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AN INVESTIGATION OF SEX DIFFERENCES IN EMPATHY AND IMAGINAL INVOLVEMENT

by

Nicole Chovil

B.A. (Hons), University of Victoria, 1980

THESIS SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTER OF ARTS in the Department of Psychology

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ABSTRACT

The objectives of the present study were to examine the relationships among three measures of children's affective empathy (i.e., affective responses to another person's affective experience) used in developmental research. In addition, gender-related differences and imaginal involvement were investigated as variables contributing to individual differences in empathic responding. Forty 9 and 10 year old children (20 boys, 20 girls) participated individually in a session lasting approximately one hour. Three measures of empathy were used: Bryant's (1982) Empathy Index questionnaire, more specific verbal reports of empathic match between the stimulus person's and the subject's own experienced affect, and ratings of facial expressivity in response to viewing another person's televised dysphoria. Sex differences in empathy were examined in terms of actual gender and sex role (masculinity-femininity) attributes. The role of imaginal involvement was examined using self reports of involvement with fictional characters in general, as well as with specific characters in stimulus vignettes. Social desirability and verbal skill factors were also assessed.

Results revealed little convergence among the three empathy measures. The only statistically significant relationship found was between ratings of facial expressivity for one stimulus vignette and Bryant's Empathy Index. General imaginal involvement was significantly related to scores on the Empathy Index. Similarly, self reports of imaginal involvement with
stimulus vignettes were significantly related with empathic responses to these vignettes. However, there was no relationship between the two measures of imaginal involvement.

Gender-related findings showed that girls scored significantly higher than boys on the Empathy Index but not on verbal reports and facial expressivity in response to stimulus vignettes. Similarly, reported femininity for both girls and boys was significantly related to Empathy Index scores, but not to other empathy measures. Whereas girls reported significantly more imaginal involvement with the vignette featuring a female victim than did boys, no sex differences were found for general imaginal involvement.

Findings are discussed in terms of previous research on empathy and related imaginal processes, and directions for future research are suggested.
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A. Introduction

Empathy, the ability to understand and feel for someone else's affective state, has long been considered an important process in interpersonal transactions. Theoretically, it has been implicated as an important variable in both prosocial and aggressive behaviors (Feshbach & Feshbach, 1969; Hoffman, 1975). Within the last 20 years there has been a growing interest in the study of empathy in children. Researchers have concentrated on a variety of issues, such as developing measures appropriate for use with children (Bryant, 1982; Feshbach & Roe, 1968), looking at antecedents of empathy (Feshbach, 1978, 1982), and studying the relationship between empathy and social behaviors (Feshbach & Roe, 1968; Feshbach, 1978, 1982).

The focus of the present research is on measurement of empathy as well as sex differences in empathic responding and imaginal involvement in the situation (the extent to which the person imagines him/herself in the situation). These two variables have been investigated as possible factors leading to individual differences in empathic responding. The introduction is divided into four parts: the first section is an examination of the definitions and measurement of empathy, part two is a survey of the literature on sex differences in empathic responding; and the third part consists of a discussion of imaginal involvement and its presumed relationship to empathic
Definitions and Measurement of Empathy

There are a number of definitions of empathy that have been put forward over the years (Deutsch & Madle, 1975; Feshbach, 1978). Broadly speaking, empathy refers to "the responsiveness of an individual to the feelings of another person" (Tannotti, 1975, p.22). However, most theorists and researchers have used more specific definitions of empathy. These definitions generally fall into two categories: cognitive and affective.

Early definitions of empathy used in developmental research were primarily cognitive in nature (Borke, 1971). Empathy was seen as a form of social cognition, that is, whether a child could understand and correctly identify how another person was feeling. Borke's results showed that children as young as 3 years could identify emotional reactions of story characters. However, Chandler and Greenspan (1972) disagreed with this definition and suggested that the term empathy should be restricted to the ability to take the perspective of another person. According to their model, simple identification of the feelings of another person was not sufficient (Borke's definition of empathy) since accurate judgment of another person's feelings could be the result of projection and/or perceived similarity. Chandler and Greenspan argued that true empathy is based on nonegocentric thought or "the ability to anticipate what someone else might think or feel...precisely when
these thoughts are different from one's own" (p. 105). In their study they used a measure similar to Borke's as well as a role-taking measure. Their results revealed that while children (ages 6 to 12) were able to identify correctly the appropriate emotional response, only the older children were able to take the perspective of another person. Thus the debate revolved around the definition of nonegocentric thought and whether Borke's measure was an appropriate indicator of such thought processes.

Although children's understanding of other's affective arousal is most likely an important part of empathic understanding, Feshbach (1978) has pointed out the limitation of using a cognitive conception of empathy. She suggested that "One could substitute discrimination of interpersonal affective cues or role-taking perspective, for the term empathy without any loss of explanatory power" (p. 7). According to Feshbach, the major limitation of cognitive approaches is that they neglect the affective component of empathy. Stotland (1969) has also argued that cognitive role-taking involves recognition of another's feelings, whereas empathy includes a sharing of those feelings.

Alternatively, empathy has been defined as vicarious affective responsiveness to the emotional state of another person (Eisenberg & Lennon, 1983; Feshbach, 1968; Hoffman, 1982, 1977; Mehrabian & Epstein, 1972; Stotland, 1969). Thus, an affective empathic response is one in which similar feelings are
aroused on the part of the observer in response to affect shown by another person. It is distinguished from projection in terms of the direction of shared affect. Whereas in projection the child projects his/her affective state onto the other person, in empathy feelings are aroused in the child by the other's affective state. It is the affective conception of empathy that has received recent attention by investigators and has been theoretically linked to aggression and prosocial behaviors (Feshbach & Feshbach, 1969; Hoffman, 1975). Feshbach and Feshbach (1969) have suggested that while the cognitive component of empathy plays a role in understanding a conflict situation, it is the affective component that has a special relationship to aggression. According to the theory, observation of the consequences of an aggressive act is thought to arouse empathic distress in the observer and this distress in turn serves to inhibit the observer's own aggressive tendencies.

Hoffman (1977) suggested that empathic distress can also be linked to prosocial behavior. According to his theory, seeing someone in distress arouses similar feelings in the observer and one way to alleviate this distress is to help the other person. This theoretical link between affective arousal and subsequent prosocial or antisocial behavior has resulted in a number of studies investigating this relationship (e.g., Bryant, 1982; Feshbach & Feshbach, 1969; Feshbach & Roe, 1968; Peraino & Sawin, 1981; Sawin, 1979).
Although the cognitive and affective components of empathy have been studied separately for the most part, some researchers in the area have acknowledged that the two components may interact. That is, knowledge of another's affective state can influence the degree of affective arousal in the observer and conversely, awareness of one's own affective arousal can provide information as to how the other person might be feeling (Hoffman, 1982). Feshbach (1982) has developed a model of empathy which includes two cognitive components and one affective component. She conceptualized empathy as involving 1) the ability to discriminate and label affective states in others, 2) the ability to take the perspective and role of another, and 3) emotional responsiveness and sensitivity. In sum, while most researchers would now agree that both cognitive and affective components are involved in empathy, it is the affective component that is currently emphasized and in need of research attention.

For the purposes of this study, empathy has been defined as shared or similar affective arousal on the part of the observer in response to his/her perception of another person's affective experience. In other words, empathy is considered as a vicarious sharing of another's affective state. This definition is consistent with the affective conception of empathy currently being used in research (Bryant, 1982; Feshbach & Roe, 1968; Hoffman, 1982; Sawin, 1979; Stotland, 1969; Stotland, Sherman, & Shaver, 1971).
The lack of agreement regarding how empathy should be defined is reflected in the various ways in which it has been measured. As Strayer (1980) has pointed out, the definition of empathy determines the criterion response used to measure empathy. If a cognitive definition is used, then the criterion measure is whether the child can correctly identify what the other person is feeling. When the definition focusses on the affective component, the criterion measure will typically be similarity of affect felt by the observer and the observed person.

In general, the measurement of the affective component of empathy can be divided into two response categories: 1) verbal and 2) nonverbal. Verbal measures include both self report questionnaires (e.g., Bryant, 1982) as well as verbal reports of affect experienced by story characters and oneself (e.g., Feshbach & Roe, 1968; Iannotti, 1975).

Self report questionnaires comprise the first type of verbal measure. Until recently, this type of measure has been for the most part limited to use with adults. However, Bryant (1982) has developed and validated the Empathy Index, a questionnaire designed to measure affective empathy in children and adolescents based on Mehrabian and Epstein's (1968) questionnaire for adults. Bryant reported fairly good reliability and validity for her measure: internal consistency ranges from .54 for first graders to .79 for seventh graders and test-retest reliabilities range from .74 (first graders) to .83.
(seventh graders). For the first graders, the Empathy Index correlated .33 with Feshbach and Roe's (1968) Affective Situations Test for Empathy (FASTE). Validity correlations for the fourth graders were not reported. The Mehrabian and Epstein (1972) measure was used with the seventh graders and correlated .76 with the Empathy Index. Discriminant validity was also achieved by the nonsignificant correlations obtained between the Empathy Index and both reading achievement and social desirability measures. These nonsignificant relationships are encouraging since self-report measures have often been criticized for being confounded with these variables.

The second type of verbal measure usually involves having the subject report what she/he felt while either listening to stories or watching slides or videotapes. The most prevalent instrument that has been used in developmental investigations of empathy is Feshbach and Roe's (1968) Affective Situations Test for Empathy (FASTE). This measure was designed for children in the 4-to-7 year old age range (Feshbach, 1982). The procedure involves showing individual children a series of slide sequences which depict boys or girls in four brief affective situations (happy, sad, fearful and angry). Each sequence consists of three slides accompanied by a narration which avoids any use of affective terms. After each sequence is presented, the child is asked how he or she felt and how the stimulus person felt. This latter question is aimed at determining the child's comprehension of the story character's affect in the portrayed
situation. Empathy is assessed by looking at the match between the child's own report of affect and the affective situation observed.

