive emotions</td>
<td>97.2 (11.7)</td>
<td>97.6 (10.8)</td>
<td>97.1 (11.9)</td>
<td>100.0 (.00)</td>
<td>97.1 (11.7)</td>
<td>99.0 (7.1)</td>
</tr>
<tr>
<td></td>
<td>(N= 53)</td>
<td>(N= 42)</td>
<td>(N= 34)</td>
<td>(N= 55)</td>
<td>(N= 87)</td>
<td>(N= 97)</td>
</tr>
</tbody>
</table>

NB. Values expressed as the mean percentage (standard deviation) of the protagonist’s emotions correctly identified.
Table 6 shows means and SDs for the participant’s ability to correctly identify the protagonist’s emotion from the GEM-VO stimuli across age and gender. Results were examined using ANOVA’s to test age and gender effects on the participants’ ability to identify positive, negative and all emotions. No main effect for gender or interaction between age and gender was found for any type of emotion identified. A main effect for age was found for children’s ability to identify positive and negative emotions combined, $F(1,211) = 23.67, p < .001$, and children’s ability to identify the protagonist’s negative emotions, $F(1,211) = 22.29, p < .001$.

These findings support the hypothesis that older children are more accurate at identifying and labeling emotions in others than younger children. Younger children however were more accurate at identifying positive emotions than negative emotions with minimal improvement in age (see table 6). The participant’s ability to identify the protagonist’s emotions is the only component of the GEM which measures predominantly cognitive empathy rather than affective empathy. Considering the very simple emotions included (e.g. happy, sad, anger, fear), at this basic level of perspective taking it would be expected that there would be a minimal variability amongst children aged 9 – 12 years. Indeed the much lower SD in the older age groups supports this possibility. Furthermore, the 100 percent accuracy of grade 5 & 7 girls to identify positive emotions indicates a ceiling effect on this component with this female older age group.

**GEM- Self Reported matching of affect across Age and Gender**

Self-reported matching of affect is the match between the emotion the participant attributes to the vignette character and the emotion the participant self-
reports as having experienced. It was hypothesised that self-reported matching of affect would increase with age.

Table 7.

Self-reported matching of affect across age and gender

<table>
<thead>
<tr>
<th></th>
<th>Grade 1 &amp; 3</th>
<th>Grade 5 &amp; 7</th>
<th>Grade 1 &amp; 3</th>
<th>Grade 5 &amp; 7</th>
<th>Grade 1 &amp; 3 Total</th>
<th>Grade 5 &amp; 7 Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Male</td>
<td>Female</td>
<td>Male</td>
<td>Female</td>
<td>Total</td>
<td>Total</td>
</tr>
<tr>
<td>Self-reported</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>matching of affect</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>across all vignettes</td>
<td>37.0 (23.0)</td>
<td>47.3 (21.7)</td>
<td>35.8 (27.7)</td>
<td>47.3 (21.7)</td>
<td>41.0 (22.9)</td>
<td>46.4 (28.6)</td>
</tr>
<tr>
<td></td>
<td>(N= 53)</td>
<td>(N= 34)</td>
<td>(N= 42)</td>
<td>(N= 34)</td>
<td>(N= 87)</td>
<td>(N= 97)</td>
</tr>
<tr>
<td>Self-reported</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>matching of affect</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>across negative</td>
<td>22.5 (25.6)</td>
<td>32.5 (27.3)</td>
<td>27.8 (25.6)</td>
<td>32.5 (27.3)</td>
<td>26.4 (26.6)</td>
<td>38.8 (29.0)</td>
</tr>
<tr>
<td>vignettes</td>
<td>(N= 53)</td>
<td>(N= 34)</td>
<td>(N= 42)</td>
<td>(N= 34)</td>
<td>(N= 87)</td>
<td>(N= 97)</td>
</tr>
<tr>
<td>Self-reported</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>matching of affect</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>across positive</td>
<td>82.1 (32.7)</td>
<td>89.7 (20.5)</td>
<td>60.7 (43.5)</td>
<td>89.7 (20.5)</td>
<td>70.6 (40.0)</td>
<td></td>
</tr>
<tr>
<td>vignettes</td>
<td>(N= 53)</td>
<td>(N= 34)</td>
<td>(N= 42)</td>
<td>(N= 34)</td>
<td>(N= 87)</td>
<td></td>
</tr>
</tbody>
</table>

NB. Values expressed as the mean percentage (standard deviation) of matches between the emotion attributed to the character and the participant’s self-reported emotion experienced.

Table 7 shows means and SDs for the data reporting self-reported matching of affect across age and gender. Results were examined using ANOVA’s to test age and gender effects on self-reported matching of affect across negative, positive and all vignettes. No interaction effect for age and gender was found for any of the positive, negative or combined vignettes. A main effect however was found for gender across all three variables. The main effect for gender for total self-reported matching of affect, was $F(1,211) = 14.96, p < .001$. The main effect for gender for self-reported matching of affect across negative vignettes and positive vignettes was $F(1,211) = 13.18, p < .001$, and $F(1,211) = 5.82, p < .05$, respectively. A main effect was also found for age for the negative and positive vignettes, $F(1,211) = 6.09, p < .05$, and
As can be seen in Table 7, these data provide mixed support for the hypothesis that self-reported matching of affect would increase with age, as a contrasting pattern across age for self-reported matching of affect across negative and positive vignettes was found. The data show an increase in self-reported matching of affect across negative vignettes for both genders. While for both genders a decrease in self-reported matching of affect across positive vignettes was found with age. Older children were more likely to express negative self-reported matching of affect and less likely to express positive self-reported matching of affect then younger children. Generally low levels of self-reported matching of affect across negative vignettes were evident for younger and older boys, and younger girls. Girls were also found to be higher on self-reported matching of affect then boys for both positive and negative emotions. To summarize, the hypothesis was partially supported with the finding that for negative vignettes, self-reported matching of affect increases with age. This contrasting finding for positive vignettes does not support the stated hypothesis.

Consistency of facial emotions decoded (GEM-VO) and emotions self-reported (GEM-SR) – Age and gender effects

A question central to this multimethod approach is whether there is consistency between the emotion the child appears to be experiencing (observational data) and the emotion that he/she reports having felt (self-report) in response to the stimulus. Data addressing this question are in the form of the degree of match between these two sources (mean percentage of match).
Table 8.

**Consistency of facial and self-reported affect**

<table>
<thead>
<tr>
<th>Grade</th>
<th>Match of facial &amp; verbal emotion</th>
<th>Male</th>
<th>Female</th>
<th>Total</th>
<th>Male</th>
<th>Female</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 &amp; 3</td>
<td>Match of facial &amp; verbal emotion – all vignettes</td>
<td>36.9 (17.7) (N= 52)</td>
<td>41.1 (13.2) (N= 32)</td>
<td>42.0 (21.5) (N= 55)</td>
<td>38.5 (16.2) (N= 84)</td>
<td>43.8 (21.3) (N= 96)</td>
<td></td>
</tr>
<tr>
<td>5 &amp; 7</td>
<td>Match of facial &amp; verbal emotion – negative vignettes</td>
<td>30.6 (2.27) (N= 52)</td>
<td>30.5 (20.4) (N= 32)</td>
<td>39.4 (24.0) (N= 55)</td>
<td>30.6 (21.4) (N= 84)</td>
<td>41.0 (24.5) (N= 96)</td>
<td></td>
</tr>
<tr>
<td>1 &amp; 3</td>
<td>Match of facial &amp; verbal emotion – positive vignettes</td>
<td>54.8 (43.5) (N= 52)</td>
<td>70.3 (37.8) (N= 32)</td>
<td>48.2 (39.6) (N= 55)</td>
<td>60.7 (41.9) (N= 84)</td>
<td>51.0 (41.0) (N= 96)</td>
<td></td>
</tr>
</tbody>
</table>

NB. Values are derived from the mean percentage (standard deviation) of matches between the facial emotion expressed (GEM-VO) and the verbal emotion reported (GEM-SR).

Table 8 shows means and SDs for the degree to which verbal self-reported emotion (GEM-SR) matched the facial emotion coded (GEM-VO). These data examine the question of whether there is consistency between the emotion that the participant was observed as having experienced (GEM-VO) and the emotion that he/she reported having felt (GEM-SR). Results were examined using ANOVA’s to test age and gender effects on the degree of facial and verbal matching of positive emotions, negative emotions and positive and negative emotions combined. No main effect for gender or interaction with age was found for any of these three variables. A main effect for age however was found for the match of facial and verbally reported negative emotions, $F(1,221) = 9.29, p < .05$.

The data indicates that for negative, and negative and positive emotions combined, there is an increase in consistency between facial emotions coded and emotions verbally reported in the older age groups compared with the younger age groups. While boys are stable in their consistency across positive vignettes, there is a
drastic decrease in consistency for girls in the older grades. Across gender there is a mix of results. Within the younger age groups, girls appear more consistent in their report for positive emotion, however by grade 5 & 7, boys appear to present with more consistent information for both positive and negative vignette emotions.

Convergence of facial matching (GEM-VO) and self-reported matching of affect (GEM-SR)

A pivotal question to this research is the degree to which the facial matching measure and the self-reported matching of affect measure converge over age and gender. Using a bivariate correlation (2-tailed), the degree to which facial matching and self-reported matching of affect was examined across age and gender. It was hypothesised that these two measures of affective empathy based on the same observational stimulus would converge.

Table 9.
Convergence of facial matching and self-reported matching of affect

<table>
<thead>
<tr>
<th>Grade</th>
<th>Grade</th>
<th>Grade</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 &amp; 3</td>
<td>5 &amp; 7</td>
<td>1 &amp; 3</td>
<td>5 &amp; 7</td>
</tr>
<tr>
<td>Male</td>
<td>Male</td>
<td>Female</td>
<td>Female</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Facial matching &amp; Self-reported matching of affect (all vignettes)</th>
<th>Grade 1 &amp; 3 Male</th>
<th>Grade 5 &amp; 7 Male</th>
<th>Grade 1 &amp; 3 Female</th>
<th>Grade 5 &amp; 7 Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>( r = -0.09 ) (N= 54)</td>
<td>( r = 0.06 ) (N= 41)</td>
<td>( r = 0.12 ) (N= 33)</td>
<td>( r = 0.03 ) (N= 56)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Facial matching &amp; Self-reported matching of affect (negative emotions)</th>
<th>Grade 1 &amp; 3 Male</th>
<th>Grade 5 &amp; 7 Male</th>
<th>Grade 1 &amp; 3 Female</th>
<th>Grade 5 &amp; 7 Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>( r = -0.14 ) (N= 54)</td>
<td>( r = -0.07 ) (N= 42)</td>
<td>( r = 0.01 ) (N= 33)</td>
<td>( r = -0.01 ) (N= 56)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Facial matching &amp; Self-reported matching of affect (positive emotions)</th>
<th>Grade 1 &amp; 3 Male</th>
<th>Grade 5 &amp; 7 Male</th>
<th>Grade 1 &amp; 3 Female</th>
<th>Grade 5 &amp; 7 Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>( r = 0.15 ) (N= 52)</td>
<td>( r = 0.02 ) (N= 40)</td>
<td>( r = 0.31 ) (N= 33)</td>
<td>( r = 0.09 ) (N= 55)</td>
<td></td>
</tr>
</tbody>
</table>

** Correlation is significant at the 0.01 level (2-tailed)
* Correlation is significant at the 0.05 level (2-tailed)
The hypothesis that facial and verbal indices of affective empathy would converge was not supported as no significant correlations were found between facial and verbal indices of empathy for positive emotions, negative emotions or positive and negative emotions combined (see table 9). To further elaborate, these data examined whether the affective empathy as measured by the matching of the participant’s and vignette character’s facial emotion (GEM-VO) and the affective empathy as measured by the matching of the participant’s self report of emotion felt with protagonist’s emotion (GEM-SR) converged. These data are consistent with previous findings (Chisholm, 1991; Fabes et al., 1990), and indicate that a child’s facial index of affective empathy is not necessarily indicative of their self-reported matching of affect and visa versa. Previous research has also reported these confusing results with minimal convergence between facial and verbal indices of affective empathy (Fabes et al., 1990; Strayer & Roberts, 1987). This lack of convergence lends further support to the complexity inherent to measuring the construct of affective empathy.

Comparison of Four Affective Empathy Measures

The aim of study three was to compare four measures of affective empathy across age and gender. This multimethod analysis begins with comparison of the age and gender patterns of the GEM-PR (mother & father) and the Bryant’s self-report. Table 10 shows means and SDs for the GEM-PR and the Bryant’s child self-report. These data need to be interpreted with caution not to compare the values of the GEM-PR and the Bryant, but rather to compare their age and gender patterns. The GEM-PR and the Bryant both have different scales and a different range of possible scores. While the GEM-PR is on a likert scale with possible scores ranging from −92 to 92,
the Bryant has a yes/no answer format, with total scores ranging from 0 to 22. The GEM-PR Mother and Father however are identical, allowing comparison of their means and standard deviations.