Although the FASTE has been widely used, it has received a number of criticisms regarding its validity, due to suspected demand characteristics in the testing situation (Eisenberg & Lennon 1983). Eisenberg and Lennon suggest that when children are repeatedly questioned about their feelings they become aware of what is being asked and try to respond in socially desirable ways. In addition, the FASTE has been challenged for its use of short hypothetical situations which may not be sufficient to elicit empathy (Hoffman, 1982). Hoffman has also suggested that empathy may not be a unidimensional construct; that is, affective arousal and its relationship to other behaviors may vary depending on the emotion being investigated. For example, Sawin (1979) found no relationship between children's overall scores on the FASTE and helping behaviors but did find a relationship between their subscores for empathic sadness and helping.

Recently, Feshbach (1982) has developed the Feshbach and Powell Audiovisual Test for Empathy. This measure consists of a series of short videotapes (as opposed to slides) showing children in common emotion-eliciting experiences. As with the FASTE measure, children are interviewed afterwards regarding their perceptions and feelings. Other investigators have also begun to use films or vignettes as stimuli for investigating children's responses to emotion-provoking situations (e.g.
Films have the advantage of being more realistic than slides as well as being able to provide a variety of affective experiences.

Verbal reports such as those used in the FASTE and with videotapes are often scored on the basis of the similarity of the affects reported (i.e., those of the observer and the stimulus person). However, how similar the affects must be in order to be considered an empathic response has been the focus of debate for a number of years (Hoffman, 1982). Feshbach and Roe (1968) originally began with a scoring system that required an exact match of feelings but later developed another scoring system which requires only a general match of similarity. Other researchers have suggested there need only be a match in the general positive (pleasant) or negative (unpleasant) affective tone (Stotland, 1969) and Hoffman (1982) has argued that "requiring an exact match as the criterion would lead us to disregard many empathic responses, especially by children" (p. 281). But it does seem that the closer the match between affective states of the observer and the stimulus person, the stronger the case one can make that an empathic response has in fact occurred.

Most of the research investigating empathy in children has relied on verbal measures. However, with the advent of improved technical equipment for filming and the need for measures that do not rely on self reports, researchers have begun to use
facial expressions as a measure of nonverbal empathy. Hoffman (1982), in his discussion of empathy measurement techniques, pointed out that indices such as facial expressions have the advantage of "being nonverbal and thus less susceptible to social desirability" (p. 290). Furthermore, they can provide information about the particular affect being expressed. Typically, facial expressions of the observer are filmed while he/she is watching a stimulus person on film or while the observer is verbally responding to a story/slide sequence such as the FASTE (Bavelas, 1983; Buck, Savin, Miller, & Caul, 1972; Feshbach, 1982; Lennon, Eisenberg & Carroll, 1983; Peraino & Savin, 1986; Sawin, 1979). Facial expressions are later rated by judges in terms of the type of affect and/or intensity of affect shown. Although this type of measure is fairly new, there is some evidence to support the validity of facial expressions as an indicator of empathic arousal. Sawin (1979) reported that ratings of empathic affect of grade 1 children responding to the FASTE were significant predictors of altruism.

Physiological measures such as heart rate and skin conductance have also been used as measures of arousal state in studies attempting to index empathic arousal in adults (Krebs, 1975; Stotland, 1969). Although such measures have not often been reported for children, Sawin (1979) used physiological measures in two of his studies. In the first study, he found that the majority of children showed evidence of empathic arousal (shift in heart rate, vasoconstriction or galvanic skin
response) while listening to the FASTE stories. In the other study, preliminary findings indicated that correlations between self reports of empathy and physiological measures of arousal were quite low, whereas there appeared to be a closer correspondence between facial expressions of affect and physiological arousal. Although more work is needed in this area, this does suggest that physiological measures may be useful in learning more about children's empathic reactions. Nevertheless, there appears to be a reluctance to use these measures with children. Hoffman (1982) suggested that researchers may be concerned about attaching children to the various instruments and thus restricting movement. There are also a number of limitations to physiological measures, such as their inability to indicate what kind of affect is experienced and whether this affect is similar or dissimilar to that experienced by the stimulus person. As a result, these measures often need to be supplemented by verbal reports of experienced affect.

In general, most studies have relied on only one measure of empathy. However, each measure of empathic arousal appears to have its own particular limitations when used alone. As a result, contemporary researchers in the field are presently stressing the need for multiple measures of empathy (e.g. Eisenberg & Lennon 1982; Hoffman, 1977; Peraino & Sawin, 1979; Sawin, 1979).
Only a few studies have employed more than one measure and, for the most part, the results have not been encouraging. Bryant (1982) reported a modest significant correlation between scores on the Empathy Index and the FASTE. However, there have not been any other studies investigating the relationship of the Empathy Index to any other empathy measures. Studies which have investigated the relationship between children's verbal reports and facial/gestural expressions have usually found little or no relationship between these two types of measures. Peraino and Sawin (1981) found that children's self reports of empathy were not consistently related to the other measures used (facial ratings, reaction time, behavioral ratings and looking away). Lennon, Eisenberg and Carroll (1983) obtained low nonsignificant correlations between children's scores on the FASTE and facial intensity scores while the children viewed films ($r = .03$ for girls, $-.14$ for boys and $+.17$ for both sexes combined). Sawin (1979), however, reported a correlation of .31 between self reports and experimenters' ratings of children's faces and voices while they responded to the FASTE. While this is a fairly good correlation, it should be noted that facial expressions were rated while the children were answering questions about the stories, rather than while they were listening to them.

In summary, researchers investigating children's empathic responding have employed a number of different measures, the most common of which has been the FASTE. Within the last few years new measures have been developed but there have been only
a few studies which have investigated the relationships among these measures.

**Sex Differences in Empathic Responding**

The study of individual differences in empathy is important in helping to understand the prevalence of empathy and the processes underlying empathic arousal. One area which has received a fair amount of attention in the empathy literature is sex differences. The prevailing stereotype in our culture has been that females are more empathic and emotionally expressive than males. Traditional socialization has also emphasized nurturant and caregiving behaviors for females. Thus, one would expect girls to be more empathic than boys. However, research findings in this area are inconclusive (Eisenberg & Lennon, 1983; Hoffman, 1982). One reason for the equivocal results appears to be the differences in how empathy is defined and measured. Hoffman's (1982) review of the literature suggested that a distinction must be made between empathy as cognitive awareness of another's affect and empathy as a vicarious affective response. Whereas male and female children (ages 3-to-16 years) appear to be equally competent at assessing affect in other people, females are more apt to report some kind of emotional response as well. Hoffman argued that although significant differences between sexes were not always found, the studies reviewed by him provided support for the sex difference hypothesis.
In a more recent review, Eisenberg and Lennon (1983) found that females (both adults and children) were more empathic mainly when verbal and self report questionnaire measures were used. Females also had higher verbal and nonverbal empathy scores when the picture/story technique (FASTE) was employed. However, it has been suggested that the sex of the experimenter may confound the assessment of sex differences when the FASTE is used as the measure of empathy (Eisenberg & Lennon, 1983). Eisenberg and Lennon concluded that findings of sex differences were influenced by the procedures used. Studies that reported higher empathy scores for females had also used a procedure in which it was obvious to the subject that empathy was being investigated, leading the authors to suggest that females might be more willing than males to verbally express empathy since it is part of the stereotyped feminine role.

Girls have also been found to report more exact affect matching with the stimulus person than boys (Feshbach & Roe, 1968). Feshbach and Roe found that the boys tended to use descriptions such as "felt bad" rather than saying they "felt sad". However, when the data was rescored using a more liberal scoring system (only a general match in positive or negative affect) the previously observed sex differences disappeared. Thus, it seems that boys were more reluctant to, or less verbally capable of describing exactly how they felt (at least with some affects). This may result in boys being judged as less empathic when in fact they may be experiencing the same empathic
arousal as girls.

There is also some evidence, at least with adults, that males may inhibit facial expressions of affect (Bavelas, MacInnis, Mullett, Black, & Lemery, 1985). Hoffman (1977) has suggested this may be one reason why females have appeared to be more empathic than males. It is also in keeping with the feminine stereotype that females are more emotionally expressive. However, of the three studies which have assessed children's facial expressions while they viewed videotaped stimuli, two reported nonsignificant differences and the third did not report whether there were any sex differences (Eisenberg & Lennon, 1983).

It is difficult to draw any conclusions regarding sex differences at this point because of the varying ages of children used and the different methods of assessing empathy. The differences in ages studied and methodologies make it difficult to compare results across the studies. There is some evidence that girls verbally report being more empathic, but it is unclear as to whether girls are more nonverbally expressive as well.

Based on his review of the literature, Hoffman (1977) concluded there was, in fact, support for sex differences in empathy and he suggested two hypotheses which may help to explain why females are more empathic. The first hypothesis was that sex differences develop through differential socialization, that is, females are socialized to be more emotionally
expressive whereas males are encouraged to acquire instrumental traits such as problem-solving. However, sex difference hypotheses are usually based on the assumption that gender is associated with stereotyped behavior and this assumption fails to consider the individual's identification with his/her sex-appropriate role. Therefore it may be more informative to focus attention on masculine and feminine roles rather than gender per se.

Until recently, masculinity and femininity were conceptualized as polar opposites. A person was seen as being either masculine or feminine. However, a number of theorists and researchers (Bakan, 1966; Bem, 1974; Spence, Helmreich & Stapp, 1974) have suggested that a dualistic model may be a more appropriate conceptualization of sex role characteristics. This model holds that masculine and feminine characteristics may be present in varying degrees in both sexes. Using this model, one would predict that individuals possessing a high degree of feminine attributes would also be more empathic. Foushee, Davis and Archer (1974) investigated this possibility in an adult sample using the Personal Attributes Questionnaire (PAQ; Spence, Helmreich & Stapp, 1974) which is a measure of psychological masculinity and femininity and Mehrabian and Epstein's (1972) empathy questionnaire. The PAQ consists of three scales: the masculinity scale (M), the femininity scale (F), and the masculinity-femininity scale (M-F). The first two scales consist of attributes that were rated by college judges as being
socially desirable for the ideal man (M scale) and the ideal woman (F scale), whereas the third scale contains attributes that were judged to be differentially desirable for the two sexes. Foushee et al., found that females scored significantly higher than males on Mehrabian and Epstein's empathy questionnaire. For both sexes, a moderately high correlation was found for the F scale and the empathy questionnaire ($r = .41$). The correlation between the M scale and the empathy questionnaire was $- .28$, whereas the M-F scale showed a higher negative correlation of $- .53$. Closer examination of this latter relationship revealed that attributes held to be desirable for males were negatively related to empathy scores.

These results suggest that feminine psychological characteristics may be related to empathic tendencies. Since this relationship was found for males and females, it appears that both gender and the extent to which the individual manifests feminine attributes should be considered when investigating sex differences in empathy.

The second hypothesis put forth by Hoffman (1977) addresses sex differences in spontaneous role-taking or imagination of the self in the other person's situation. Hoffman has posited that males and females may have different "observational sets" or approaches to interpersonal situations. Sex differences in affective empathic responding may occur because females may be more likely to imagine how they would feel if they were in the situation, whereas males may focus on solutions to problems or
for what action to take. Hoffman argued that this may lead to a higher incidence of females responding empathically in that "their awareness of the other's situation is more apt to trigger an empathic response" (p. 718). Hoffman has suggested then, that while role-taking, or the ability to imagine oneself in the place of another person, does not differ for males and females, females may be more apt to role-take when seeing another person in an emotionally arousing situation.

**Imaginative Self-Involvement and Sex Differences in Empathy**

Research investigating role-taking has been primarily concerned with children's ability to role-take rather than with spontaneous use of the process. Measurement of affective role-taking ability has usually focussed on the child's understanding of another's affect when situational and facial cues are incongruous (e.g., Urberg & Docherty, 1976; Greenspan, Barenboim & Chandler, 1976). Hoffman (1977) reviewed the literature on role-taking and found little support for sex differences in this ability. Males and females appear to be equally competent at role-taking. This has led Hoffman to suggest that the difference may be in the use of this process rather than in the ability to role-take. In order to distinguish between use of this imaginal process and role-taking ability, spontaneous imagination of oneself will be referred to as "imaginal involvement". Since the focus of the present study was on whether children actively imagine themselves in the other person's situation, research on
role taking ability will not be discussed but rather investigations of imaginal involvement will be the focus of interest.

Hoffman (1982) has hypothesized that imagining oneself in the other's place leads to empathic arousal by evoking associations with events in the observer's past. In other words, the observer is reminded of how he/she felt in similar situations. Stotland's (1969) research also suggested that empathic arousal in adults can be generated by imagining oneself in another's situation.

Investigations undertaken by Stotland (1969) indicated that adult males who had been given instructions to "imagine yourself in the person's situation" showed relatively higher physiological arousal (i.e., vasoconstriction and palmar sweating) in response to observing an experimental "victim" than did subjects who had received instructions to "imagine how the stimulus person feels". Both sets of "imagine" instructions led to higher physiological arousal than the instructions to "watch the person and observe his movements". However, the only measure that showed any statistically significant differences among these three conditions was palmar sweating. Verbal reports were also included to assess the affective state of the observer. Subjects in the two imagination conditions reported more empathic arousal than those in the third "watch" condition. Subjects in the "Imagine Self" condition also reported feeling more intense emotions than those in the "Imagine Him" condition.
Therefore these results suggest that induced imaginal involvement on the part of the observer does have some effect on empathic arousal (when measured by verbal report and certain physiological indices). Since only males were used in this study, it was not possible to determine whether any sex differences existed.

Further work regarding imaginal involvement has been carried out by Stotland and Sherman (1971) who, in their investigation of individual differences in empathy, designed a scale to assess "the individual's capacity for emotion or affective experiences" (p.28). Their interest was in the kinds of empathic experiences that would cluster together. Six factors emerged from a factor analysis of the 85 items used. However, predictive and construct validity were confirmed only for the Fantasy-Empathy scale, which significantly correlated with the physiological measure of subjects' reactions to observing an experimental victim's distress, as described on page 19. Subjects with high fantasy scores also reported more incidents of imaginal involvement in response to the experimental "victim" situation than those with low fantasy scores. Females were also found to score significantly higher than males. Stotland and Sherman concluded from this cross validation study that "the dimension of fantasy or the ability to transplant oneself by imagination into another setting is an important contingency for the process of empathy" (p.42). In the same study they reported an unpublished finding of a test-retest reliability of .83 for
the Fantasy-Empathy Scale. Further validation of this scale appeared in a dissertation (Hammersla, 1973) as reported by Hoffman (1982). The 3-item Fantasy-Empathy scale was found to be as good a predictor of helping behavior as Mehrabian and Epstein's (1972) empathy questionnaire. There have not been any studies to determine the relationship between the Fantasy-Empathy questionnaire and facial expression measures of empathy.

Thus, imaginal involvement of the self in another's situation has been shown to be one possible process leading to affective empathic arousal. Aside from the more traditional role-taking measures, a more direct assessment of imaginative self-involvement in a victim's plight has not been investigated with children. Nevertheless, it is reasonable to assume that imagination skills develop throughout childhood and that empathic responding via this process should occur in at least some children.

Investigations of imaginal involvement have also been, for the most part, limited to inducing this imaginative process in subjects by giving them instructions to imagine themselves in the situation. There has been little research regarding spontaneous imaginal role taking, although some of Stotland's early work (1969) suggests that spontaneous imaginal involvement leads to higher empathic responding in adults. Hughes, Tingle and Sawin (1981) also found that older children spontaneously gave role-taking answers (i.e., imagining how they would feel)
to questions regarding their own affective response and causes of their empathic feelings. Thus, there appears to be some evidence that this is an important process in empathic arousal.

The Present Study

After surveying the literature on children's empathy, it is obvious that there are differences across the studies in the way empathy has been conceptualized and measured. This has implications for the investigation of sex differences in empathy. When empathy has been defined cognitively, there appear to be no sex differences. Alternatively, when empathy has been seen as vicarious affective arousal, females have often been found to be more empathic, but not always. Thus, while there may be sex differences in empathic responding, the exact nature of these differences remains unknown. Furthermore, research in this area is difficult to evaluate due to the differences in the ages of children in the various studies and the different measures of empathy that have been used.

The present study was designed to measure children's empathic responses in terms of both verbal and nonverbal indices of empathic distress or dysphoria. The relationships among empathy measures were a primary focus of this investigation. The issue of sex differences was also examined in relation to each empathy measure. A third, equally important focus was the investigation of the relationship between spontaneous imaginal involvement and empathy.
The age group chosen for this study was 9 and 10 year olds. This particular age range was selected for a number of reasons. First of all, there has been some suggestion that sex differences may not appear until after children have been exposed to the various socialization practices for some time. Bryant (1982) found only a small sex difference in self reports of young children (Grade 1) but quite a large difference (females scoring higher) with grade 7 children. This supports the notion that inhibition of emotional expression, on the part of males, may increase with age. Thus it was of interest to see whether sex differences were evident in this pre-adolescent sample.

Second, it was assumed that children of this age are mature enough to cognitively understand and appreciate social situations of some complexity. According to Piaget's theory (1952), children of this age have well-established self/other differentiation and are able to consider more than one aspect of a situation at a time (decenter). While having the cognitive skills that may be absent in younger children, 9 and 10 year olds may be better able to attend to other people's emotions than adolescents who may be confused and/or centered upon their own feelings (Elkind, 1967). They have also acquired some experience with interpersonal situations outside the home and are fairly knowledgeable about the thoughts, feelings and motives of other people.
The relationships among three different measures of affective empathy were examined. These included: 1) Bryant's Empathy Index, 2) verbal reports of emotion while watching emotionally laden vignettes, and 3) facial expressions of children while watching affectively laden vignettes. Low to moderate correlations among the three measures were expected since previous research suggests they are tapping different sources of variance in the empathy construct.

Sex differences were also examined in relation to each of the measures of empathy. It was hypothesized that girls would score higher on the two verbal measures of empathy and would also be more nonverbally expressive while viewing the affectively laden vignettes than boys.

The relationship between psychological masculinity and femininity and empathy was also assessed using the Children's Personal Attributes Questionnaire (Hall & Halberstadt, 1980) and the three measures of empathy. Subjects who score high on the femininity scale were hypothesized to have high empathy scores.

Imaginative self-involvement with story characters was assessed using two measures. One measure was a self report of imaginal involvement while viewing stimulus videotapes. The other was the Imaginal Involvement Scale (Stotland's Fantasy-Empathy Scale) which examines the extent to which people become involved with fictional story characters in general. Reports of spontaneous imagination of oneself in the situation or how the person feels were expected to be related to self
reports of empathy while viewing the stimulus tapes. The Imaginal Involvement Scale was hypothesized to correlate with self reports of imaginative self-involvement and to correlate with Bryant's Empathy Questionnaire. In addition, females were expected to score higher on the Imaginal Involvement Scale and to report more incidents of spontaneous imagining.
B. Method

Subjects

Forty subjects (20 boys, 20 girls) aged 9 and 10 years (mean age = 9.8 years, S.D. = 6.6 months) participated in the study. Subjects were recruited through various advertisements placed around the university. Although demographic characteristics were not collected, most of the children were associated with either students or staff at the university. Mean score on the Peabody Vocabulary Test was 115.9 (S.D. = 11.09) for the boys and 108.2 (S.D. = 16.29) for the girls. Informed consent from the parents and children was obtained at the beginning of the session. Subjects were paid $5.00 for their participation.