Table 10. GEM-PR and Bryant’s child self-report across age and gender

<table>
<thead>
<tr>
<th>Grade</th>
<th>Grade</th>
<th>Grade</th>
<th>Grade</th>
<th>Grade</th>
<th>Grade</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1 &amp; 3</td>
<td>1 &amp; 3</td>
<td>5 &amp; 7</td>
<td>5 &amp; 7</td>
<td>1 &amp; 3</td>
<td>1 &amp; 3</td>
</tr>
<tr>
<td></td>
<td>Male</td>
<td>Female</td>
<td>Male</td>
<td>Female</td>
<td>Total</td>
<td>Total</td>
</tr>
<tr>
<td>GEM Mother</td>
<td>36.7 (17.7) (N= 50)</td>
<td>38.8 (19.0) (N= 28)</td>
<td>36.8 (18.5) (N= 78)</td>
<td>37.4 (18.9) (N= 100)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>GEM Father</td>
<td>21.2 (11.1) (N= 35)</td>
<td>19.5 (13.2) (N= 40)</td>
<td>20.6 (12.3) (N= 51)</td>
<td>18.8 (14.1) (N= 74)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bryant’s Self-report</td>
<td>11.3 (12.2) (N= 57)</td>
<td>9.7 (2.2) (N= 34)</td>
<td>11.0 (10.2) (N= 91)</td>
<td>11.8 (3.2) (N= 93)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

NB. Values expressed as the mean score (standard deviation)

Results were examined using ANOVA’s to test age and gender effects on each of the measures. A small but significant interaction effect was found between age and gender for the Bryant, $F(1,211) = 3.99, p < .05$. A large effect however was found for age with the Bryant reporting a main effect for age, $F(1,211) = 15.15, p < .001$, but not for gender. No interaction effect between age and gender or main effect for age or gender was evident for the GEM – PR, mother or father version.

It was hypothesized that the GEM-PR and the Bryant’s child self-report would converge, and that age and gender patterns would be comparable across measures, with affective empathy increasing with age and females scoring higher on affective empathy. Examining the mean and SD data (see table 10), mothers (GEM-PR) reported younger boys to have slightly higher affective empathy then older boys,
conversely they reported that the girls empathy was higher in older age groups then in younger age groups. The fathers also reported younger boys to have higher affective empathy then older boys; however fathers reported no differences in girls’ empathy across age.

Contrary to the parent reports of child’s affective empathy, the children reported the opposite pattern across age. Both boys and girls reported higher affective empathy in grades 5 & 7, than in grades 1 & 3, suggesting children reported an increase in empathy over age. These disparate findings were also evidenced in the lack of convergence between the parent reports (GEM-PR) and the child report (Bryant) demonstrated in study one (refer table 2). While there was a high level of agreement between the parents on their child’s affective empathy, neither parent agreed with their child’s self-report of their affective empathy. The fathers in fact had very strong negative correlations with their child’s self-report.

Across gender, results from the GEM-Mother report indicated affective empathy was higher for girls then boys in the older age groups, with no difference in the younger age groups. Similarly fathers reported older females having higher affective empathy, in addition to reporting younger males (grade 1 & 3) having higher affective empathy then younger females. Again, data from the Bryant’s child self-report contrasted with the GEM - Parent Reports when looking at gender patterns. The Bryant’s child self-report indicated higher affective empathy in the males across all age groups. Overall these three measures produced mixed results on the effects of gender on affective empathy development over the age groups. Parents reported higher affective empathy amongst girls, whilst the child participants self-reported higher affective empathy amongst boys.
Correlation of facial matching (GEM-VO) and parent report and child self-report affective empathy measures

As part of the multimethod design, the relationship between facial matching (GEM-VO) and child (Bryant) and parent report (GEM-PR) was investigated. It was hypothesized that these different measures of affective empathy would converge. Due to the large number of correlations and the probability of type one error, the interpretation of these data shall be restricted to emerging patterns evident. Across both genders, different patterns of convergence were evident for the GEM-Mother, the GEM-Father and the Bryant’s over age (see table 11, 12, & 13).
### Table 11.
**Correlation of Facial matching (GEM-VO) and Mother report (GEM-PR)**

<table>
<thead>
<tr>
<th></th>
<th>Grade 1 &amp; 3</th>
<th>Grade 5 &amp; 7</th>
<th>Grade 1 &amp; 3</th>
<th>Grade 5 &amp; 7</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Male</td>
<td>Male</td>
<td>Female</td>
<td>Female</td>
</tr>
<tr>
<td>GEM-PR Mother &amp; Facial matching</td>
<td>$r = .06$ (N= 46)</td>
<td>$r = .30$ (N= 41)</td>
<td>$r = -.07$ (N= 26)</td>
<td>$r = .14$ (N= 52)</td>
</tr>
<tr>
<td>GEM-PR Mother &amp; neg. facial matching</td>
<td>$r = .04$ (N= 46)</td>
<td>$r = .22$ (N= 41)</td>
<td>$r = .00$ (N= 33)</td>
<td>$r = .01$ (N= 52)</td>
</tr>
<tr>
<td>GEM-PR Mother &amp; pos. facial matching</td>
<td>$r = .05$ (N= 46)</td>
<td>$r = .21$ (N= 41)</td>
<td>$r = -.21$ (N= 26)</td>
<td>$r = .32^*$ (N= 52)</td>
</tr>
</tbody>
</table>

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

### Table 12.
**Correlation of Facial matching (GEM-VO) and Father report (GEM-PR)**

<table>
<thead>
<tr>
<th></th>
<th>Grade 1 &amp; 3</th>
<th>Grade 5 &amp; 7</th>
<th>Grade 1 &amp; 3</th>
<th>Grade 5 &amp; 7</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Male</td>
<td>Male</td>
<td>Female</td>
<td>Female</td>
</tr>
<tr>
<td>GEM-PR Father &amp; Facial matching</td>
<td>$r = .44^*$ (N= 32)</td>
<td>$r = .07$ (N= 30)</td>
<td>$r = .06$ (N= 16)</td>
<td>$r = .27$ (N= 40)</td>
</tr>
<tr>
<td>GEM-PR Father &amp; neg. facial matching</td>
<td>$r = .21$ (N= 32)</td>
<td>$r = .06$ (N= 30)</td>
<td>$r = -.05$ (N= 16)</td>
<td>$r = .18$ (N= 40)</td>
</tr>
<tr>
<td>GEM-PR Father &amp; pos. facial matching</td>
<td>$r = .63^{**}$ (N= 32)</td>
<td>$r = .03$ (N= 30)</td>
<td>$r = -.06$ (N= 16)</td>
<td>$r = .28$ (N= 40)</td>
</tr>
</tbody>
</table>

** Correlation is significant at the 0.01 level (2-tailed)
* Correlation is significant at the 0.05 level (2-tailed)
The convergence between facial matching and the GEM-Mother improved with age for positive emotions for girls and boys, and across negative emotions for boys (see table 11). To the contrary, the convergence between facial matching and the GEM-Father decreased for boys over age, for both negative and positive emotions (table 12). In contrast, this convergence improved for girls across age. Further mixed results are evident when comparing the Bryant’s and the facial matching indice (table 13). While the relationship between facial matching and the Bryant’s decreased with age for girls, an opposing pattern of increasing convergence was found for boys. To summarize, no consistent correlational pattern was found between the parent or child reports of affective empathy and facial matching. When examining the effects of age on these correlations, mixed patterns for each of these measures were found. It appears that facial matching was not related to child or parent reports in any consistent or predictable way.

Table 13.  
Correlation of facial matching (GEM-VO) and Bryant’s child self-report

<table>
<thead>
<tr>
<th>Grade</th>
<th>Grade</th>
<th>Grade</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 &amp; 3</td>
<td>5 &amp; 7</td>
<td>1 &amp; 3</td>
<td>5 &amp; 7</td>
</tr>
<tr>
<td>Male</td>
<td>Male</td>
<td>Female</td>
<td>Female</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Bryant’s child self rep &amp; Facial matching</th>
<th>r = -.11</th>
<th>r = -.01</th>
<th>r = .11</th>
<th>r = -.13</th>
</tr>
</thead>
<tbody>
<tr>
<td>N= 54</td>
<td>N= 40</td>
<td>N= 32</td>
<td>N= 50</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Bryant’s child self rep &amp; neg. facial matching</th>
<th>r = -.19</th>
<th>r = -.04</th>
<th>r = .02</th>
<th>r = -.01</th>
</tr>
</thead>
<tbody>
<tr>
<td>N= 54</td>
<td>N= 40</td>
<td>N= 32</td>
<td>N= 50</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Bryant’s child self rep &amp; pos. facial Empathy</th>
<th>r = .12</th>
<th>r = .04</th>
<th>r = .24</th>
<th>r = -.30*</th>
</tr>
</thead>
<tbody>
<tr>
<td>N= 54</td>
<td>N= 40</td>
<td>N= 32</td>
<td>N= 50</td>
<td></td>
</tr>
</tbody>
</table>

** Correlation is significant at the 0.01 level (2-tailed)  
* Correlation is significant at the 0.05 level (2-tailed)
Correlation of self-reported matching of affect (GEM-SR) and self/parent report empathy measures

Table 14.
Correlation of self-reported matching of affect (GEM-SR) and Mother report (GEM-PR)

<table>
<thead>
<tr>
<th></th>
<th>Grade 1 &amp; 3 Male</th>
<th>Grade 5 &amp; 7 Male</th>
<th>Grade 1 &amp; 3 Female</th>
<th>Grade 5 &amp; 7 Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEM-PR Mother &amp; Self-reported matching of affect</td>
<td>( r = -.17 ) (N = 45)</td>
<td>( r = .19 ) (N = 39)</td>
<td>( r = .44^* ) (N = 28)</td>
<td>( r = .38^{**} ) (N = 52)</td>
</tr>
<tr>
<td>GEM-PR Mother &amp; neg. self-reported matching of affect</td>
<td>( r = -.13 ) (N = 45)</td>
<td>( r = .14 ) (N = 40)</td>
<td>( r = .49^{**} ) (N = 28)</td>
<td>( r = .39^{**} ) (N = 52)</td>
</tr>
<tr>
<td>GEM-PR Mother &amp; pos. self-reported matching of affect</td>
<td>( r = -.07 ) (N = 44)</td>
<td>( r = .18 ) (N = 39)</td>
<td>( r = .09 ) (N = 28)</td>
<td>( r = .11 ) (N = 51)</td>
</tr>
</tbody>
</table>

** Correlation is significant at the 0.01 level (2-tailed)
* Correlation is significant at the 0.05 level (2-tailed)
Table 15.  
Correlation of self-reported matching of affect (GEM-SR) and Father report (GEM-PR)

<table>
<thead>
<tr>
<th></th>
<th>Grade 1 &amp; 3 Male</th>
<th>Grade 5 &amp; 7 Male</th>
<th>Grade 1 &amp; 3 Female</th>
<th>Grade 5 &amp; 7 Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEM-PR Father &amp; Self-reported matching of affect</td>
<td>$r = .01$ (N= 31)</td>
<td>$r = .19$ (N= 29)</td>
<td>$r = .43$ (N= 16)</td>
<td>$r = .11$ (N= 40)</td>
</tr>
<tr>
<td>GEM-PR Father &amp; neg. self-reported matching of affect</td>
<td>$r = -.10$ (N= 31)</td>
<td>$r = .11$ (N= 29)</td>
<td>$r = .31$ (N= 16)</td>
<td>$r = .12$ (N= 40)</td>
</tr>
<tr>
<td>GEM-PR Father &amp; pos. self-reported matching of affect</td>
<td>$r = .41^*$ (N= 31)</td>
<td>$r = .26$ (N= 29)</td>
<td>$r = .58^*$ (N= 16)</td>
<td>$r = -.06$ (N= 39)</td>
</tr>
</tbody>
</table>

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

Table 16.  
Correlation of self-reported matching of affect (GEM-SR) and Bryant’s child self-report

<table>
<thead>
<tr>
<th></th>
<th>Grade 1 &amp; 3 Male</th>
<th>Grade 5 &amp; 7 Male</th>
<th>Grade 1 &amp; 3 Female</th>
<th>Grade 5 &amp; 7 Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bryant’s child self rep &amp; Self-reported matching of affect</td>
<td>$r = -.23$ (N= 56)</td>
<td>$r = -.34^*$ (N= 38)</td>
<td>$r = -.08$ (N= 34)</td>
<td>$r = -.38^{**}$ (N= 50)</td>
</tr>
<tr>
<td>Bryant’s child self rep &amp; neg. self-reported matching of affect</td>
<td>$r = -.16$ (N= 56)</td>
<td>$r = -.36^*$ (N= 39)</td>
<td>$r = -.02$ (N= 34)</td>
<td>$r = -.375^{**}$ (N= 50)</td>
</tr>
<tr>
<td>Bryant’s child self rep &amp; pos. self-reported matching of affect</td>
<td>$r = -.33^*$ (N= 54)</td>
<td>$r = -.19$ (N= 38)</td>
<td>$r = -.21$ (N= 34)</td>
<td>$r = -.19$ (N= 49)</td>
</tr>
</tbody>
</table>

** Correlation is significant at the 0.01 level (2-tailed)  
* Correlation is significant at the 0.05 level (2-tailed)
To further examine the stated hypothesis, the relationship between self-reported matching of affect (GEM-SR) and the GEM-PR and the Bryant’s was investigated (refer table 14, 15, & 16). Again, due to the large number of correlations and the probability of type one error, the interpretation of these data shall be restricted to emerging patterns evident. Correlational data between self-reported matching of affect and the child/parent reports of affective empathy produced very interesting mixed results. With the exception of grade 1 and 3 males on the GEM-Mother, the Mother and Father reports were positively related to several components of self-reported matching of affect, while the child self-report was found to have a negative relationship with self-reported matching of affect. These data found that if children self-reported feeling affectively facially matching the protagonists in the GEM-SR and visa versa. These child self-reports contradict each other as measure of affective empathy. This is not the case for parent reports of child affective empathy, which tended to report positive but weak correlations with child self-reported affect (GEM-SR).