Measures

Empathy

1. Bryant's (1982) Index of Empathy for Children and Adolescents was used as the self report measure of empathy. This questionnaire consists of 22 items such as "It makes me sad to see a girl who can't find anyone to play with" and "Some songs make me so sad I feel like crying". A six point scale ranging
from "very much like me " (+3) to "not like me at all" (-3) was used. The minimum and maximum scores possible were -66 and +66 respectively, with higher scores reflecting more empathic responding.

The relationships between scores on Bryant's Empathy Index and the other empathy measures was examined by using the total score of all 22 items on the questionnaire as well as by using scores from two subsets of items. These subsets were defined on the basis of a reported factor analysis which resulted in two groupings of items (B.K. Bryant, personal communication to J. Strayer, August, 1984). One set, consisting of items 1, 6, 12, and 14, appears to be tapping self report of sympathetic feelings (e.g., "It makes me sad to see a girl who can't find anyone to play with."). The second set, consisting of items 5, 8, 13, and 19 seems to be tapping arousal and expression of sad feelings (e.g., "Seeing a boy who is crying makes me feel like crying"). See Appendix A for actual items.

2. Verbal Report. The second self report measure of empathy consisted of the match between children's reports of experienced affect in response to emotionally laden vignettes and reported affect of the vignette character. Two short vignettes, each depicting a scene in which a child is being punished, were used as stimuli. Each film was approximately 46 seconds long, with a 10 second break between the two. The first vignette, which will be referred to as David Copperfied (D.C.), is an episode taken from a movie of Charles Dickens' novel. The scene involves a
young boy who is being harshly punished by an adult male and the boy's attempts to get away from the man. The second vignette, Spilled Milk (S.M.), is part of a National Film Board of Canada film called Twelve and a Half Cents. The scene is about a young girl who, when called to come and eat supper, accidentally knocks over a glass of milk and is subsequently harshly punished by her mother.

These films were chosen because of their similarity in content and their use of both male and female characters who are approximately the same age as the subjects. Studies have shown that similarity of age may increase empathy, at least in young children (Deutsch, 1976), and it seemed likely that children might more easily identify with their peers than with adults, for example.

A third film, lasting approximately 35 seconds, was shown as well although it was not included in the analysis. This film was included in an attempt to offset any unpleasantness of the first two films. The scene is a birthday party in which the family is situated around the dinner table. A young girl is decorating the cake. She begins to sing a variation of "Happy Birthday" and the family laughs at the song. Everyone at the party appears to be enjoying themselves. This film was always shown last.

The following questions were asked after the subject had viewed the set of stimulus vignettes:
1. "What happened in the story?" This question was used to check.
the subject's comprehension of what had happened in the film and also as a starting point in the interview.

2. "How did the boy/girl feel?" "How much?" For the first part of this question, the subject had to choose one of the following affective categories: happy, sad, angry, afraid, surprised, or nothing at all/neutral. For the latter question, the subject was asked to choose one of three intensities: a little bit, quite a bit or a lot. The responses given to these questions were used in determining the empathy score for each film since individual interpretation might vary regarding the specific affective category (e.g., sad, scared, angry) being depicted by the story characters in the film. The reported affective category for this question was compared with the subject's self reported affect in order to determine the match between the two. (See Question 4 for scoring procedure of verbal reports.)

3. "Why do you think the boy/girl was feeling that way?" This question was included as a check to insure that the subject was judging how the film character felt when he/she was being punished since this was the dysphoric event of interest. If the subject stated a reason other than the punishment, such as "She was mad because she couldn't watch T.V. anymore", a further inquiry was made as to how the film character felt when he/she was being punished and this was used in determining the verbal-report empathy score.

4. "How did you feel watching it?" "How much?" For this question, the subject was again asked to choose from the same
affective categories and the intensities given in Question 2. The verbal report empathy score was based on the degree of match between the answers to Questions 2 and 4 where 0 = no match, 1 = general match in unpleasantness, (e.g., the subject reports feeling sad and that the film character was angry), 2 = match in reported affective category but not in intensity, and 3 = match in both reported affective category and intensity. These distinctions will be referred to as No Match, Match 1, Match 2, and Match 3 respectively. Verbal report responses were examined by using both individual scores for each vignette (based on the match between reported emotions) as well as an overall (matched) score across both vignettes. The overall score was included because of the restricted range of possible scores (0 - 3) for each vignette.

5. "Why did you feel that way?" This question was included for the same reason given in Question 3. If the subject did not mention anything regarding the punishment, he/she was asked about their feeling in regard to the punishment scene and this response was used in determining the verbal report empathy score.

3. Facial Expressions. While the subject was watching the stimulus tape, his/her facial expressions were videotaped. These tapes were later scored by two trained raters for indications of affective and emotional expressivity. The training procedure for rating facial expressions consisted of a number of steps. Raters were first given a list of possible indicators of affects (e.g.,
grimaces, smiles, downcast mouth, frowning). They were also asked to study a number of facial expression photographs taken from Ekman's (1978) Facial Action Coding System (FACS) and Izard's (1979) Maximally Discriminative Facial Movement Coding System (MAX) so that they would become familiar with the different types of facial expressions. The next step consisted of having the raters score practice videotapes of subjects' facial expressions until they had achieved a reasonable level of reliability (80% to 90% agreement). Raters were given a number of different subjects to rate in order to provide them with a range of individual styles of expression. This training consisted of approximately four training sessions or 8 hours in total.

The scoring procedure for the present study involved observing each subject's facial expressions, beginning with the onset of the film and continuing until 9 seconds after offset of the film (a total of 54 seconds). Each vignette was divided into seven 9-second segments. Raters observed the subject for each segment and, immediately following that segment, rated the subject for signs of affective valence. The scoring system consisted of: +2 = definitely euphoric/pleasant; +1 = not quite sure (could be 0 or euphoric/pleasant); 0 = no affect, neutral; -1 = not quite sure (could be 0 or dysphoric/unpleasant); and -2 = definitely dysphoric/unpleasant.

After the raters had scored all seven segments, they viewed the subject again, this time without stopping until the end of
the 54 second period. Subjects were then rated for category of affect displayed. Raters chose one affective category that best described the facial expressions of the subject from a list of eight affect categories: happy, sad, afraid, angry, surprised, neutral, disgust and concern. These particular categories were chosen because they appeared to cover the basic categories of affects typically seen in people. Along with the affect category scoring, the intensity of the emotion was also rated where 0= no response; 1= a little expressive; 2= moderately expressive; and 3= much/intense expression.

This procedure yielded three scores for each vignette: 1) a facial expressivity score which consisted of the total number of dysphoric affect scores across all segments, 2) a rating of the affect category displayed, and 3) a rating of the intensity of the affect category displayed. The facial expressivity score was used as the nonverbal measure of empathy in the analysis. The emotion and intensity ratings were used to investigate the relationship between what the subjects reported feeling and what they facially expressed while viewing the stimulus tapes.

Since one of the raters was the experimenter, the facial expression scores generated by the second rater (who was blind to the hypotheses and the content of the films) were used for data analysis. Scores from the first judge were used for reliability purposes only. Reliabilities were computed by dividing the number of agreements by the total number of ratings.
Sex Role Attributes

The Children's Personal Attributes Questionnaire (CPAQ; Hall & Halberstadt, 1980) was used as the measure of psychological masculinity and femininity. It consists of 3 scales: Masculinity Scale (M), Femininity Scale (F), and Masculinity-Femininity Scale (M-F). Items on each of the scales were originally adapted from Spence, Helmreich and Stapp's (1974) Personal Attributes Questionnaire (PAQ) which was designed to measure masculinity and femininity in adults. The M scale and F scale of the PAQ consist of items which were judged to be socially desirable for both males and females. Items on the M scale consist of attributes perceived to be held more often by males, whereas items on the F scale were perceived to held more often by females. The third scale (M-F) is a bipolar scale which consists of items that were judged to be differentially desirable for males and females.

The short form of the CPAQ was used which consists of 21 items in total: eight masculinity items, eight femininity items and five masculinity-femininity items. Examples of the items are: "I am often the leader among my friends" (M), "I am a gentle person" (F), and "I cry when things upset me" (M-F). A 4-point scale was used where 1= Very true of me, 2= Mostly true of me, 3= A little true of me, and 4= Not true of me at all. Three scores were obtained by reflecting scores on appropriate items (See Appendix A) and summing over the items within each of
the scales. Scores for each scale range from 8 to 32 for the M scale, 8 to 32 for the F scale (with higher scores indicating higher masculinity or femininity, respectively, and 5 to 20 for the M-F scale (with higher scores indicating greater stereotypic masculinity).

Imaginal Involvement

1. Imaginal Involvement Scale. Stotland's (1971) Fantasy-Empathy Scale was used as a measure of a general tendency towards imaginal involvement. It consists of only three items:

1) When I am reading an interesting story or novel, I imagine how I would feel if the events were happening to me.
2) After acting in a play myself or seeing a play or movie, I have felt partly as though I were one of the characters.
3) When I watch a good movie, I can very easily put myself in the place of the leading character.

A 6-point scale ranging from "very much like me" to "not like me at all" was used. The subject's score was the total sum of these three items. The range of possible scores was from -9 to +9, with higher scores reflecting greater tendency towards imaginal involvement.

2. Imaginal Involvement with Film Characters. The second measure of imaginal involvement was one question which was asked after the children had viewed the stimulus tape. This question
was used to investigate the extent to which the children became involved with the stimulus characters:

"Which of the following best describes what you were thinking about while watching the film?"

a) I was imagining myself in the situation and how I would feel.

b) I was imagining how the boy/girl was feeling.

c) I was just watching the films.

d) I was thinking about something else.

Responses were scored as follows: 0 = watching film or thinking about something else; 1 = imagining how film character felt; and 2 = imagining self in situation. The answers to this question were also used as descriptive categories in order to look at the frequency of imaginal involvement in relation to the verbal report empathy scores.

Additional Measures

Two additional measures were included to assess the effects of possible confounding variables.