Discussion

Study three addressed the convergence of different measures of children's emotions, and contributes to the small number of multimethod studies on children's emotional responses and affective empathy. This study presented data on the effects of age and gender on measures of display of facial affect, facial matching of protagonist and participant’s affect, self-reported affect experienced and self-reported matching of affect. The hypothesis that facial affect measured by the degree to which a child displays a non-neutral facial expression (i.e. happy, sad, angry) over a neutral expression, would decrease with age, was supported by the present study. This
decrease in facial affect in older boys and girls supports the argument that facial emotional responses tend to be increasingly falsified, neutralized or masked as children become older (Shehnnum & Bugental, 1982). Notarius and Levenson (1979) found that those individuals who naturally inhibited their facial expressions tended to show less facial affect when exposed to a threat of shock than did those individuals who were judged to be natural expressers. Thus, the productiveness of facial indexes may vary according to the stimuli, the subjects, and the context in which they are measured (Fabes et al., 1990). Limited individual differences in facial affect within older ages of children may decrease the predictive power of the construct.

It was hypothesised that facial matching would increase with age. This hypothesis was not supported as a main effect for age was found with younger children scoring higher on facial matching than older children. This outcome is consistent with Strayer’s (1983) finding that negative facial expressions of empathy decreased with age during primary school years. It was expected that facial matching would increase with age because of the broader range of social and personal experiences of the older children, and presumably their familiarity with different emotions of others and their responsiveness to other’s emotions. The finding that facial affect decreases with age may have impacted on the accompanying decrease in facial matching with age. Even if older children are more responsive in their affective empathy, their parallel increase in possible masking and neutralizing of facial affect would conceal their affective empathy as measured by the facial matching indice. Strayer (1983) also interpreted her finding of a decrease in negative facial expression of empathy with age as being the result of children increasing their masking of emotion with age during the primary school years. If this interpretation is correct, the measure of affective empathy via a facial matching measure may only be appropriate
for the younger age groups who have not yet learnt to conceal their facial expression of emotion.

Self-reported affect is a measure of the likelihood of a child to self-report feeling an emotion such as anger or sadness rather than reporting they felt neutral when watching the video stimulus. The hypothesis that self-reported affect would decrease with age was partly supported by the finding that self-reported affect of positive emotions decreased with age, while self-reported affect of negative emotions actually increased with age. The mixed support for the hypothesis suggests that older children are more verbally expressive of negative emotion than younger children, but not of positive emotion. These results indicate that older children perhaps do not have the same pressure to conceal the verbal expression of emotion as they do for their facial expression of emotion. This increase in verbal expression accompanies an increase in their emotional vocabulary and self awareness. These developmental factors help explain the increase in self-reported affect with age for negative emotions. These data contradict Strayer’s (1983) report that her study found verbal expression of negative affect appeared to be increasingly masked with age.

The finding that older children were more able to correctly identify the protagonist’s negative emotions (GEM-SR) then younger children, is consistent with the developmental research on cognitive empathy (Hoffman, 1990). Children’s ability to identify protagonist’s’ emotions is the only cognitive component of this study. The lack of variation in the children’s ability to identify the protagonist’s’ positive emotion across the younger and older age groups is indicative of the lack of variation and complexity of the vignettes included. Only two positive vignettes were included, each depicting a very basic ‘happy’ emotion rather than more subtle positive
emotions. The ceiling effect found in grade 5 and 7 girls further supports this conclusion.

The hypothesis that self-reported matching of affect would increase with age was partly supported in the present study. Self-reported matching of affect was defined as the match between the emotion the participant attributes to the vignette character and the emotion the participant self-reports as having experienced. The hypothesis was supported for females who were found to increase with age in their self-reported matching of affect across negative vignettes. The contrary finding was evident however for boys across negative vignettes, in addition to boys and girls actually decreasing in their self-reported matching of affect across positive vignettes with age. Boys and girls diverged in their self-reported matching of affect for negative emotions across age. This distinct gender finding of older girls having more self-reported matching of affect then older boys could be argued to reflect the divergent gender expectations of society. The nurturant emotional female role contrasts with the socialization of males into task-orientated, competitive social roles (Alexander & Wood, 2000; Brody & Hall, 1993). The verbal expression of feeling the same fearful or sad emotion as the vignette character (self-reported matching of affect) is more complimentary of the female gender socialization pressures then the males. The exception is the expression of anger that (Blair et al., 2001) has found to be more openly expressed and readily empathized within males. These gender based differences may be indicative of the socialization pressures on the development of affective empathy in boys and girls.

The question of how consistent the information gained from facial expressions and self-reports is central to this multimethod design. Ideally, the emotion facially expressed would be consistent with the emotion verbally reported. If these two
sources of information were consistent, measurements of one indice when the other is
not obtainable, such as observational data with very young children, would provide
information that could be inferred as consistent across both types of measurement.
The present study found that for negative, and negative and positive emotions
combined, the consistency between facial emotions coded and emotions verbally
reported increased with age. This increase in consistency with age for negative
emotions as opposed to positive emotions could be due to there being a greater range
and complexity in negative emotions included in the vignettes. The older children
perhaps were more able to correctly label the emotion they were experiencing, which
would increase the consistency with facial emotions coded. This consistency across
both genders is very encouraging for the future of relying on facially coded
observational measures. The finding that the facial emotion expressed is consistent
with what children report themselves to have felt, increases the concurrent validity of
this multimethod approach.

In contrast to the encouraging results previously discussed, facial matching
and self-reported matching of affect were not found to converge. Affective empathy is
defined as an emotional response that stems from another’s emotional state or
condition and is congruent with the other’s emotional state or condition (Eisenberg et
al., in press). This construct involves the mirroring of the emotion felt by another.
The measurement of the facial expression of emotion and the self-reported expression
of emotion in response to another, are two available avenues for assessing affective
empathy. Physiological measures such as skin conductance and heart rate, cannot
differentiate between empathy, sympathy and personal distress, and therefore do not
provide adequately precise data. If facially expressed and self-appraised emotions are
considered to be different aspects of a complex unified process (Bowlby, 1969; Laird,
1984; Lewis & Michalson, 1983), then why are these two indices repeatedly found throughout research and the present study to have minimal or inconsistent convergence? Or as Strayer and Roberts (1997) argue, if verbal and facial indices of affective empathy do not converge, then it should be expected that they diverge in a consistent and predictable way.

**Gender Differences in Affective Empathy assessed by the GEM-VO and GEM-SR**

Although research on gender differences in affective empathy is in its infancy, there have been reports of girls reporting higher affective empathy than boys (Cohen & Strayer, 1996; Eisenberg et al., 1991). In contrast to this previous research the present study found that boys reported higher affective empathy than girls across all age groups as reported by the Bryant. This finding is inconsistent with the vast majority of research using this measure (Bryant, 1982). This unexpected finding cannot be confidently explained. There has been two decades between these two waves of research interest however; the possibility that boys are being increasingly socialized in a way to lessen this previous gender gap requires further research.

Due to research frequently reporting girls scoring higher on affective empathy than boys, it was therefore hypothesised that girls would score higher on affective empathy than boys on both the GEM-VO & GEM-SR measures. This study produces mixed findings on the effect of gender on affective empathy. While younger girls were found to have more facial matching in grades 1 and 3, the contrary finding was evident in grades 5 and 7, with boys scoring higher on facial matching. Self-reported matching of affect data was more consistent with previous research, with girls scoring higher on self-reported matching of affect across all ages for positive and negative emotions. The hypothesis that affective empathy would be higher in females, was
therefore supported for the verbal indice of affective empathy, and partially supported for the facial index of affective empathy. Previous research reporting gender differences has been based almost solely on child self-report measures of affective empathy. The verbal measure is more comparable to these traditional self-report measures, as it involves the self-report of emotion experienced, which could explain the similar gender findings between these measures.

Of interest is the gender findings on the other constructs measured by the GEM-VO and the GEM-SR. Surprisingly boys were found to be more facially expressive of negative emotion in the older age groups (grade 5 & 7) then females. Boys were also more facially expressive of positive emotions across all age groups. These findings are interesting as previous research and theories propose that with age (due to increasing influences of socialization), boys are more inclined to mask facial expressions of sadness and fear, emotions that are aligned with the feminine role. Girls were also found to not be as good at identifying protagonist’s negative emotions as boys. Although in support of previous gender research, girls are better at identifying positive emotions, the task of identifying negative emotions was more complex as a larger number and variety of emotions were included in the six vignettes. Previous research has found that boys scored lower on cognitive empathy. As the ability to identify protagonist’s emotions was the only cognitive component of this research design, further research into this cognitive component of empathy would be needed to examine this discrepancy in research.

Finally, self-reported affect provided further mixed results. Across all age groups girls were more likely to verbally express feeling a negative emotion (i.e., sad, fearful) then boys. Older girls also expressed feeling happy in response to the vignette material then boys. This finding is consistent with the emotionally “expressive” role
of the feminine stereotype, of displaying affectional responsiveness and concern for
other. To summarize, the gender findings for self-reported matching of affect across
all ages and facial matching in the younger age groups supported the hypothesis and
previous research that females have higher affective empathy then boys. Other
constructs measures by the GEM-VO and GEM-SR produced mixed gender results
suggesting the gender effects of affective empathy are complex and in need of further
clarifying research.

Comparison of Four Affective Empathy Measures

Traditionally, child affective empathy has been assessed with child self-report
measures such as the Bryant’s Index of Empathy for Children and Adolescents.
Recent advances in observational measures of affective empathy haven’t compared
these new measurement approaches with traditional self-report measures. This study’s
design and validation of a parent measure of child affective empathy adds to the
measures that need to be assessed for their convergence. The disparate findings
between the GEM – Parent Report and the Bryant child self-report can be interpreted
in several ways. It could be argued that older children are more aware of the socially
preferred responses and therefore more responsive to social desirability effects. The
very low standard deviations in the male and female grade 5 & 7 groups might
support this explanation, although a surprisingly small standard deviation was also
found amongst the grade 1 & 3 boys.

The findings that the GEM-PR and the Bryant’s do not converge with the
GEM-VO or the GEM-SR in a consistent and predictable way pose the question of
whether different aspects of the complex phenomena of affective empathy are being
assessed. The GEM-PR and the Bryant are parent and child reports of dispositional
affective empathy, while the GEM-VO and GEM-SR are situational measures of affective empathy. Holmgren, Eisenberg and Fabes (1998) found support for situational empathy related responding assessed in the laboratory, reflecting at least to some degree, children’s dispositional empathy-related affective reactions. These data however support the common finding that there are relatively few inter-relations among facial and self-report measures of affective empathy. The new parent report appears to continue this pattern of non-convergence.
STUDY FOUR

The aim of study four was to investigate the relationship between affective empathy, Conduct Problems (CP) and Callous-Unemotional traits (CU). More specifically the aim was to examine the relationship between affective empathy and CP; and affective empathy and CP with the variance attributed to CU traits partialled out. It was hypothesised that the inconsistent findings in the literature that CP children have impaired empathy, is in fact a product of the confounding variable of CU traits, the prevalence of which could be argued to vary from study to study. The expected negative correlation between CU traits and affective empathy was also tested and discussed.

Method

Participants

The fourth study again used the original sample of 211 children (study one). Refer to study one for demographic details pertaining to this sample. Parental written consent was required for children to take part in the study. One hundred and forty-eight mothers and 23 fathers completed the parent measures. Permission to conduct the research was obtained from the Griffith University Human Research Ethics Committee, and from the participating school principal and teaching staff.

Materials

To allow for thorough investigation and comparison of child affective empathy, the callous-unemotional and conduct problem constructs were analysed with all four empathy measures. These measures included the Griffith Empathy Measure –
Video Observation, Griffith Empathy Measure – Self Report, Griffith Empathy Measure – Parent Report and Bryant’s Index of Empathy for Children and Adolescents, as described by previous studies. Callous-unemotional traits were measured using the Antisocial Process Screening Device (APSD; Caputo, Frick, & Brodsky, 1999; Appendix I), and the Strengths and Difficulties Questionnaire (SDQ; Goodman, 1999; Appendix J) was used to assess conduct problems.

The Antisocial Process Screening Device

The Antisocial Process Screening Device (APSD; Caputo, Frick, & Brodsky, 1999) was included in study four as a measure of Callous-Unemotional Traits. The APSD was modeled on the adult measure, the Psychopathy Checklist Revised (PCL-R; Hare, 1991). This measure was designed to assess the features associated with psychopathy in children and adolescents, ensuring that each dimension contained within the PCL-R that is relevant to children was included. More specifically, the callous-unemotional traits subscale (items 3, 7, 12, 18, 19 & 20) was used from the APSD. This behaviour rating scale comes in both a parent and teacher format for younger children and a self-report format for older children. For the purpose of this study, the parent report format was used. The 20 items are rated on a three-point scale as either 0 (not at all true), 1 (sometimes true), and 2 (definitely true). Five items are inversely scored (3, 7, 12, 18, 20), with a maximum score of 40 obtainable. A higher score on each of the subscales indicates the presence of the particular subscale’s traits (i.e. callous-unemotional traits).