Social Desirability Scale. This measure was developed by Crandell and Crandell (1965) and consists of 48 true/false items such as "I tell a little lie sometimes", and "Sometimes I have felt like throwing or breaking things". The subject's score is the total number of items on which a socially desirable attitude or behavior was endorsed. The maximum possible score is 48 with higher scores indicating a greater tendency to respond in a socially desirable way.
Peabody Picture Vocabulary Test. Since many of the measures used in the present study were based on verbal responses, the Peabody Picture Vocabulary Test (Dunn, 1965) was included as a check of basic verbal ability. Scores on this test were interpreted on the basis of age norms provided in the manual.

Procedure

Each subject was seen individually. The Social Desirability Questionnaire was given first. The experimenter read the instructions (see Appendix A) to the subject and then read each of the items on the questionnaire. The subject was allowed to mark down his/her answers.

Following this, the subject was seated in front of a television monitor. At this time the experimenter excused herself for one minute and left the room to go turn on the video recorder. The experimenter then returned to the room and gave the following instructions:

In a minute you will see three films which are really short. In fact they're only about a minute long each, so I'm going to tell you a little bit about them so you have some idea of what they are about. The first one is about a little boy who lived a long time ago. He has just gone to go live with another family. The second film is about a little girl and her family. They're pretty poor and live in a really tiny apartment. The third film is about a birthday party that a family is having for the father. What I would like you to do is to sit back and watch the films, and when they're over, we'll go through and talk about them a bit.

The order of the first two films and their listing in the instructions was counterbalanced. After the instructions had
been given, the experimenter turned on the video player and then sat at a table situated behind the subject in order to avoid distracting the subject.

While the child was viewing the stimulus tape, his/her facial expressions were fairly unobtrusively recorded on videotape. The camera was situated near the ceiling, directly in front of the subject. The video recorder, which was hooked up to the camera, was located in a room adjacent to where the subject was being filmed. No mention was made of the camera, however, if the subject asked about it he/she was told it was on.

After the stimulus tape had been shown, the subject was interviewed regarding comprehension of the vignettes and feelings and thoughts while he/she was watching the films. Questions 1 to 4 were asked for the first vignette and then for the second one. Question 5 was asked for both vignettes after the second film had been discussed. The experimenter then asked the same questions (except question 4) for the third film, so that the subject would believe it was part of the study as well.

After the interview was finished, the subject was given the Peabody Vocabulary test followed by the Personal Attributes Questionnaire, Bryant's Empathy Questionnaire, and the Imaginal Involvement Scale. For each of the questionnaires the experimenter explained the procedure and read each of the items. The subject marked down his/her answers on the questionnaire. The entire testing session lasted approximately one hour.
After the testing had been completed, each subject was given an explanation of empathy and of the procedures used in the study. Debriefing also included talking about the subject's more general reactions to the vignettes and the reason for using films of a dysphoric nature.
C. Results

Descriptive Findings

The following descriptive statistics apply to the three measures of empathy.

For Bryant's Empathy Index, on which the maximum possible score was 66, the present sample obtained a mean of 6.6. (SD = 13.21). For the two subsets, Sympathy and Expression of Sadness (maximum possible score of 12 for both), the mean scores were 1.25 (SD = 6.45) and -3.65 (SD = 6.10) respectively. Mean scores on all empathy measures for males and females are presented later in Table 2.

For the verbal reports of emotion in self and vignette character (i.e., matched scores), summary statistics were calculated for responses to each vignette as well as combined scores across both films. For the David Copperfield (D.C.) vignette, the obtained scores on the verbal report measure ranged from 0 to 2 (maximum score possible was 3), with a mean score of .85 (SD = .83). Scores for the Spilt Milk (S.M.) vignette ranged from 0 to 3 with a mean score of .98 (SD = 1.03). Combining the scores from the two vignettes resulted in an overall mean score of 1.83 (SD = 1.48). These results show that the average response to the films was not very high. Examination of the verbal responses revealed that for the D.C.
vignette, 23 children gave empathic responses and 17 children
gave nonempathic responses. Of the 23 responses scored as being
empathic, 12 were a general match between reported feelings and
the story character's feelings (Match 1). There were no
responses to this vignette that were scored as a match in both
emotion label and intensity (Match 3).

For the S.M. vignette, 24 children gave empathic responses
and 16 gave nonempathic responses. Of the 24 empathic responses,
14 were a general match (Match 1), 5 matched in emotion label
(Match 2) and 5 matched in both emotion label and intensity
(Match 3). It appears then that the low mean scores for each
vignette are due to the fact that approximately half the
subjects received nonempathic scores and that the empathic
responses consisted mostly of a general match in feelings (Match
1).

It is also interesting to look at the consistency of the
subjects' responses across the vignettes. There were 17 subjects
who gave consistent empathic responses to both vignettes
(although not necessarily consistent in the degree of match) and
10 subjects who consistently responded nonempathically to both
vignettes. The remaining 13 subjects responded empathically to
one of the vignettes— but not to the other (6 to the vignette
D.C. and 7 to the vignette S.M.). The low mean score for
combined responses to the vignettes appears to be at least
partly due to the fact that less than half of the subjects gave
empathic responses to both films and one quarter of the sample
gave consistently nonempathic responses.

For the third empathy measure, facial expression ratings, interjudge agreement for ratings of affective valence was 93% before discussion. Percentage of agreement for the ratings of affective category displayed was 98% before discussion. Raters disagreed on only two of the emotion labels (out of a possible 80). Interrater reliability for the ratings of intensity was 99% before discussion. There was only one case where the intensity of the affect category displayed was not agreed upon. Disagreements for all three types of ratings were resolved by a third rater.

Descriptive findings concerning the facial expressivity measure show that the mean facial expressivity score for the vignette D.C. was 3.95 (SD = 2.37) and the mean score for the vignette S.M. was 3.83 (SD = 2.72). The maximum possible score for each vignette was 14. When the scores for both vignettes were added together to produce an overall score the mean was 7.78 (SD = 4.20). Thus, out of the seven units coded for each vignette, approximately 28% were judged to reflect some degree of negative affect. The low mean scores and percentage of units coded as showing indications of negative affect suggest that the children were not expressing a high degree of negative affect on their faces.

Furthermore, examination of the children's reports of experienced emotion (the actual emotion label chosen) and ratings of the emotion displayed facially revealed little
correspondence between what was verbally reported and what was nonverbally expressed. Exact matching (i.e., match in emotion label) was found for only 15% or 12 of the possible 80 matches (40 subjects, 2 vignettes). Inspection of the data revealed that most of these matches were for neutral verbal responses and ratings. Substantially higher concordance rates were obtained when a more general match was used (i.e., a match in negative tone): 39% or 31 of the 80 children's responses matched the ratings of their facial expressions. These results suggest that, in the majority of cases, children were judged to nonverbally express something different from what they verbally reported. Closer examination revealed that many of the children who gave a nonneutral verbal response were rated as showing a neutral expression (78% with the D.C. vignette and 74% with the S.M. vignette). In other words these children reported feeling an emotion (rather than nothing at all) but did not show any nonverbal signs of affective responding.

Relationships Among Empathy Measures

Pearson Product Moment correlations were used to investigate the relationships among the three empathy measures: scores on Bryant's Empathy Index, verbal reports of experienced affect and facial expressivity in response to the vignettes. Correlations among the empathy measures are shown in Table 1. (A list of correlations among all the measures used in the study is presented in Appendix B.) A significant positive correlation was
Table 1: Correlations Among Empathy Measures

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<td>3. Verbal Report Both Vignettes</td>
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<td>5. Empathy Index Sympathy Items</td>
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<td>6. Empathy Index Sadness Expressivity Items</td>
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<td>8. Facial Expressivity to S.M.</td>
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<td></td>
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<tr>
<td>9. Facial Expressivity Both Vignettes</td>
<td></td>
<td>.06</td>
<td>.05</td>
<td>.08</td>
<td>.10</td>
<td>.08</td>
<td>.21</td>
<td>.80**</td>
<td>.85**</td>
</tr>
</tbody>
</table>

a D.C. = "David Copperfield" vignette; S.M. = "Spilled Milk" vignette.
b With items 1, 5, 6, 8, 12, 13, 14, and 19 deleted.
*p < .005 (one-tailed test)
**p < .05 (one-tailed test)
found between the facial expressivity scores for the vignette D.C. and scores on Bryant's Empathy Index ($r = .32$, $p < .05$, one-tailed test). There was also a significant positive correlation between facial expressiveness in response to the vignette D.C. and the subset of items reflecting Sadness Expressivity ($r = .31$, $p < .05$, one-tailed test), but not with the subset reflecting sympathy ($r = .16$, $p > .10$, one-tailed test). The two subsets of Bryant's Empathy Index (Sympathy items and Sadness Expressivity items) were found to be significantly positively correlated ($r = .63$, $p < .05$). However there is still a substantial amount of unexplained variance and it remained of exploratory interest to keep these subsets separate in further analyses. All other correlations among the empathy measures were nonsignificant.

Since the restricted range of scores for the verbal report measure might have been partly responsible for the low relationships found, a total score based on the responses to both vignettes was included to increase the range of possible scores (0 - 6). However, as can be seen in Table 1, the correlations with the other empathy measures remained low. The results indicate that, with the exception of the facial expressivity measure for the vignette D.C. and Bryant's Empathy Index, the three empathy measures were essentially unrelated to each other.
Social Desirability, Verbal Skill and Reported Empathy

The relationship between social desirability and self-reported empathy was investigated using both Bryant's Empathy Index and responses to the video vignettes. Children's scores on the Social Desirability questionnaire were not significantly correlated with their verbal report of empathy across both vignettes ($r = -.21, p > .10$) or with Bryant's Empathy Index ($r = .16, p > .10$). Nor were social desirability scores correlated with the Expression of Sadness subset of items on Bryant's Empathy Index, $r = .08 (p > .10)$, although they were found to be significantly related to the Sympathy subset of Bryant's items, $r = .35 (p < .05$, two-tailed test). These results indicate that self reports of empathic feelings and sadness were not a result of the children trying to respond in a socially desirable way. However, it appears that self reports of sympathetic feelings were, in part, affected by needs for social approval.

There was little relationship between reported empathy and verbal skill as measured by the Peabody Vocabulary Test. Children's verbal skills correlated .11 ($p > .10$), with the combined verbal report measure across both vignettes, and -.22 ($p > .10$) with Bryant's Empathy Index. This indicates that children's self reports of empathy were relatively unaffected by their verbal comprehension.
Sex Differences in Empathic Responding

The means and standard deviations for males and females are summarized for each of the empathy measures in Table 2. When differences occurred on the self report measures of empathy (Bryant's Empathy Index and verbal reports for the D.C. and S.M. vignettes), mean scores for girls were higher than mean scores for boys. A priori t-tests were used to determine whether the hypothesized differences were significant. As expected, females obtained significantly higher scores than males on Bryant's empathy questionnaire, \( t(38) = 1.76, p < .05 \) (one-tailed test). A similar trend was also found with the subset of expressive sadness items, \( t(38) = 1.53, p < .10 \) (one-tailed test).

In contrast to children's self reports of empathy on Bryant's Index, and contrary to expectations, sex differences on the verbal reports in response to the video vignettes were nonsignificant. A second unexpected finding was the slightly higher mean score for males on the facial expressivity measure for both vignettes, however this difference was not significant.

The pattern of results suggests that females report being more empathic on a questionnaire measuring general emotional empathy but are not necessarily more empathic when measured by verbal or nonverbal responses to present stimulus vignettes. Females obtained a higher mean score on the verbal report measure for one of the video vignettes, however this difference was very small and nonsignificant. The nonverbal measure showed the least difference between sexes with girls' mean score for
Table 2: Means and Standard Deviations\textsuperscript{a} for Boys and Girls on Each of the Empathy Measures

<table>
<thead>
<tr>
<th>Measures</th>
<th>Boys (n=20)</th>
<th>Girls (n=20)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Verbal Report to D.C.</td>
<td>0.85 (0.88)</td>
<td>0.85 (0.81)</td>
</tr>
<tr>
<td>2. Verbal Report to S.M.</td>
<td>0.75 (0.97)</td>
<td>0.81 (1.20)</td>
</tr>
<tr>
<td>3. Verbal Report Both Videos</td>
<td>1.60 (1.60)</td>
<td>2.00 (1.38)</td>
</tr>
<tr>
<td>4. Empathy Index All items</td>
<td>3.05 (14.46)</td>
<td>10.15 (11.06)\textsuperscript{*}</td>
</tr>
<tr>
<td>5. Empathy Index Sympathy items</td>
<td>0.10 (6.36)</td>
<td>2.40 (6.50)</td>
</tr>
<tr>
<td>6. Empathy Index Sadness Expressivity items</td>
<td>-5.10 (6.08)</td>
<td>-2.20 (5.96)</td>
</tr>
<tr>
<td>7. Facial Expressivity to D.C.</td>
<td>4.00 (2.73)</td>
<td>3.75 (1.89)</td>
</tr>
<tr>
<td>8. Facial Expressivity to S.M.</td>
<td>4.00 (3.03)</td>
<td>3.60 (2.46)</td>
</tr>
<tr>
<td>9. Facial Expressivity to both videos</td>
<td>8.00 (4.61)</td>
<td>7.30 (3.93)</td>
</tr>
</tbody>
</table>

\textsuperscript{a}Means are listed as the first value in each column, standard deviations are shown in parentheses.

\textsuperscript{*}p < .05, one-tailed test.
the facial expression measure being lower than that of the boys. The most judicious conclusion from the present findings is that no sex differences are apparent in nonverbal expressive indicators of empathy. In contrast, some differences are obtained for the self report indices with girls' scores being higher than boys, particularly on dispositional or global emotional empathy questionnaires.

Relationship Between Masculinity (M), Femininity (F), Masculinity-Femininity (M-F) and Empathic Responses

The extent to which sex role attributes in children of this age are related to empathic responding was investigated by examining the correlations among the three scales from the Personal Attributes questionnaire and the empathy measures. Pearson Product Moment correlations for each of the three scales (M, F, and M-F) with the empathy measures are presented in Table 3. The F scale was found to be significantly and positively correlated with the total scores on Bryant's empathy questionnaire, as well as to the Sympathy and Expressive Sadness subsets. The M-F scale was found to be significantly negatively correlated with scores on Bryant's Empathy Index as well as with the scores on the two subsets. No significant relationships were obtained for any of the three scales and verbal reports of empathy or facial expressivity in response to video vignettes.

Present findings indicate that, regardless of actual gender, feminine sex role attributes are related to self
Table 3: Correlations Among the Masculinity, Femininity, Masculinity-Femininity Scales and Empathy Measures.

<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>F Scale</td>
<td>-.08</td>
<td>-.15</td>
<td>-.16</td>
<td>.30*</td>
<td>.53*</td>
<td>.31*</td>
<td>.10</td>
</tr>
<tr>
<td>M Scale</td>
<td>-.05</td>
<td>.13</td>
<td>.05</td>
<td>-.11</td>
<td>.06</td>
<td>-.19</td>
<td>.10</td>
</tr>
<tr>
<td>M-F Scale</td>
<td>-.07</td>
<td>.00</td>
<td>-.04</td>
<td>-.37*</td>
<td>-.47*</td>
<td>-.55*</td>
<td>.09</td>
</tr>
</tbody>
</table>

* p < .05 (one-tailed test)

a Social desirability correlated .41 with the Femininity Scale and .35 with the Sympathy subset of items. When social desirability was partialled out, the resulting correlation was .46. Social desirability did not correlate significantly with any of the other measures.
reported empathy on Bryant's Empathy Index and, more particularly, to items reflecting sympathy and expression of sad feelings. These findings accord with the present findings of significantly higher scores for girls on Bryant's questionnaire. On the other hand, the lack of relationship between masculinity or femininity and the verbal report measure of empathy in response to stimulus vignettes is consistent with present findings of no significant sex differences on this measure. Similarly, the lack of a significant relationship between facial expressivity and sex role orientation also accords with the lack of sex differences found for this nonverbal measure of empathy.

Imaginal Involvement and Empathic Responding

The relationship between empathic responding to video vignettes and reports of imaginal involvement with the character's plight was investigated using Chi Square analyses. To test whether there was an association between type of imaginal involvement (i.e., focusing on character's feelings, imagining self in the situation) and degree of empathic responding (general match or specific match), children's verbal report scores were first kept as separate categories. Chi Square analyses were nonsignificant for each vignette and indicated there that the types of imaginal involvement were not specifically associated with the different categories of empathic responding. In other words, the choice of "Imagining self" was not necessarily associated with a specific match.
A second analysis was then conducted to test the hypothesis that imaginal involvement (both focusing on character's feelings and imagining self) is more likely to be associated with empathic responding than with nonempathic responding. The verbal report scores for each stimulus vignette were divided into two groups, nonemphatic responses and empathic responses, based on whether or not there was a match (general or specific) between reported emotion for both subject and story character. The Nonempathic response category consisted of the No Match scores. The Empathic response category consisted of the Match 1, 2, and 3 scores. There were 17 subjects in the Nonempathic Response group and 23 subjects in the Empathic Response group for the D.C. vignette. There were 16 subjects in the Nonempathic response group and 24 subjects in the empathic response group for the S.M. vignette.

Subjects' answers to the interview question regarding imaginal involvement with the vignettes characters were categorized as either Watching or Imagining since none of the subjects chose the option of "Thinking about something else". The Imagining category consisted of responses of "Imagining how the boy/girl was feeling" as well as "Imagining how I would feel in the situation".

Frequency of watching versus imaginal involvement choices for the Nonempathic and Empathic groups are shown in Tables 4 and 5. Of the 23 subjects who gave empathic responses to the
Table 4: Contingency Table of Reported Imaginal Involvement Across Empathic and Nonempathic Responses to the D.C. vignette

<table>
<thead>
<tr>
<th></th>
<th>Empathic Responses</th>
<th>Nonempathic Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Imaginal Involvement</td>
<td>16*</td>
<td>9</td>
</tr>
<tr>
<td>Just Watching</td>
<td>7</td>
<td>8</td>
</tr>
</tbody>
</table>

*p < .10

Table 5: Contingency Table of Reported Imaginal Involvement Across Empathic and Nonempathic Responses to the S.M. vignette

<table>
<thead>
<tr>
<th></th>
<th>Empathic Responses</th>
<th>Nonempathic Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Imaginal Involvement</td>
<td>18*</td>
<td>6</td>
</tr>
<tr>
<td>Just Watching</td>
<td>6</td>
<td>10</td>
</tr>
</tbody>
</table>

*p < .05
vignette D.C., 7 chose "Imagining self" and 11 picked "Imagining how the boy felt". Of the 24 subjects who gave empathic responses to the S.M. vignette, 9 chose "Imagining self" and 9 chose "Imagining how girl felt". Findings, based on Chi-Square analyses, confirm that imaginal involvement was associated more often with empathic responding than with nonempathic responding. This was the case for both the D.C. vignette, $X(1, N = 40) = 2.85, p < .10$, and for the S.M. vignette; $X(1, N = 40) = 4.00, p < .05$). These results support the hypothesis that spontaneous imaginal involvement is associated with empathic responding.

Further support of the hypothesis that empathy would be related to a general tendency toward imaginal involvement was obtained by the significant correlation found between the Imaginal Involvement Scale and Bryant's Empathy Index ($r = .33, p < .025$, one-tailed test). Contrary to expectations, no relationship was found between the Imaginal Involvement Scale (which assessed involvement with fictional characters in general) and children's interview responses reporting imaginal involvement with the present vignette characters ($r = -.01, p > .10$).