Frick et al., (1994) performed a principle components analysis of this measure using 95 clinic referred children, this analysis revealed a 2 factor solution which mirrors the theoretical structure of psychopathy suggested by Hare (1991). The two
factors consisted of a Callous-Unemotional (CU) factor which has an internal consistency of $\alpha = 0.70$ and an Impulsivity / Conduct Problems (I/CP) factor which has an internal consistency of $\alpha = 0.83$. Recently, Barry et al., (2000) also found the coefficient alpha for the six CU items (e.g., “feels bad or guilty when he/she does something wrong”) from a clinic sample to be .68.

The I/CP sub-scale has been significantly associated ($r = .68$) with ODD/CD symptoms as well as displaying a significant correlation with the Delinquency ($r = .58$), Aggressiveness ($r = .67$) and Oppositional-Conduct Disorder ($r = .71$) sub-scales of the CBCL. Validity data available for the CU dimension of the APSD are less emphatic, and this variable would still have to be considered highly theoretical. Recent research shows that a third factor, narcissistic traits are also present (Frick & Ellis, 1999). In the present study the APSD was used to assess the presence of callous-unemotional personality traits amongst the child participants.

An analysis of the CU scale in Loney, Frick, Ellis, and McCoy’s (1998) sample of 117 clinic-referred children revealed a correlation of $r = .40$ ($p<.001$) between the parent and teacher reports and a coefficient alpha of .76 for the combined parental and teacher report. Past research on the reliability of the teacher APSD yielded a 1-week test-retest estimate of .73 for the callous-unemotional subscale (McBurnett, Tamm, Nowell, Pfiffner, & Frick, 1994). The similar dimensions identified in both the APSD and Hare’s Psychopathy Checklist (1991) gives further support to the content validity of this measure. A recent study with a large sample of 6-12 year old Australian children has supported the validity and reliability of the parent-report APSD, especially the CU subscale, with younger community samples (Dadds, Fraser, Hunter & Whiting, Submitted).
The Strengths and Difficulties Questionnaire

The SDQ (Goodman, 1999) was designed to detect behavioural, emotional, and relationship difficulties in children aged 4-16 years. This brief screening questionnaire comes in a parent/teacher format (informant-rated) for children aged between 4 and 16, or in a self-report format for children over 11 years of age (Goodman & Scott, 1999). The 25 items are divided into 5 scales of 5 items each: hyperactivity, emotional symptoms, conduct problems, peer problems and social behaviour. Removing the five prosocial items (1, 4, 9, 17 & 20), the remaining twenty items are summed to receive a total difficulties score. This scale that represents conduct problems will be used for this study.

The SDQ has been found to correlate highly with the Child Behavior Checklist (CBCL: Achenbach, 1991) as well as being significantly better at differentiating hyperactivity and inattentive children than the CBCL (Goodman & Scott, 1999). High correlations between the total score of the Rutter questionnaire, a well established and reliable behavioural screening device (Elander & Rutter, 1996), and the informant-rated SDQ are evidence of concurrent validity for the SDQ (Goodman, 1997). The self-report measure of the SDQ has been shown to discriminate satisfactorily between community and clinical samples (Goodman & Scott, 1999). The established validity and brevity of this measure makes the SDQ the instrument of choice for this study. The CP subscale of the SDQ was used for study four.

Procedure

A package of questionnaires containing an information sheet, consent form, the Griffith Empathy Measure – Parent Report (copy for mother and father), the Strengths and Difficulties Questionnaire, and the Antisocial Process Screening Device
was issued to parents of children who were in grade 1, 3, 5 & 7. Those parents who were willing to participate then returned the completed packages to the school. Children whose parents had completed the consent forms were then invited to participate in the study. The measures administered within the school setting include the Griffith Empathy Measure – Video Observation, the Griffith Empathy Measure – Video Self Report and the Bryant’s Index of Empathy for Children and Adolescents. These measures were administered as outlined in study one.

Results

Despite study four’s hypotheses not requiring analysis of the effect of age or gender, it was decided to break the analysis down by gender as there is strong evidence for differential pathways to Conduct Disorder for boys and girls. Separate hierarchical regression analyses were therefore conducted for boys and girls. The dependent variable was affective empathy as measured by the mother, father and child report (table 17), and the GEM – Self Report and GEM - Video Observation (table 18). The independent variables were age, callous unemotional traits, and conduct problems in subsequent blocks. This necessary breakdown of analyses by type of empathy and age and gender results in potentially large type 1 error rate due to the large number of analyses. As a result, these analyses were interpreted at the level of general patterns of results, rather than specific statistical significance.

Tables 17 and 18 present calculations for hierarchical regressions using CU subscale scores from the APSD, and the CP subscale from the SDQ. Table 17 presents comparative analysis using the GEM-Mother, the GEM-Father and the Bryant child self-report. Firstly comparison for GEM-Mother, GEM-Father and the Bryant was examined for boys. For GEM-Mother, age resulted in no significant prediction.
However, the addition of the block 2 variable, CU, resulted in a significant equation, F(1,89) = 8.72, p <0.01 and accounted for 10% of the variance. Addition of the block three variable, CP, however did not result in a significant equation. For GEM-Father, neither age, CU nor CP were significant predictors. The same non-significant results were found for the Bryant.

Table 17. 
Comparison of Regression Analyses for GEM-Mother, GEM-Father and the Bryant

<table>
<thead>
<tr>
<th></th>
<th>GEM-Mother</th>
<th>GEM-Father</th>
<th>Bryant</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>R  β  R²</td>
<td>R  β  R²</td>
<td>R  β  R²</td>
</tr>
<tr>
<td><strong>BOYS</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Block 1:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>.08 -.08 .01</td>
<td>.19 -.19 .04</td>
<td>.19 .19 .04</td>
</tr>
<tr>
<td>Block 2:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CU</td>
<td>.31 -.30 .10*</td>
<td>.20 .07 .04</td>
<td>.24 -.15 .06</td>
</tr>
<tr>
<td>Block 3:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CP</td>
<td>.32 .10 .10</td>
<td>.24 .14 .06</td>
<td>.28 -.15 .08</td>
</tr>
<tr>
<td><strong>GIRLS</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Block 1:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>.02 .02 .00</td>
<td>.07 -.07 .01</td>
<td>.24 .24 .06*</td>
</tr>
<tr>
<td>Block 2:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CU</td>
<td>.37 -.37 .13*</td>
<td>.19 -.18 .04</td>
<td>.24 .01 .06</td>
</tr>
<tr>
<td>Block 3:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CP</td>
<td>.42 -.22 .17</td>
<td>.21 .08 .04</td>
<td>.42 -.38 .18*</td>
</tr>
</tbody>
</table>

NB: Beta weights presented are those calculated for when all predictor variables have been entered. 
*p<.05

Comparing analysis for girls, the GEM-Mother found a similar pattern of the prediction strength of each of the 3 blocks. Age was again not a significant predictor. CU traits in block 2 however again resulted in a significant equation, F(1,77) = 11.8, p
<0.01 and accounted for 13% of the variance. In addition, Block 3 did not result in a significant equation. Again for GEM-Father, neither age, CU, nor CP were significant predictors of variance. Unlike the GEM-Father and Mother, the Bryant reported different gender findings. For females, age was a significant predictor, \( F(1,71) = 4.39, p < 0.05 \), accounting for 6% of the variance. Conversely, CU was not found to be a significant predictor, while CP in block 3 resulted in a significant equation, \( F(1,69) = 10.24, p < 0.01 \). Addition of this Block 3 variable improved prediction to 18% of the variance. It should be noted that as 148 mothers and 24 fathers completed the CU subscale from the PSD, one could argue for more confidence in the findings based on the mother reports of affective empathy.

Table 18 outlines the regression analysis performed on the GEM - Self Report and the GEM - Video Observation. The GEM - Self Report consists of the number of correctly identified negative and positive emotions, and self-report of negative and positive emotions that matched the protagonist’s emotions. The GEM - Video Observation consists of the match between the participant and the protagonists’ facial affect for negative emotions and positive emotions. Again comparison of these two measures and their subscales was first broken down into gender. Firstly analyses for the male sample shall be examined. For the GEM-SR subscale of correctly identifying negative emotions, age was found to be a significant predictor, \( F(1,85) = 17.98, p < 0.001 \) and accounted for 18% of the variance. Block 2 and Block 3 were not significant predictors of this subscale of affective empathy.
### Table 18.
Comparison of Regression Analyses for the GEM-Self Report and the GEM-Video Observation

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>R</td>
<td>β</td>
<td>R²</td>
<td>R</td>
<td>β</td>
<td>R²</td>
</tr>
<tr>
<td><strong>BOYS</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Block 1:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>.42</td>
<td>.42</td>
<td>.18**</td>
<td>.24</td>
<td>.24</td>
<td>.06*</td>
</tr>
<tr>
<td>Block 2:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CU</td>
<td>.42</td>
<td>.06</td>
<td>.18</td>
<td>.25</td>
<td>.05</td>
<td>.06</td>
</tr>
<tr>
<td>Block 3:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CP</td>
<td>.44</td>
<td>-.13</td>
<td>.19</td>
<td>.25</td>
<td>-.01</td>
<td>.06</td>
</tr>
<tr>
<td><strong>GIRES</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Block 1:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>.24</td>
<td>.24</td>
<td>.06*</td>
<td>.27</td>
<td>.27</td>
<td>.08*</td>
</tr>
<tr>
<td>Block 2:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CU</td>
<td>.27</td>
<td>-.11</td>
<td>.07</td>
<td>.28</td>
<td>.03</td>
<td>.08</td>
</tr>
<tr>
<td>Block 3:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CP</td>
<td>.31</td>
<td>-.18</td>
<td>.10</td>
<td>.28</td>
<td>.01</td>
<td>.08</td>
</tr>
</tbody>
</table>

*Note. Beta weights presented are those calculated for when all predictor variables have been entered.

*p<.05, **p<.001
A repeated pattern was found for correctly identified positive emotions, as age in Block 1 was found to be a significant predictor, $F(1,83) = 5.24, p < 0.05$, accounting for 6% of the variance (refer table 18). Block 2 (CU) and Block 3 (CP) were not significant predictors of this variable. For the variable, self-reported match of negative emotions, age, CU and CP were all found to not be significant predictors. For self-reported match of positive emotions however, age in Block 1 was found to be a significant equation, $F(1,82) = 5.21, p < 0.05$ and accounted for 6% of the variance. CU and CP in Block 2 and 3 respectively, were not found to be significant predictors of this measure.

Again data pertaining to male participants was first examined for the subscales of the GEM-VO. Regression analysis of the facial affect match of negative emotions subscale found age in Block 1 to be a significant predictor, $F(1,86) = 16.59, p < 0.001$, and accounted for 16% of the variance. CU and CP in Block 2 and 3 were not found to be significantly predictive. For facial affect match of positive emotions however, no significant equation was found in Block 1, 2 or 3.

The regression analysis for the subscales from the GEM-SR and the GEM-VO shall now be compared for girls. Firstly for the subscale, correctly identifies negative emotions, age in Block 1 resulted in significant equation for girls, $F(1,77) = 4.83, p < 0.05$, accounting for 6% of the variance. Block 2 and 3 however were not significant predictors. As can be seen from table 18, the same pattern was found for the positive emotions of this subscale (correctly identifies positive emotions), as a significant prediction was found for age in Block 1, $F(1,77) = 6.26, p < 0.05$, accounting for 8% of the variance, but not subsequently for Block 2 or 3. The same findings were reported for females and males on the subscale of self-reported match of negative emotions, with neither Block 1, 2 or 3 proving significant predictors. As for positive
emotions of this subscale (self-reported match of positive emotions), age was found to be a significant predictor for females, $F(1,77) = 5.07, p < 0.05$, and accounted for 6% of the variance. No significant finding was reported for Block 2 or 3 on this subscale.

For the facial affect match of negative emotions (GEM-VO) for girls, age was found to a significant predictor, $F(1,76) = 32.71, p < 0.001$, and accounted for 30% of the variance. CU and CP from Block 2 and 3, were not found to significantly predict this subscale of the GEM-VO. No significant predictor was found for facial affect match of positive emotions from any of the blocks.

An additional aim of this study was to examine the relationship between affective empathy and CU traits. A further question of whether these two variables, CU traits and affective empathy, overlap was examined by creating a CU trait alternate variable (CU2) which has all empathy type items removed. To examine the relationship between callous-unemotional traits and affective empathy, and CU2 and affective empathy for comparison, bivariate correlations were calculated for the GEM-Mother, GEM-Father and the Bryant child self-report (see table 19). Across all three measures, the correlational relationship was not affected to any significant degree by the use of the callous-unemotional subscale or the altered callous-unemotional subscale with all possible empathy items removed (CU2).
Table 19.  
**Bivariate Correlation (2-tailed) between the GEM-Mother, GEM-Father and the Bryant, and the CU and CU2 variables.**

<table>
<thead>
<tr>
<th></th>
<th>GEM-Mother</th>
<th></th>
<th>GEM-Father</th>
<th></th>
<th>Bryant</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>CU</td>
<td>CU2</td>
<td>CU</td>
<td>CU2</td>
<td>CU</td>
<td>CU2</td>
</tr>
<tr>
<td>Grade 1 &amp; 3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>$r = -.43^{**}$</td>
<td>$r = -.37^{**}$</td>
<td>$r = -.04$</td>
<td>$r = -.02$</td>
<td>$r = -.23$</td>
<td>$r = -.27$</td>
</tr>
<tr>
<td>Grade 1 &amp; 3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>$r = -.47^{*}$</td>
<td>$r = -.50^{**}$</td>
<td>$r = -.54^{*}$</td>
<td>$r = -.37$</td>
<td>$r = -.19$</td>
<td>$r = -.27$</td>
</tr>
<tr>
<td>Grade 5 &amp; 7</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>$r = -.21$</td>
<td>$r = -.05$</td>
<td>$r = .12$</td>
<td>$r = .18$</td>
<td>$r = .08$</td>
<td>$r = .16$</td>
</tr>
<tr>
<td>Grade 5 &amp; 7</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>$r = -.30$</td>
<td>$r = -.18$</td>
<td>$r = -.12$</td>
<td>$r = -.05$</td>
<td>$r = .24$</td>
<td>$r = .19$</td>
</tr>
</tbody>
</table>

NB: CU2 – Callous-unemotional traits subscale minus empathy items  
** Correlation is significant at the 0.01 level (2-tailed)  
* Correlation is significant at the 0.05 level (2-tailed)

Looking at the correlational results from Table 19, the GEM-Mother reported affective empathy was significantly negatively correlated with CU traits for grade 1 and 3 girls and boys. For the older children, the relationship continued to be negative but was not significant. The GEM-Father showed a large gender difference, with grade 1 and 3 girls having a significantly negative correlation between affective empathy and CU traits, and grade 5 and 7 girls reporting a weaker negative correlation. Boys’ affective empathy however was not found to especially correlate with their levels of CU traits, wavering from a weak negative correlation, to positive correlation for younger and older boys respectively. Again a different pattern is found when measuring affective empathy with the Bryant. This measure found, as predicted (although not significant), a negative relationship for the younger grades, but a positive relationship for the older grades. Overall, one pattern does emerge between
the three measures, across gender, the children in grades 1 and 3 were found to have a more negative relationship between affective empathy and CU traits than the older children (grades 5 & 7).

Discussion

Each of the GEM-Mother, GEM-Father, and Bryant measures showed differing patterns in the relationship between affective empathy, callous-unemotional traits and conduct problems. The findings from the GEM-Mother support the hypothesis that it is the callous-unemotional variable that is associated with variance in affective empathy, rather than conduct problems once the variance from callous-unemotional traits has been partialled out. This finding helps explain the confusing mixed results in the literature over whether conduct problems and empathy are negatively correlated or not. It could be argued from these data that it was the unmeasured variance of callous-unemotional traits (a subgroup within this population) which was accounting for the relationship between conduct problems and empathy deficits.

The results found for the GEM-Father contrasted with that of the GEM-Mother however, with neither age, callous-unemotional traits nor conduct problems accounting for affective empathy variance. This lack of agreement between the parent reports poses many questions regarding why the differences in parent report were found especially as the measures were highly correlated in study one.

More variation was found in the results from the Bryant child self-report. Gender differences were found for this measure, with neither age, callous-unemotional traits nor conduct problems found to be associated with boy’s affective empathy as measured by the Bryant. For girls however, age and conduct problems
were found to be associated with affective empathy. This is contrary to the hypothesis stated and earlier supported by the GEM-Mother. Callous-unemotional traits were not found to have an underlying correlational relationship, the removal of the variance attributed to callous-unemotional traits made no difference to the correlation between affective empathy and conduct problems. This finding is not only confusing, but concerning as the Bryant is the measure that has been most widely used in related research, especially research that has reported mixed results as to the relationship between conduct problems and affective empathy. These findings do indeed suggest that children with conduct problems have impaired affective empathy, a finding however that would only add to the varied findings to date; it provides no explanation as to why a consensus as to how or whether conduct problems and affective empathy remains elusive.

To summarize the findings from affective empathy as measured by the GEM-SR and GEM-VO subscales, with the exception of two subscales, age was consistently the variable that was the significantly associated with affective empathy. These data suggest that rather then the callous-unemotional traits or conduct problems reported for the child, it was the age of the participant that most greatly influences their level of affective empathy,

The finding that across the GEM-Mother, GEM-Father and the Bryant, the correlational relationship was not affected to any significant degree by the use of the callous-unemotional subscale or the altered callous-unemotional subscale with all possible empathy items removed (CU2), suggest that the constructs of callous-unemotional traits and affective empathy are not synonymous or overlap in nature but rather are two independent constructs.
The finding that this negative (though non-significant) relationship between affective empathy and callous-unemotional traits is much stronger and consistent for children in grades 1 and 3, then the older grade 5 & 7 group might suggest different developmental process between the two broader age groups. Perhaps this finding in this older age group suggests the development of a more sophisticated version of callous-unemotional traits where socially apparent signs of affective empathy have been mastered. Conversely, perhaps to adhere to the different socialization pressures experienced by boys and girls in these older grades has limited their outward display or self-reported expression of affective empathy, resulting in children who are low on callous-unemotional traits but also present as low on affective empathy. Continued assessment further along the lifespan when the socialization pressures lose their potency would prove interesting in addressing this question.

It appears that it is the GEM-Mother that has provided results that are most supportive of the theoretical expectation underlying this research and the hypotheses stated. Does this mean that the GEM-Mother is the more sensitive measure, or merely the more convenient? One could argue that significantly more data were obtained from mothers then fathers suggesting that purely from the larger sample, the data are more reliable and valid. One could also argue that while the vast majority of mothers of the child participants completed the measure, only a small percentage of the participant’s fathers completed the measures, possibly producing a biased sample. The varied pattern of results provided from the Bryant is actually consistent with previous research that has found inconsistent results between parent and child measures of child behaviour and temperament. A consistent finding between parent and child report would have been contrary to expectations. This finding is nevertheless especially concerning in this field of research, as to date parent measures of child
empathy have not been available, and therefore not used, resulting in a large spanse of research on child affective empathy based purely on questionable child self-report. The Bryant relies on a more traditional approach of questions asking the child their typical responses to various situations. The GEM - Self Report is based on an observational measure that measures the here and now response to a situation and is therefore more specific. This approach could be argued to increase the validity of child self-report, especially as participants are as young as five years old. The GEM-VO overcomes all of these concerns in child self-report validity as it is an observational measure which is coded by trained adults. As discussed earlier, the weakness of this alternate measure is the possible masking of emotions or social desirability effects due to socialization pressures. The respective advantages and disadvantages of these measures must be considered when deciding which measure is the more valid when examining the role of affective empathy in the development of conduct problems in children.

General Discussion

The aims of this research were to improve our understanding of affective empathy in children by enhancing assessment modalities, gathering information regarding the effects of age and gender on affective empathy, and investigating whether affective empathy may be a factor in the development of conduct problems and callous-unemotional traits. This research provides a further step toward understanding affective empathy by developing for the first time a parent measure. An observational measure was also developed, which through methodological strengths improves on current research using observational measures of affective empathy. The
findings contributes further information in the attempt to untangle the mixed findings in the literature regarding the effect of age and gender on affective empathy, and the role of affective empathy on the development of conduct problems and callous-unemotional traits. The multimethod approach highlights the complexity of this research area, exemplifying the significant influence of the source of the report (child, parent or observational), and suggests that affective empathy consists of multiple components that are perhaps assessed to differing degrees by the different measurement approaches. A further aim was to delineate some of the theoretical obstacles that have made it difficult to conduct empathy research and present suggestions for further understanding and research on the concept.

**Clarity in Definition**

Scholars have long been interested in the concept of empathy, with empathy traditionally referred to as involving a perception of the other, empathic receptivity, sensitivity, awareness, listening with the "third ear", and an understanding of that perception (Reik, 1948). It has been suggested that empathy is not only a moderator of societally important behaviours such as altruism, but also that it serves a pivotal organizing role in social development in general. Despite consensus regarding the important regulating role of empathic affect on behaviour, the empirical investigation of that role has often been stymied by the difficulties of definition and operation. Little agreement has existed amongst researchers regarding the phenomena to be investigated, as a result the development of any sort of coherent view has been difficult to achieve. Investigative tactics have often been so heterogeneous as to render agreement difficult, questioning even whether the research was investigating the same phenomena. These problems, while characteristic of the study of affective
phenomena in general, are nowhere more apparent than in the study of empathy. For
here investigators are confronted with the problem of inferring the emotional match
between two or more people and then establishing links between those inferred affects
to subsequent behaviours.

Among current research, most descriptions of empathy imply affective
sensitivity and sophisticated perspective-taking enabled by formal operational
cognition. Rogers's early description of empathy further specifies that although one
“perceives the internal frame of reference of another with accuracy and with the
emotional components and meanings which pertain thereto as if one were the person”,
it is important for one to never lose the "as if" condition, because if this "as if" quality
is lost, then the state is one of identification, not empathy (Rogers, 1959, pp. 210-
211).

Affective empathy is this ability to feel with the other, as opposed to surmising
solely through cognitive means what the other is feeling. It reflects flexibility in ego
boundaries – an ability to affectively merge for a moment with the other in a shared
emotional experience. Piaget (1973) made an important observation regarding the
interaction of cognition and affect. He noted that “It is incontestable that affect plays
an essential role in the functioning of intelligence. Without affect there would be no
interest, no need, and no motivation; and consequently, questions or problems would
never be posed and there would be no intelligence. Affectivity is a necessary
condition in the constitution of intelligence” (Piaget, 1972, p. 167). The present
research acknowledges the comparative slowness in pace of research in the field of
affective empathy compared to cognitive empathy, and the theoretical and practical
implications of further advances in this field.
Measure Development

Griffith Empathy Measure - Parent Report

Previous study of affective empathy in children has been limited in the modalities available for assessing this phenomenon. Although a variety of inventory measures do exist they all rely on child self-report. No measures assessing parent report are available. This gulf in measure availability is remarkable as other related areas of child assessment traditionally rely primarily on parent report (i.e. child behaviour inventories; Goodman, 1999). In the related field of emotional and behavioural problems of children and adolescents, studies have reported that different informants such as mothers, fathers, children, teachers and peers differ in the information they provide for child and adolescent assessments (Achenbach, McConaughy, & Howell, 1987). The most frequently cited measure of child affective empathy is arguably the Bryant’s Index of Empathy for Children and Adolescents (1982). Again this measure relies on child self-report, indicating that the vast majority of research in the field of affective empathy is based on this modality. If the validity of child self-report measures of affective empathy is to be questioned, so too is the validity of the vast majority of research available in this child area. This is further compounded by children as young as five frequently included in research solely using child self-report (Bryant, 1982). With the limited levels of introspection and emotional vocabulary of this young age group, further uncertainty is cast on the validity of these data.

It is within this broader research context that this study undertook to create a parent measure of child affective empathy. To facilitate the assessment of affective empathy in children and to allow informant comparison, the Griffith Empathy Measure – Parent Report (GEM-PR) was developed as the first stage of this study.
The hypotheses for study one were supported as the GEM-PR was found to be a valid and reliable measure of affective empathy in children. Mother and Father reports demonstrated a strong convergence, supporting the measure’s concurrent validity. The GEM-PR displayed strong internal consistency indicating homogeneity between the items, with the items measuring a single global construct. Likewise, it was a reliable measure of affective empathy in children over a one week period, with strong test-retest reliability. The development of the GEM-PR allows for data collection and comparison from multiple informants. With the availability of a parent report, the GEM-PR may provide a more comprehensive picture of children’s affective empathy, then the previous child self-reports.

*Griffith Empathy Measure - Video Observation and Self Report*

By definition, dispositional measures of empathy are not designed to assess differential and selective empathic responsiveness. Nevertheless, the importance of assessing differences in empathic responses across contexts has been noted by researchers using dispositional measures (Bryant, 1982). The present study therefore includes a measure in which empathy is assessed in response to specific stimulus persons in given contexts. This measure was developed to analyze children’s affective and cognitive responses to a series of emotionally evocative vignettes. This method views empathy as an affective-cognitive process engaged to different degrees by different stimuli. For the purpose of this study, this measure however was only used to measure the affective component of this empathy process. Empathy, even for dispositionally empathic persons, will not be uniformly engaged across persons or situations (Higgins & King, 1982). Whenever children do respond empathically
however, there will be a lessening of experienced psychological distance between the self and the person with whom the child empathizes.

The purpose of study two and three were to assess the relationship between two theoretically distinct aspects of children's emotional responses (Lewis & Michalson, 1983), their subjective emotional experience (via verbal report; Griffith Empathy Measure - Self Report; GEM-SR) and their visual emotional state (via nonverbal expression; Griffith Empathy Measure – Video Observation; GEM-VO), in response to emotion-evoking stimuli. A related objective was to assess the concordance of these two verbal and nonverbal measures as indices of empathy, i.e., affective responses consistent with those of stimulus persons.