As a final issue, sex differences in reports of imaginal involvement were also investigated. There were no significant sex differences with regards to the Imaginal Involvement Scale. However, some support for the hypothesis that females are more likely to report imaginal involvement was obtained for the vignette depicting a female character. Analyses using t-tests
revealed a significant difference for Vignette S.M., *t*(38) = 2.53, *p* < .01 (one-tailed test), indicating that females reported imaginal involvement more often than did males for this vignette, which featured a young girl as the "victim". Closer inspection revealed that 11 females chose the category of focussing on the character's feelings, 6 chose the "Imagining Self" option, and 3 females chose the "Watching" option. The boys, on the other hand, chose the Watching category more often than the other two categories (13 chose Watching vs. 3 for Character's feelings and 4 for Imagining Self). There were no significant sex differences in the mean scores of imaginal involvement for the Vignette D.C. which featured a young boy as the "victim" and choice of answers for the Imaginal Involvement question did not differ for males and females. This may suggest an interaction for children, between sex of observer and sex of target character. However, Chi-Square analyses revealed that frequencies of choice did not differ significantly across the two vignettes for either boys or girls.

**Overall Summary**

The major findings of the present study can be summarized as follows. Correlational analyses of the data revealed little convergence across the three measures of affective empathy. Correlations among the measures were low and nonsignificant with the exception of the relationship noted for facial expressivity responses to the D.C. vignette and the Sadness Expressivity
Some support was found for gender differences in self reported empathy. Females scored significantly higher than males on Bryant's Empathy Index. The hypotheses that females would score significantly higher on the verbal and nonverbal responses to the video vignettes were not confirmed. There were no significant sex differences on either of these measures. The hypothesis that self reported empathy is related to feminine sex role attributes was supported by the significant positive correlation between empathy scores on Bryant's Index and reported feminine sex role characteristics on the Personal Attributes Questionnaire, for both boys and girls. In addition, there was a significant negative correlation between reported stereotypic masculinity and empathy score on Bryant's index.

Results pertaining to the hypothesis regarding imaginal involvement, in general, support the idea that imaginal involvement is associated with empathic responding. Partial support was obtained for hypothesized sex differences in imaginal involvement. More females than males reported imaginal involvement with the S.M.-Vignette, but not with the D.C. Vignette. In addition, there was no difference between males and females on the more general Imaginal Involvement Scale.
D. Discussion

Relationships Among Empathy Measures

Most investigations of empathy have employed a single criterion measure as their operational definition of empathy (e.g., verbal reports of affect in response to stimulus slides and narrative vignettes, self report questionnaires, or, less typically, nonverbal expression of affect while viewing affectively arousing stimuli). Only recently however, have studies employed more than one operational measure of empathy. Such empirical attempts at a converging operational definition of the empathy construct have met with limited success, often tending to find little or no relationship among the measures used.

In the present study the two self report measures (verbal report in response to the stimulus tapes and Bryant's Empathy Index) were found to be unrelated. Only one previous investigation has examined the relationship of the Empathy Index to other verbal or self report measures of empathy (Bryant, 1982). While Bryant found a significant correlation between scores on the Empathy Index and scores of the FASTE picture/story technique (Feshbach & Roe, 1968), the present study found little convergence between the Empathy Index and verbal reports in response to viewing affectively laden stimulus
vignettes. There are however, a number of differences between the FASTE and the present verbal report measure in their stimulus and response characteristics. Three important areas of difference are discussed as follows.

First of all, the FASTE presents stimulus slides and a narrative in a distinct sequence. In contrast, the present stimuli were much more naturalistic (videotaped episodes instead of slides) and the verbal and visual information was integrated in a continuous vignette. Also the stories used in the FASTE are relatively simple situations where only one affect is clearly presented, whereas in the present stimulus vignettes the affect being depicted was not necessarily clearly separate from other events taking place and a number different affects may have been interpreted across the stimulus persons. This may have made it more difficult for the children to process the affective information and to reflect upon their own response.

Secondly, Bryant looked at the relationship between the Empathy Index and the overall score across the four different affective situations on the FASTE (which included both euphoric and dysphoric feelings). In contrast, the present verbal report measure examined children's responses across two similar dysphoric situations. The correlation between the Empathy Index and the FASTE in Bryant's study may have been a result of the fact that both measures are based on empathic responding across a number of different (euphoric and dysphoric) affective situations. Both Bryant's Empathy Index and the FASTE were
designed to measure a general "trait" of empathy, that is, empathy is conceptualized as a general tendency to respond emotionally across a number of different situations. On the other hand, the verbal reports used in the present study are probably better thought of as incidences of "state" empathy, a distinction may by Lennon, Eisenberg and Carroll (1983) in their discussion of empathy measures. Furthermore, because the present videotape vignettes were very short in duration, they may not have elicited a very high degree of empathic responding and this factor may have also contributed to the lack of convergence found between the verbal measures used.

Thirdly, there are age as well as methodological differences to consider. Bryant's finding was based on a Grade 1 sample, whereas the children in the present study were older (Grade 4). Although Bryant also included Grade 4 children in her study, she unfortunately did not provide information regarding convergent validity for this group. Therefore, it remains a topic of further investigation whether age or stimulus factors or both are responsible for the differences between the present study and Bryant's study.

Although no relationship was found between the two self report measures, a significant relationship was found between nonverbal facial expressiveness ratings for the D.C. vignette and self reports for the subset of sadness expressivity items (Bryant's Empathy Index). Both measures were concerned with the expression of negative affect in response to seeing others in a
dysphoric situation. Children who nonverbally showed signs of negative affect were also likely to report experiences of a similar nature. It appears then that the two measures can tap similar kinds of experiences. However, this relationship was not found for facial expressivity in response to the S.M. vignette and it is difficult to know whether this is due to differences in the stimulus vignettes or to some other reason.

It is possible that differences in the affective intensity of the two vignettes may explain why the same relationship was not found for the S.M. vignette. The D.C. vignette involved a more vivid punishment scene which was longer in duration than the punishment scene in the S.M. vignette and may therefore have been a better elicitor of nonverbal empathic responses. However, it is also possible that the obtained relationship is a chance finding. Therefore reservations must be held with respect to the significance of this finding. Future investigations, in which differences between stimulus vignettes could be controlled, would help to confirm this finding.

In contrast to some support obtained, as discussed above, for nonverbal empathy and verbal scores on the Empathy Index, there was little relationship found between verbal reports of affect in response to the vignettes shown and ratings of subjects' displays of facial affect while viewing these stimulus tapes. This finding is consistent with other studies which employed both verbal and nonverbal expressive measures of empathy (Lennon, Eisenberg & Carroll, 1982; Peraino & Sawin,
Although the exact measures employed have varied across these studies with respect to the stimulus and response characteristics (e.g., slides vs. video vignettes, multiple choice of response vs. free response in subject's own words), low correlations have consistently been found between verbal reports and facial/gestural/vocal measures. One exception to this general finding is a study reported by Sawin (1979) in which a correlation of .31 was found between children's self reports and experimenter ratings of affect in the children's faces and voices. However, the issue of experimenter bias may confound these results, since children's facial expressions were rated while they were verbally responding to the FASTE questions rather than while they were just listening to the story. Content of the children's reports may have influenced the experimenter's ratings of affect. Alternatively, even with checks for possible biases, there may be closer correspondence between what is reported and what is facially expressed when measures are taken at the same time.

The lack of convergence between the verbal report in response to the vignettes and the nonverbal facial expressivity measure which has been found in the present study and related research could be due to a number of reasons. One possibility is that some empathy measures may not be valid indicators of empathic feelings. Eisenberg and Lennon (1983) have suggested that verbal reports such as those used in the FASTE may not be valid indicators of empathy because they are influenced by the
demand characteristics of the situation. They argued that the responses given by the children may be influenced by their knowledge of what is being measured and by what they consider to be socially or task appropriate responses, rather than reports of what they actually were feeling. However, the low correlation found between the present verbal report measure and the social desirability scale argues against this explanation for results obtained in the present study. The finding that present children's reports of empathy were not influenced by social desirability factors was further supported by the fact that a number of children reported feeling neutral in response to the vignettes. Therefore at least some of the children did not feel obliged to report sympathetic/empathic feelings. A consideration of other possible explanations for these findings follows.

One possibility is that verbal ability may be a confounding factor in self reports of children (Sawin, 1979). However, in the present study there appeared to be little influence of verbal ability as shown by the low correlations between verbal reports in response to stimulus vignettes and children's verbal ability as assessed by Peabody scores. This discrepancy between present and earlier studies is probably due to differences in their methodologies. Whereas children in Sawin's study responded in their own words, the present study required them to only pick an affective category from a number of given choices. It appears, then, that verbal reports used in the present study are at least somewhat free from the typical confounding factors of
self reports. This consideration of verbal ability, however, does not preclude the possibility that children may have the verbal skill, yet lack the introspective skill to differentiate and reliably label their experiences.

A second possible explanation underlying these results has to do with expression of emotional states. It may be that empathic responding is not necessarily expressed equivalently or equally well through both verbal and nonverbal channels of communication. In other words, some children may show empathic responding facially, whereas others express these feelings verbally. Buck (1977) found that children who communicated their emotional responses via facial expressions tended to exhibit few physiological reactions. This supports the notion that one type of emotional response may predominate over other modes of expression. Other children may communicate empathic feelings through both channels. This lack of a one-to-one correspondence between what is felt, what is expressed, and how it is expressed would also account for the low correlations found between verbal reports and the facial expressiveness measure.

A final reason for the lack of correspondence between what was reported and what was facially expressed is that multiple affects may have been expressed and/or experienced while viewing the vignettes. Some children did appear to express a number of different affects while viewing the vignettes. For example, one child viewing the film D.C., appeared to look surprised at first, then angry and later sad. Since the judges were asked for
the affect category that best described the child's expressions, they were forced to choose the best overall description, which did not correspond to the affect label selected by the child. It is equally likely that the child as well, may have felt a number of different affects but was also asked to pick the one affective category that best described his/her feelings. Thus, the emotion label chosen by the children could have been based on the strongest feeling, the most recent, or some resolution of all the feelings aroused. Furthermore, as discussed earlier, given cognitive reflective limitations, some children may not have really known what they were feeling, especially if they experienced a mixture of different affects.