The findings that the GEM-VO and the GEM-SR demonstrated adequate test-retest reliability, has important methodological and theoretical implications. These results indicate that although these measures assess a child’s response to a given context, there is stability over time of these results. Test-retest reliability has not previously been examined, giving this finding particular importance and meaning. As there were no previous psychometric findings with which to compare, it was anticipated that test-retest reliability for these measures would be weak, given the practice effects of seeing the stimuli twice, as well as the client’s experiencing different contextual factors between screening (i.e., home environment, mood, enthusiasm levels). However this was not the finding, perhaps the high level of test-retest came from an anticipation effect, which actually primed the participants to experience the cued emotions, counteracting any possible boredom effects. These consistent findings also question to what degree these measures tap into a more stable dispositional component of affective empathy.
Of additional methodological importance is the finding that the GEM-VO was reported to have good inter-rater reliability. It has been argued that facial mimicry often produces visibly weak facial expressions that consequently may not be reliably assessed using observational methods (Tassinary & Cacioppo, 1992). To address this potential problem, some researchers have measured affective empathy using EMG, arguing that it allows the detection of facial activity too weak to be visible to the naked eye (Cacioppo et al., 1986). The present study’s finding of adequate inter-rater consistency with Strayer’s (1987) finding of adequate inter-rater reliability, and supports that the data are a result of objective measurable information as opposed to being due to subjective decoding. In an area as complex as expressions of subtle emotion, this finding is imperative to allow confident use of this measure as reliable, especially as the alternate physiological measures are unable to differentiate between empathy and other constructs such as sympathy and personal distress.

Throughout research, verbal and facial indices of affective empathy have been reported to have minimal or inconsistent convergence (Eisenberg et al., in press; Strayer & Roberts, 1997). These findings contrast with the theoretical assumption that facial affect matching across ages also should correlate with self-report of emotion experienced, given that cognitive and emotional processes develop interactively at all ages (Piaget, 1981). This study also found that facial matching (GEM-VO) and self-reported matching of affect (GEM-SR) did not converge. Strayer and Roberts (1997) argue, that if verbal and facial indices of affective empathy do not converge, then it should be expected that they diverge in a consistent and predictable way. Indeed affective empathy is defined as an emotional response that stems from another’s emotional state or condition and is congruent with the other’s emotional state or condition. The measurement of the facial expression of emotion and the self-reported
expression of emotion in response to another, are two available avenues for assessing affective empathy. These data suggest that facially expressed and self-appraised emotions are two different aspects of a complex unified process (Bowlby, 1969; Laird, 1984; Lewis & Michalson, 1983). Understanding this complexity and the reason for the lack of convergence between these two indices of affective empathy continues to elude researchers in the field. Further comparison of the GEM-VO and GEM-SR shall be addressed in the following section.

**Comparison of Affective Empathy Measures across Age and Gender**

The developmental information obtained from the different measures of affective empathy can be examined in regards to reported trends across age and gender. One advantage of gathering this developmental information is that familiarity with normative development in the early years of life is important for understanding any deviant pattern of development. Empathic awareness of another’s emotions is an inherent human trait that is assumed to change qualitatively and quantitatively over the course of development (Borke, 1971). Investigations of age-related developments is particularly important given a recent review concluding that we do not know whether empathy develops with age (Lennon & Eisenberg, 1987) and noting both the scarcity of comparable studies across age and the equivocal findings regarding age effects on affective empathy.

Comparing the Parent and Child Reports (GEM-PR & Bryant, respectively) mothers and fathers agreed in their report that younger boys have slightly higher affective empathy then older boys. Parents disagreed however regarding girls, with mothers reporting that in contrast girls’ empathy was higher in older age groups then in younger age groups, and fathers reporting no differences in girls’ empathy across
age. This moderate level of agreement between mother and father report is consistent with previous research in the related area of emotional and behavioural problems of children and adolescents (Duhig, Renk, Epstein, & Phares, 2000). Consistent with the often reported lack of convergence found between parent and child self report (Sawyer, Baghurst, & Clark, 1992), the children reported the opposite pattern across age. Both boys and girls reported higher affective empathy in grades 5 & 7, than in grades 1 & 3, suggesting children reported an increase in empathy with age. This finding is consistent with previous research using the Bryant child self report which reported a positive relationship between age and empathy (Bryant, 1982).

When comparing reports of affective empathy across gender a similar pattern of disagreement between parent and child reports is evident. Mothers’ reported that affective empathy was higher for girls then boys in the older age groups, with no difference in the younger age groups. Similarly fathers reported older females having higher affective empathy, in addition to reporting younger males (grade 1 & 3) having higher affective empathy then younger females. The contrasting finding that male children self-reported higher affective empathy across all age groups, is not only in contrast to the general agreement between parent reports, but contrasts with the common finding of higher levels of affective empathy in girls (Litvack-Miller, McDougall, & Romney, 1997; Zahn-Waxler & Smith, 1992).

Analysis of the GEM-VO and GEM-SR, allows examination and comparison of age and gender effects on a number of the measure’s components. The finding of a decrease in facial affect in older children compared to younger children may suggest that with age, children learn to increasingly falsify, neutralize or mask their emotional responses. In addition, limited individual differences in facial affect amongst the older age groups lend further support to a decrease in the predictive power of this approach.
for older children (aged 9-11). Consistent with Strayer’s (1983) finding that negative facial expression of empathy decreases with age during primary school years, this study found that younger children scored higher on facial matching (between protagonist and participant’s displayed facial emotion) than older children. This finding is consistent with the earlier finding of more masking of emotion in the older age groups. Consistent with Strayer’s (1983) previous finding, despite older children having a broader range of social and personal experiences, their tendency to mask their facial expressions undermined assessment of their ability to accurately mirror the protagonists facial expression of emotion. Again these data suggest that observational measures of child affective empathy are most appropriate for younger children who have not yet learnt through societal pressures to conceal their facial expressions of emotion.

Regarding GEM-SR, in contrast to Strayer (1983), the study found that self-reported affect of positive emotions decreased with age, while self-reported affect of negative emotions actually increased with age. The developmental factors such as an increase in emotional vocabulary and self-awareness in the older age groups helps explain the increase in self-reported affect with age for negative emotions. These results also indicate that unlike facial expression of emotion, older children perhaps do not have the same pressure to conceal their verbal expression of emotion. Also consistent with developmental research on cognitive empathy (Hoffman, 1990) this was not a surprising finding as older children were more able to correctly identify the protagonist’s negative emotions (GEM-SR) then younger children.

Regarding self-reported matching of affect which is defined as the match between the emotion the participant attributes to the vignette character and the emotion the participant self-reports as having experienced, for females, self-reported
matching of affect across negative vignettes was found to increase with age. The contrary finding was evident for boys across negative vignettes. This varied gender outcome contradicts the theoretical assumption that increased social experience and understanding of emotional contexts and personal experiences should increase one’s ability to share similarly in the emotions conveyed (Selman, 1980). Children’s interest in the psychological aspects of both self and others develops mutually with age (Youniss & Smollar, 1990). This is possibly reflected in their increasingly “trying on” the emotions conveyed by others, hence increasing affect match with age. A high degree of affect match in one stimulus context however needs not generalize to other contexts.

These gender-based differences may be indicative of the socialization pressures on the development of affective empathy in boys and girls, as the verbal expression of feeling the same fearful or sad emotion as the vignette character is more complimentary of the female gender socialization pressures then the males. The nurturant emotional female role contrasts with the socialization of males into task-orientated, competitive social roles (Alexander & Wood, 2000; Brody & Hall, 1993). In line with these gender specific socialization pressures, Blair et al., (2001) found anger to be the only emotion to be more openly expressed and readily empathized within males. An implication of these gender findings is that if girls are more empathic, attuned to the affective state of others, and aware of the harmful consequences of their actions than are boys, this may be one factor implicated in violence being less prevalent in girls (Zahn-Waxler, 1993; Zahn-Waxler et al., 1995; Zoccolillo, 1993).

The present study found that consistency between facial emotions coded and emotions verbally reported increased with age. The increase in convergence between
these two measures as children age again supports the parallel cognitive developments that are taking place. Older children are more capable of correctly labelling the emotion they are experiencing, thus increasing the consistency with facial emotions coded. This consistency across both genders not only provides evidence of concurrent validity of this multimethod approach, but provides encouragement regarding the future of relying on one indice when the other is not obtainable, such as observational data (facial emotions expressed) with younger children (aged 5 – 8), would provide information that could be inferred as consistent across both types of measurement. This question of how consistent the information gained from facial expressions and self-report is central to this multimethod design.

Another gender difference found in reviewing these data was the finding that in grades 1 and 3, girls were found to have more facial matching than boys, while in grade 5 and 7, the pattern reversed with boys scoring higher on facial matching than girls. Conversely, the data from self-reported matching of affect consistently found girls were scoring higher on self-reported matching of affect across all ages. There is very little research with which to compare these gender findings. A possible explanation for these gender findings is that the self-report measure is more comparable to the traditional child self-report measures, which have also reported higher total affective empathy scores for girls (Cohen & Strayer, 1996; Eisenberg et al., 1991). The self-in-relation view of feminine development emphasises distinctive goals of development for males and females in Western cultures (Gilligan, 1982; Miller, 1986). Females, it is proposed, are socialised to value the preservation of relationships and a sense of self that is in-relation-to-others. Males, particularly in Western cultures, are socialised to become self-directed individuals (Robinson, 1994). According to Miller (1986), achieving autonomous self-development, “will win them
relationships. Others, usually women, will rally to them and support them in their efforts, and other men will respect and admire them” (p. 95). As a consequence of this gender finding, Zahn-Waxler et al., (1991) have speculated that female sensitivity to emotional events may heighten their risk for developing unhealthy levels of internalised guilt under specific environmental circumstances compared to males.

Consistent with the emotionally “expressive” role of the feminine stereotype, girls were found to be more likely to verbally express feeling a negative emotion then boys. A contrasting result however was that boys were found to be more facially expressive of negative emotion in the older age groups (grade 5 & 7) then females. Boys were also more facially expressive of positive emotions across all age groups. These findings contrast with previous research and current socialization theories that propose that with age, boys are more inclined to mask facial expressions of sadness and fear, emotions that are aligned with the feminine role. Girls were also found to be not as good at identifying the protagonists’ more complex array of negative emotions as boys. Furthermore the identification of protagonists’ emotions is the only cognitive component of the research design; the present data therefore contradicts previous research, which has found that boys scored lower on cognitive empathy then girls. These mixed gender findings suggest that the gender effects of affective empathy are complex and in need of further clarifying research.

To examine conceptual and methodological issues concerning the assessment of vicarious emotional responding, it is important to consider the various instrumental factors that influence the experience and expression of affective empathy. Previous research suggests that individuals tend to mimic an interaction partner's facial displays (Hatfield, Cacioppo, & Rapson, 1994; Lundqvist, 1995; Wallbott, 1991). For example, Dimberg (1982) showed participants a series of emotional facial expressions
of anger and happiness and measured muscular activity at the Corrugator Supercilii (brow) and Zygomaticus Major (cheek) sites. Dimberg found that participants showed more Corrugator Supercilii activity when they were exposed to angry expressions than when they were exposed to happy expressions as well as more Zygomaticus Major activity when they were exposed to happy expressions than when they were exposed to angry expressions. However, facial mimicry does not always occur. For example, Hess et al., (1998) specifically investigated observers' facial reactions to emotional facial expressions in a series of judgment tasks. The results revealed that, depending on the nature of the decoding task, facial reactions to facial expressions might be either affective or cognitive. Specifically, participants were found to mimic only when they were asked to make affective judgments regarding the emotional facial expressions whereas when observers had to decide whether an emotional facial expression was posed or spontaneous, no mimicry was found. Further, Lanzetta and colleagues found evidence for counter-mimicry, that is, facial expressions contrary to those shown by the model (e.g., Englis et al., 1982; Lanzetta & Orr, 1986).

In sum, there is evidence that observers mimic facial displays. However, the findings on counter mimicry and those reported by Hess et al., (1998) suggest that this process may be somewhat less automatic and reflex-like than has been suggested. The notion that facial displays influence affective state has been extensively investigated in the context of the facial feedback hypothesis (Manstead, 1988; Matsumoto, 1987; McIntosh, 1996). Lipps' model is based on the sufficiency version of this hypothesis (Tourangeau & Ellsworth, 1979), according to which the production of an emotional facial expression is sufficient to induce an emotional state corresponding to the facial expression. For example, Duclos, Laird, Schneider, Sexter, Stern, and Van Lighten (1989) found that contracting the muscles involved in fear and sadness expressions
induced the target emotion. However, in general, only limited support for the sufficiency hypothesis has been found (e.g., Manstead, 1988; McIntosh, 1996). Despite the fact that the specific feedback process described by Lipps is not well supported, there is clear evidence for emotional contagion effects, that is, individuals who are exposed to emotional facial expressions tend to report emotional states congruent with these displays (Cappella, 1993; Gump & Kulik, 1997; Strayer, 1993).

Other contextual factors also warrant consideration. For example the specific effect of affective states on the recognition of emotional facial expressions has received minimal interest. (Forgas, 1992; 1995). Of exception was a study by Bouhuys, Bloem, and Groothuis (1995), who found that when feeling more depressed, participants perceived more rejection/sadness in faces displaying weak emotions and less invitation/happiness in faces displaying strong emotions. These findings are not supported by the present research however as test-retest reliability was found to be adequate, suggesting that changed contextual factors between time 1 and time 2 did not greatly influence the measures outcome.

The relation between children’s emotional expressions and their reported experience of emotions is relevant to multi-component models of both emotion and empathy development. Emotional experience, as assessed by facial and physiological measures, and awareness of one’s emotional experience, have been said to be two major comprising aspects of emotional development (Lewis & Michalson, 1983). Although physiological indices seem promising as measures of emotional experience (Eisenberg et al., 1988), facial expressions provide more specific information regarding the type of emotion than do more general arousal measures (Izard, 1982; Lewis & Michalson, 1983). Furthermore, with the goal of minimizing social desirability effects and self-perception flaws, indirect methods that do not appear to
be measuring empathy are most appropriate. Although there have been a number of ways to measure both emotional responsiveness and empathy, including nonverbal assessments (Eisenberg & Lennon, 1983), there are few ways, other than by verbal report, to study a person’s emotional experience. For this reason, the inclusion of the self-report component of the GEM was necessary, as self-report is the optimal measure of an individual’s actual experience of emotions. Measures that tap into clearly defined and distinct constructs of affective empathy as situation-specific experiences are needed. Such measures are crucial in operationalizing empathy as a multiphased process.

Leading developmental theorists such as Piaget, Erikson, and Feshbach have contributed much to empathy research. Feshbach (1978) suggested that a capacity for empathy is conditioned on the presence of three components: (a) the ability to differentiate and define emotional states in others; (b) an ability for role taking; and (c) the ability to experience a variety of affects. He argued that one of the most prevalent and most important developmental processes for primary school students is the movement from an egocentric self to the ability to possess an outward focus on others. From a cognitive developmental perspective, Piaget suggested that children at the primary school age move through preoperational and concrete operational stages. Through both stages, children begin to move beyond egocentrism and beyond their difficulties in understanding how another person sees, feels, or thinks (Bukatko & Daehler, 1994). Hence, these developmental theories suggest that because the cognitive component of empathy is absent, empathy cannot be observed before a child is at least 5 years old. Freud and Erikson also proposed a similar developmental stage in which children focus emotional energy toward social achievements in search of competent relationships (Thompson & Rudolph, 1996). The present research falls...
within this theorized age group. According to these theories, research with children under 5 years of age would reveal markedly different developmental information then the children aged 5 or more in the present study.

Evidence stemming as far back as newborn research has reported newborns responding selectively to the cries of another infant then their own cries of distress (Sagi & Hoffman, 1976). There is also empirical evidence that suggests that very young children are capable of showing affective concern for another person in distress (Zahn-Waxler & Radke-Yarrow, 1990). In addition, children in their second year of life have been observed to act in a way that could not be interpreted other than reflecting some form of empathic concern (Bischofer-Kohler, 1991; Robinson et al., 1994; Ungerer et al., 1990; Zahn-Waxler et al., 1992). In contrast to the social cognitive approach, empirical findings suggest that empathic concern does not require necessarily the presence of complex cognitive capacities, such as role taking, but may be present in more primitive forms of emotional expressiveness that are observed in infants, such as facial expressions reflecting concern and sadness or distressed cries. Within this youngest age group, this is a primitive form of emotion contagion; as opposed to the more complex empathy to which Feshbach, Piaget and Erikson refer, which includes a cognitive component.

Synthesis of Affective Empathy Data

While mother and father reports were found to converge, child self-report using the Bryant did not converge with parent reports. The question of which is the most valid measure of affective empathy depends on a number of possible factors. As the parent and child self-report measures are similar in design and item selection, the lack of convergence can be firmly interpreted as a difference in informant report as
opposed to measure design. One could argue that children are less introspective and aware of their emotions and their affective responses to their environment, with younger grades especially influenced by their lower levels of cognitive development and self-awareness. The contrasting reports of affective empathy between child and parent reports may reflect these developmental factors. Conversely, one could argue that especially older children are more cognisant than their parents of their internal experiences, as they are the only informants able to actually access the emotions experienced. As previously mentioned, inclusion of data from a teacher report would add valuable information to this debate. The teacher report would have the moderating advantage of having the adult cognitive capacity to judge the items, as well as possibly presenting with less bias than parents. As there are no comparative studies with which to compare this lack of convergence between parent and child reports, further research is needed.

The present study contributes to the small number of studies that have examined the convergence of a multimethod approach to assessing children's emotional responses and affective empathy. More specifically research comparing traditional child self-report measures of affective empathy with newly emerging observational measures is scarce. It was found that the GEM-Parent Report and the Bryant Index did not converge with the GEM-Video Observation or the GEM-Self Report. Furthermore this lack of convergence demonstrated no consistent and predictable pattern. While the GEM-PR and the Bryant are both dispositional measures of affective empathy, the GEM-VO and GEM-SR are situational measures of affective empathy. This lack of convergence contrasts with Holmgren, Eisenberg and Fabes’s (1998) isolated finding that laboratory assessed situational empathy related to a small degree to measures of children’s dispositional empathy.
Theoretically one would assume that dispositional and situational measures of affective empathy would converge to a degree, the majority of research however disputes this logic with research reporting a lack of convergence between observational and self-report measures of affective empathy (Eisenberg et al., 1988; Holmgren et al., 1998; Strayer & Roberts, 1997). The question then is whether this lack of convergence is a reflection of the construct measured, or the result of varying differences in perceptions (self vs. other perception), and possibly varying motivational drives (socialization pressures to mask emotion). The perspective afforded by the two views of dispositional versus situational measures of affective empathy are of particular interest. In one, empathy is regarded as a general dispositional trait; in the other, it is assessed as a response specific to and elicited by given persons and situations.

While it has been proposed that a productive alternative approach is to consider empathy as a set of related constructs encompassing both cognitive and affective reactions (Davis, 1980; Davis et al., 1987; Deutch & Madle, 1975), perhaps it is also valid to consider affective empathy itself to be made of a set of related constructs. This would explain the marked difference in child, parent and observational data. Unfortunately this lack of convergence between the parent, child and observational measures does not allow for definitive answers regarding the measurement and theoretical questions surrounding affective empathy, but rather further substantiates data available to date. Perhaps this rather robust finding in the literature of a lack of convergence, should be interpreted as evidence that just as constructs such as anger are measured by state and trait (Spielberger, 1988), so too should empathy be measured from both dispositional and situational perspectives with an appreciation that valuable and independent information is derived from both
sources. While theorists and researchers have recognised affective empathy as a complex interpersonal behaviour, the expectation that different measurement approaches should converge persists. Regarding future directions, studies that use a range of dependent or independent measures, to assess affective empathy across different age groups, would enhance our understanding of the nature and development of affective empathy and would contribute to the bridging of theory and application. Unidimensional measures may be insufficiently sensitive to detect changes in affective empathy. The present findings add compelling support for the argument that previous failures to find consistent age-related trends or relationships in children's empathy are attributable largely to the use of unidimensional measurement techniques.

Our understanding of empathy and its development necessitates understanding of the progression of emotional development in general and the role of emotion as an organizer of development. The interest in affective empathy reflects a more general effort to incorporate (or reincorporate) affect into our understanding of empathy development. This can be achieved by our continuing effort to broaden our knowledge of the developmental course of the evolution of primitive emotional contagion phenomena into complex, differentiated, regulated patterns of affective and cognitive behaviours (Moore, 1990).

**Correlates of Affective Empathy**

The recent rise in juvenile crime has led to a stark realization of how costly antisocial behaviour is to society, both in terms of monetary cost (e.g., cost of incarceration, costs of repairing schools due to vandalism) and in terms of social costs (e.g., creation of poor learning environments in schools, reduced quality of life of
crime victims) (Zigler, Taussig, & Black, 1992). Furthermore, adult psychopathy has been implicated in a disproportionate amount of serious repetitive crime and violence (Hare & Hart, 1993). There has been growing consensus that children with Conduct Disorder constitute a very heterogeneous group containing children who vary substantially on the development, course and causes of the disorder. It is important to recognize this heterogeneity for developing better casual theories and for developing more effective treatments. One approach to subtyping these children involves designating children within the childhood-onset group who show callous and unemotional traits which is analogous to adult conceptualizations of psychopathy (Frick, in press).

The development of empathy amongst this group of children is of conceptual and applied significance as it is of integral importance along the spectrum from altruistic to criminal behaviour (Batson & Shaw, 1991; Eisenberg & Fabes, 1990; Hare, 1980). For centuries, philosophers have reflected on the importance of empathy in social and moral life, and on the human potential to possess moral sentiments and to be attuned to the misfortunes of others (Scheler, 1992; Solomon, 1993). As a source of motivation, emotional concern for others may encourage normative, moral, and prosocial action (Davis, 1996; Smith-Lovin, 1995). The relationship between affective empathy and conduct problems has therefore long been assumed to be negative in nature. Despite the widespread theoretical speculation and frequent inquiry, the question of how affective empathy and conduct problems relate, continues to elude researchers due to a long history in mixed findings presented throughout the literature. Even if there is an inverse relationship between the two constructs, why the continuation in conflicting findings? Evidence suggests there is more complexity to this seemingly simple research question. Furthermore if we are to
assume that individual differences in affective empathy are relatively stable (Cummings et al., 1986), the need to consider empathy in relation to antisocial or conduct problem behaviours as early in development as possible to allow optimal preventative intervention, is paramount.

In examining whether callous-unemotional traits account for the variance in affective empathy often attributed to conduct problems, a pattern of contrasting results were reported by the GEM - Parent Report and the Bryant child self-report. The clearest and most interpretable finding was reported by the GEM-Mother which supports that the previous mixed results found in the literature as to whether there is a negative relationship or not between affective empathy and conduct problems (Eisenberg & Miller, 1987) is in fact due to the previously unmeasured variance of callous-unemotional traits. The GEM-Father however reported that neither age, callous-unemotional traits nor conduct problems accounted for affective empathy variance. This drastic contrast in results questions which measure is more valid. This is a particularly curious question due to the finding that the mother and father reports of child affective empathy were highly correlated in study one. One could argue however that because more mothers participated than fathers (148 & 25, respectively), that the mother report data is more representative and valid.

Despite this sample size difference, the results of the current study do not allow for definitive conclusions as to which of the mother and father report produces the more valid results. The finding as reported by the larger sample of mothers however has implications for understanding the existing body of literature and for directing future research. The data elaborates on the assumption that children with Conduct Disorder constitute a very heterogeneous group, suggesting that there is a subgroup of Conduct Disorder children with callous-unemotional traits and impaired
empathy, and a subgroup without callous-unemotional traits or empathy deficits. The GEM-Mother data suggests that it is the presence of callous-unemotional traits which accounts for the variance in empathy deficits. To no longer apply the broad assumption that children with conduct problems have empathy deficits recognizes the heterogeneity of this group. Attention to this heterogeneity and information regarding the characteristics of the different subgroups allows for a different perspective toward the development, course and causes of the disorder, in addition to further development of better casual theories and more effective treatment approaches.

Contrary to the findings as reported by the GEM-Mother Report, callous-unemotional traits were not found to have an underlying correlational relationship as measured by the Bryant’s child self report; with the removal of the insignificant variance attributed to callous-unemotional traits making no difference to the correlation between affective empathy and conduct problems. This finding is especially concerning as the Bryant has been the most widely used in the research which has reported mixed results as to the relationship between conduct problems and affective empathy.

With the exception of two subscales, when affective empathy was measured by the GEM-SR and GEM-VO subscales, age was consistently the variable that was the significant predictor of affective empathy. These data suggest that it is the age of the participant that most greatly influences their level of affective empathy, rather then the callous-unemotional traits or conduct problems. These findings contrast with a study by Blair et al., (2001), who found that using an adapted version of the emotional expression multimorph task (Murray et al., 2000), adults scoring high on psychopathy were found to have a selective insensitivity for fearful expressions. This research however used an adult population and investigated the broader construct of
psychopathy as opposed to the specific subscale of callous-unemotional traits. The present study suggests that when broadly applying this research to children, participants scoring high on callous-unemotional traits, did not demonstrate a similar insensitivity for negative emotions such as fear as measured by the observational measures (GEM-SR and GEM-VO).

Validity data available for the CU dimension of the APSD is minimal, with this variable consequently still being considered highly theoretical. The current research provides further data to unravel the phenomena of this CU dimension. The question of whether callous-unemotional traits and affective empathy are independent constructs was supported by the finding that the correlational relationship as measured by the GEM-Mother, GEM-Father and the Bryant, was not effected by the removal of possible empathy items from the callous-unemotional subscale (CU2). This finding supports that the constructs of callous-unemotional traits and affective empathy are not synonymous or overlap in nature but rather are two independent constructs. Investigation of CU traits has never been conducted; the construct has only been studied as part of the broader Antisocial Process Screening Device (Caputo, Frick, & Brodsky, 1999). To understand the different subscales that make up the child psychopathy measure, independent investigation of each of these components is necessary. It is important to investigate some of the underlying characteristics of the callous-unemotional construct, to establish what constructs it correlates with and whether the operational definition of callous-unemotional traits is accurate. While lack of empathy is a descriptive definition of CU, this research has found that the two constructs do not overlap but to an extent do negatively correlate. This is the first step toward establishing an empirical understanding of the construct.
There are further reasons why pursuing accurate classification of child psychopathy itself is paramount. This construct has received increased recognition as an important syndrome and has been increasingly utilized in both child clinical and forensic practices. Identifying psychopathic youth will likely assist in (a) identifying high rate offenders, (b) improving and optimizing treatment interventions, and (c) reducing misclassifications that have far-ranging ramifications for children and adolescents (Burns, 2000; Clark & Watson, 1995; Haynes et al., 1995). Moreover, pursuing diagnostic clarity will assist in the development and study of the etiology of this disorder. This present study is an initial and critical step in understanding the construct of CU traits in youth. Clear understanding of the phenomena underlying each of the diagnostic subscales of the child psychopathy construct will allow for a more informed approach to possible early intervention.

When translating how the increase in affective empathy could lead to the decrease in conduct problems, one must address the different developmental stages at which different ages are. In relation to whether affective empathy would actually influence prosocial versus conduct problem behaviour in the younger age groups when cognitive empathy hasn’t yet caught up, Hoffman (1975) argued that empathic distress as the involuntary experiencing of another person’s painful emotional state. According to his theoretical model, when this involuntary emotional response becomes integrated with an appreciation or cognitive awareness of the other’s inner states distinct from self, the motivation to help the other may arise. Hoffman’s definition of empathy differs from those of Feshbach or Eisenberg in that it is inclusive of behaviours that communicate caring. The role that callous-unemotional traits may play in this complex relationship is not yet explicitly known. Do impairments in the development of affective empathy partially lead to or coincide
with the development of callous-unemotional traits. The present research argues that children who develop conduct problems without callous-unemotional traits are a separate subgroup than those children with conduct problems and callous-unemotional traits. As callous-unemotional traits as measured by the GEM-Mother Report, appear to account for the variance of affective empathy, rather than conduct problems itself, it appears that it is this latter group that has frequently been reported in the literature as having low affective empathy.

Whilst attempting to decipher the pathways toward affective empathy and the related developmental disorders of Conduct Disorder and their later adult forms, one must acknowledge the further complexity due to the different developmental pathways for girls and boys. While the different pathways to conduct problems, ASPD and psychopathy are not yet clear, it is known that the serious and violent Conduct Disorder symptoms are applied almost exclusively to boys whereas the defiant aspects of Oppositional Defiant Disorder and Conduct Disorder are applied most closely to girls. It is difficult to know exactly why girls and boys differed so extensively with regard to the behavioral component of this disorder. One possibility which is consistent with affective empathy research is that the differing symptom pictures may be because of the notion that girls are typically not expected to engage in aggressive antisocial behavior and are actively discouraged from behaving against societal norms (Maccoby, 1986; Silverthorn & Frick, 1999). As such, girls may experience feelings of guilt more often than boys do when they behave in an aggressive or violent manner (Bettencourt & Miller, 1996). Silverthorn and Frick (1999) have argued that, because societal expectations may inhibit antisocial behavior in girls, the presence of certain psychopathic personality traits (e.g., lack of remorse)
may be required before girls break gender-specific societal norms and engage in a consistent pattern of antisocial behavior.

A further complexity in investigating the developmental pathways of empathy is that cognitive and affective empathy are separate in their developmental milestones and have different implications when a deficit is present. When looking at empathy in a callous-unemotional or conduct problem population, it is important to look at affective empathy specifically rather then cognitive empathy, as the development of cognitive empathy does not mean that the individual cares or is adversely affected by someone else’s suffering for example, but purely understands that the other is suffering. This cognitive understanding without accompanying affective empathy actually has dangerous potential as this understanding can be used to the detriment of others. Heinz Kohut (1971) referred to empathy as vicarious introspection, explaining that empathy can be an informer of appropriate action; if you understand the inner life on another person, then you can use this knowledge for your purposes, whether a purpose of kindness or hostility. An example to illustrate empathy as a tool of insight into other people’s worlds includes fiendish empathy, the use of correct empathy for unfriendly purposes. Kohut spoke of cognitive empathy with his example of warning sirens on a bomb; when a bomb is designed with the knowledge of the fear that the sirens would invoke, but without the aversive affective component of vicariously sharing in the horror that would be experienced.

This earlier review emphasises an interaction between biological and aversive environmental factors that produce normative and maladaptive patterns of development of aggression, conduct problems and at the adult end of the continuum, ASPD. As research indicates that children displaying both conduct problems and CU traits are likely to manifest a pattern of antisocial behaviours far more severe and
treatment resistant than those with conduct problems without CU traits (Christian et al., 1997), there is a pronounced need to increase our understanding of the nature of callous-unemotional personality traits and the developmental trajectory unique to this subgroup.

**Strengths and Implications of this Study**

Many of the advances in the field of affective empathy research have resulted from more fine-grained conceptualizations coupled with improved technologies for accessing affective processes (Moore, 1991). The present research joins this new school, contributing to the growing research that focuses on clearer operational definitions and appreciation for the measurement complexities inherent to this field. The present research has further contributed to the debate surrounding which measurement approach is most appropriate when assessing affective empathy. Of most notable importance is the development of a parent measure of child affective empathy. There are many strengths inherent to this parent measure, not only can the concurrent validity of the traditional child measures now be assessed, but the introspective and cognitive capacities that may be questioned in the younger age group can now be overcome by using a parent report.

The communication of emotions and thoughts is an important aspect of everyday social interactions. Specifically, our ability to understand the emotional states as well as the interpersonal intent of our interaction partners influences the quality of our social interactions. Research utilizing observational measures provides a here and now assessment of participant’s affective and cognitive responses to stimuli. This measurement approach is also arguably the most valid for younger age groups (5-8), because self-report may not be appropriate due to limited introspective
and vocabulary skills, taking advantage of the window of opportunity when young children are not yet masking their facial expressions. With the goal of measuring subtle affective and cognitive responses, these observational measures provide rich and valuable information with a broader scope of multimethod assessment. Although this measurement approach is both laboursome and complex to code and interpret, the value of this alternate approach should not be underestimated. The lack of convergence found between traditional child self report, and new parent report and the present observational measure, further illustrates the complexity of the construct of affective empathy being measured. Instead of deterring future research, this complexity should prove that further investigation is needed to understand the intricacies of the social processes involved in affective empathy.

The indication that callous-unemotional traits may account for the empathy variance as measured by the GEM - Mother Report, amongst the conduct problem group, further supports the validity and usefulness of this child psychopathy subscale. This finding may have enormous implications for tertiary treatments and preventative strategies for antisocial behaviour in children and adolescents. That is, maximum treatment effect will be achieved by identifying children with high levels of callous-unemotional traits and scheduling in more or different interventions from the standard parent/school interventions. Given that the most comprehensive models of psychopathy emphasis lack of empathy and emotion, the most likely contender would be to add a component to parent training that focuses on a parent-child empathy training module. The finding that empathy is a mechanism which underlies callous-unemotional traits lends further support for this specific approach to tailoring intervention.
Empathy has the capacity to exert profound influence in human interactions. In research that has investigated the affect of empathy training, empathy induced by experimenters' interventions has been demonstrated to replace acts of aggression with nonviolence (Feshbach, 1978; Iannotti, 1978; Tangney, 1988). Scully (1988) theorizes that empathy may foster social control by encouraging self-regulation. Efficacy of empathy training however is not uniform. In reviewing the literature, efforts to enhance empathy for abuse survivors by sharing information about the consequences of abuse are effective with children, less effective with older adolescents and adults, and singularly ineffective with adults who have acted abusively (Borden, Karr, & Caldwell-Colbert, 1988; White & Nichols, 1981).

Bullis and Walker (1994) further indicated that interventions implemented after age 8 are no longer preventative in nature; instead the focus shifts to remediation. This is of particular concern given that referrals for specialized services typically are not made until second or third grade (Forness, 1981). Without early intervention, these children tend to experience numerous long-term negative outcomes, including academic underachievement, impaired social relationships, increased rates and types of aggressive behavior, substance abuse, and delinquent behaviors. These collectively result in significant costs to society as well as to the students themselves (Kazdin, 1987; Walker et al., 1995). These findings provide convincing support for need for early intervention with children. Early intervention however requires the ability to confidently assess children’s affective empathy at all age groups, to have information pertaining to normative fluctuations throughout age and across gender, and an understanding of the role that empathy plays amongst children on the conduct problem spectrum. The present research has contributed
toward each of these objectives, with the aim of further facilitating the early detection and intervention of impairment of empathy development in young children.

Limitations of this Study and Suggestions for Future Research

Various future research avenues are highlighted by the present research. The Bryant’s Index of Empathy for Children and Adolescents was found not to correlate with social desirability (Bryant, 1982). This finding was reported by the author of the measure and has not since been confirmed by subsequent or independent research. The Griffith Empathy Measure - Parent Report, although based on the Bryant has not been investigated for the effects of social desirability. Investigation of possible social desirability confounding effects is therefore needed. Further, independent research on the newly designed GEM - Parent Report is also needed, as well as has been previously discussed, the piloting of a possible Teacher Report version of the measure.

Although the present study is comparably large in sample size (N = 211) with comparable studies reporting an N of 73 and 138 (Strayer & Roberts, 1997; Strayer, 1993, respectively), once the child participants were broken down into age and gender groups, the numbers fall. A larger sample size would allow for a more fine-grained analysis of the effects of smaller age groups (i.e., not having to group grades 1 & 3, and 5 & 7) and would provide more robust data on age and gender trends. Provision of this normative data would be valuable as comparison data with which to examine individual affective empathy scores on the various measures. In pursuit of normative data, longitudinal studies would optimally provide this valuable information. Although longitudinal research has not yet been undertaken in this field, it is the
medium by which much needed developmental information, including developmental milestones, and contributing factors (both positive and negative) that influence affective empathy could be examined.

Another area needing future research attention is the need to incorporate naturalistic observations. To progress further with situational measures of affective empathy, future investigations should incorporate naturalistic observations of the child’s affective empathic responses. This information would provide a more comprehensive assessment of the antecedents of empathy in both boys and girls. Social desirability and testing pressures would also be overcome by this naturalistic approach. Not only has this research question never previously been investigated, but comparison of observational lab-designed measures and naturalistic observations would provide further information pertaining to the measures’ concurrent validity.

A limitation of the present research relates to a difficulty inherent to the question of establishing which of several approaches the best measure of affective empathy is. When these various measures are then used to investigate research questions, one ends up with a multitude of equations. As can be seen in study three, the resulting large number of correlations leads to a high probability of a type one error, which therefore restricts interpretation to emerging patterns only. Furthermore, when using a multitude of measures and within them, a multitude of subscales (i.e., GEM-VO, GEM-SR), the probability of the different measures, all which measure a different component of the same construct, producing consistent results is small. This methodological weakness came to fruition in the present study with minimal convergence found. Perhaps smaller studies that limit the scope to comparison of only two measures at a time would overcome this limitation. A further limitation is that a volunteer sample was used for study 4. This sampling technique may have limited the
number of children with severe conduct problems and limited even further the number of children with conduct problems and problems with empathy.

Given the importance of affective empathy (and its measurement) as a psychological construct and as a social behaviour, numerous avenues for future research are open and will no doubt be pursued. Although a considerable amount of research is available, current understanding of affective empathy is still limited. The lack of specification and organisation of different views of empathy has led to theoretical confusion, methodological difficulties, inconsistent findings, and neglected areas of research. Future research needs to distinguish between affective and cognitive empathy, and dispositional and state empathy. Research in the empathy area is limited by the seemingly fixed assumption of individual differences (dispositional affective empathy). Situational factors such as the empathizer’s mood, knowledge of the other and awareness of the other’s culture, emotions and values may influence the empathizer’s feeling and expression of empathy. The exclusive focus on individual differences limits our understanding of cause-effect relationships between the affective empathic experience and its situational predictors. Furthermore, the research is limited by not including important variables such as the empathizer’s motivation and attitudes toward empathy and the affective emotions toward the empathizee (Duan & Hill, 1996). Empirical effort in this area may help provide an understanding of whether, when, and under what circumstances, human affective empathy is spontaneous or induced and would have direct implications in a broad range of areas such as psychotherapy training and intervention with Conduct Disorder children.

Various research perspectives have articulated the important role of empathic processes as organisers of social development pointing to some of the diverse courses that these processes might take, leading to different developmental outcomes. The
The present study was not able to broaden its scope to investigate causal pathways to empathy development; attention has been drawn however to similar fields of developmental research which may provide some guidance to investigating risk factors specific to impaired empathy development. Future research is needed into developmental risk factors relevant to affective empathy. Only through knowledge of these specific risk factors can true preventative measures be attempted.

The lack of coherence between the theoretical importance of empathy and empirical evidence necessitates the return to empathy research. The diverse empathy theories need to be tested, and confusion caused by miscommunication among the theories needs to be clarified. More empirically derived, explanatory theories of empathy are necessary if there is to be a better understanding and use of the concept of empathy. If theory building is to be facilitated, it is necessary to understand the predictors as well as functions of empathy as a trait, an experience, or a process, and as a cognitive, affective, or multistage and multicomponent phenomenon. This review of the literature gives striking testimony both to how far research into the origins and development of empathy has come in the last decade, and to how complex the relations are in this domain, emphasising the necessity for carefully delineated future research. The fact that empathy research is still plagued with various theoretical and methodological insufficiencies clearly extends an invitation for creative and persistent researchers to exert their scientific effort and contributions.


disorder, childhood delinquency, and frontal brain functioning: EEG and

cognitive and behavioural differences between popular and rejected children. *Journal
of Applied Developmental Psychology, 15*, 367-386.

*Infants and Young Children, 10*, 15-26.

conceptualizations, measurement, and a cognitive theoretical perspective. *Human
Development, 18*, 267-287.

19*, 643-647.


Dodge, K. A. (1993). Social cognitive mechanisms in the development of conduct
disorder and depression. *Annual Review of Psychology, 44*, 559-584.

Jason Aronson.


Duan, C. (1988). *Effects of reasons for and consequences of a transgression,

of Counseling Psychology, 43*(3), 261-274.