In summary, the results of the present study and previous investigations suggest that we should take a closer look at our measures of empathy. The validity of and relationships among measures used to assess empathy are important issues which should be considered when comparing results across different studies and when attempting to determine the relationship of empathy to other behaviors such as helping or aggression. Discrepant findings across studies may be a result of the differences in methodology employed in these studies. Conceptual issues are also involved in methodological decisions.

One difference underlying measures of empathy is the extent to which empathy is viewed as a general response across different affective situations. There has been some suggestion that measures based on the assumption that empathy is a unitary
construct may be of limited value. Hoffman (1982) has proposed that it may not be reasonable "to assume that people who empathize with someone experiencing one emotion will be more likely than others to empathize with someone experiencing another emotion" (p.293). Furthermore, there is some evidence that the relationship between empathy and a hypothesized prosocial/aggressive behavior can vary depending on the particular emotion under investigation. Sawin (1979) found that total scores on the FASTE were poor predictors of helping behaviors but there was a significant relationship between the sadness subscore and helping behavior. Thus, if the researcher is interested in theoretical relationships between certain variables and empathy, he/she might be better off to focus on a particular kind of empathic responding rather than using a global measure of empathy.

**Sex Differences in Empathy**

Hypotheses regarding sex differences in empathic responding were only partially supported by the findings of the present study. Sex difference findings for each of the measures will be presented separately. The results for Bryant's Empathy Index will be discussed first, then findings for the verbal report in response to the video stimuli, and finally results obtained for the nonverbal facial expressivity measure.

Girls in the present sample were found to score higher in empathy than boys when empathy was assessed by Bryant's Empathy
Index. This supports Bryant (1982) as well other studies using self report questionnaires with adults. Highly significant differences between males and females consistently have been found when empathy is assessed using questionnaire measures (Eisenberg & Lennon, 1983).

Present findings indicate that sex differences depend, however, on the particular verbal measure used. No significant sex differences were found on present verbal reports in response to the stimulus vignettes, although girls scored slightly higher than boys in response to the S.M. vignette. This lack of sex differences in the present study contrasts somewhat with previous studies. According to Eisenberg and Lennon's (1983) meta-analysis of studies which used similar types of verbal reports (i.e., the FASTE measure), girls score significantly higher than boys, although the mean difference was small. There is always the possibility of significant differences for small effects when the sample size is large enough. Conclusions regarding sex differences in empathic responding must also be qualified by the fact that most studies included in the above meta-analysis employed a female experimenter and sex of experimenter may interact with sex of the child. According to Eisenberg and Lennon (1983), girls scored higher than boys when the experimenter was female, whereas boys scored higher than girls when the experimenter was male. As a result of this it is difficult to determine whether sex of the experimenter in studies which employed the FASTE contributed to the sex
differences obtained in the results.

Only two studies have investigated sex differences in children's self reports of affective reactions to simulated situations (e.g., videotapes, audiotapes). In one study (Zahn-Waxler, Friedman & Cummings, 1982, reported in Eisenberg & Lennon, 1983), girls (preschoolers to Grade 6) were found verbally to report more sympathetic reactions than boys in response to an audiotape of a crying infant. In the other study, no sex differences were found for 8 to 14 year olds' responses on the Mood Adjective Checklist after viewing a videotape of a crying infant (Frodi & Lamb, 1978 reported in Eisenberg & Lennon, 1983). In summary, there is some suggestion that girls score slightly higher than boys on empathy verbal self report measures when presented with dramatic episodes. However, such sex differences are not as evident as with the more general or dispositional empathy questionnaire measure.

Investigations of sex differences in empathy should also consider the nature of the stimulus content used. The intense nature of the present video vignettes (particularly the D.C. vignette) and the type of incident depicted (punishment) may be responsible for eliciting similar emotional reactions from both sexes. That is, the present stimuli may have permitted socially acceptable reports of negative emotion for both boys and girls, since they depicted children who were perceived to be unfairly or harshly treated. The possibility also exists that the boys felt it was acceptable to verbalize such feelings in this
experimental situation, but would not have if they had been among their friends. Extensions of the present research using a group paradigm, as well as naturalistic observation of children, would help clarify the conditions in which expression of feelings is inhibited in gender-related ways.

Nonsignificant sex differences were also found for the nonverbal facial expressivity measure of empathy. This finding is consistent with studies reviewed by Eisenberg and Lennon (1983) that measured facial/gestural/vocal reactions while the children were observing films of others. The only studies which found sex differences (favouring females) in facial and vocal measures were those in which the children were observed while verbally responding to the FASTE (Marcus, 1982; Sawin, Underwood, Weaver & Mostyn, 1981, both reported in Eisenberg & Lennon, 1983). Difficulties with this procedure have already been discussed.

While the above findings may be a result of the demand characteristics of the testing situation, it is also possible that females actually may be more affectively expressive while they are talking about their feelings but not necessarily more affectively aroused or expressive while viewing affect laden videotapes/slides. This distinction between arousal factors and expressive channels merits further investigation in general, as well as in particular regard to possible sex differences. Unfortunately, there have not been any studies which have taken nonverbal measures both while children are watching/listening to
stories and afterwards when they are talking about their feelings. This would help in clarifying where the sex differences appear, that is, in the experience and expression of empathy or in the communication of empathic feelings.

In conclusion, sex difference findings from the present study suggest that males and females are likely to differ in how they rate themselves on global assessments of empathy but not necessarily in how they actually respond in affectively arousing situations. Sex differences may be limited to particular kinds of affective stimuli or to self perceptions of empathic responding. Further research, in which affective responding to a variety of affective stimuli could be explored using both kinds of measures, would help to clarify why sex differences are found mainly with questionnaire measures.

Findings pertaining to the relationship between masculinity/femininity attributes and empathy scores are also important to this discussion of sex differences. Emotional expressivity is part of the feminine stereotype and it was noteworthy to find that both boys' and girls' affective empathy scores correlated positively with femininity scores on the F scale and negatively with high (masculinity) scores on the M-F scale used in this study. This finding supports previous research by Foushee et al., (1974) and suggests that feminine attributes may contribute more to individual differences in empathic responding than gender per se. However, since females tend to rate themselves higher on feminine traits than do males,
they may also rate themselves higher on items reflecting empathic responding. In contrast to Bryant's Empathy Index, the lack of sex differences for self reported empathy in response to stimulus vignettes suggests that these stimuli may have provoked less gender-linked responses or self presentation biases.

**Imaginal Involvement**

The hypothesis that spontaneous imaginal involvement is associated with empathic responding was, for the most part, supported by present results. The Imaginal Involvement Scale was found to be significantly related to Bryant's Empathy Index, suggesting that individuals who tend to become involved with characters in fictional situations are also more likely to respond empathically to other people's emotions. In addition, children's reported imaginal involvement with the characters portrayed in the video stimuli was also found to be significantly associated with their verbal reports of empathic responding in the same situation. Together these findings suggest that children of this particular age group who imagine themselves in the other person's situation or who imagine how the person is feeling are more likely to report empathic than nonempathic responses across two different verbal measures of empathy.

However, there were no differences in the verbal reports of empathy for the two choices of imaginal involvement. Both "Imagining self" and "Imagining how the boy/girl was feeling"
were associated with both general and more specific matches between the reported affect for self and the stimulus character. Present findings differ from those of Stotland (1969) in which the two sets of imaginal instructions given to the subjects resulted in different intensities of empathic responding (as measured by physiological indices and self reports). This difference in findings may be age-related or due to differences in the methodologies employed in the two studies. Stotland gave specific instructions to his subjects across the two imaginal conditions, whereas the present study asked subjects to choose among alternatives after viewing the vignettes. Also the scoring of the present verbal reports was not designed specifically to pick up on intensity of the affect felt. It may be better to say that the "Imagining self" choice was not necessarily associated with a more specific match in reported emotions and therefore does not preclude the possibility that children who report imagining themselves in the situation will also report a greater intensity of emotion felt.

Contrary to expectations, there was little relationship found between the two measures of imaginal involvement used in this study. Stotland and Sherman's (1971) reported three studies in which significant correlations ranging from .24 to .63 were found between scores on the Imaginal Involvement Scale (reported as the Fantasy-Empathy Scale) and self reported imaginal involvement with an experimental victim. Thus, the results of the present study differ somewhat from those previously found.
However, Stotland and Sherman used a much larger sample. Furthermore, there are differences between the two measures which might explain the obtained results. The Imaginal Involvement Scale asks about involvement in situations where the person has time to become involved with the story character, as presented in movies, plays and books, all of which allow one to "get to know the character". In contrast, the film vignettes shown to the children were of a very brief duration. Consequently there was little time to "get to know" or become emotionally involved with the character. It might have been better to use film vignettes of a longer duration which would allow for a greater degree of involvement.

In addition, the post-videotape interview question asked the children whether they were focusing on feelings (the story character's or their own) or simply watching the film without any particular focus. Their reported focus on feelings in contrast to "just watching" was associated with their self-reported empathy. However, children who focus on feelings may not necessarily do this because of high imaginal involvement. It would perhaps be more accurate to label this measure "focus on feelings", as opposed to imaginal involvement.

Hoffman's (1977) hypothesis that females are more likely than males to imagine themselves in a situation, is only partially supported by the findings. Females obtained significantly higher mean scores for imaginal involvement with the character in the S.M. vignette. However, this difference
appears to be due to girls having reported focusing on the character's feelings more often than boys. The lack of sex differences in imaginal involvement for the D.C. vignette may be a result of the fact that a boy was the "victim" and the girls found it less easy to identify with a male character.

The frequency of the choice "I was imagining how I would feel in the situation" did not differ significantly between the sexes for either vignette and this finding is consistent with the lack of significant sex differences found in the verbal reports of empathy for the vignettes. Hoffman (1982) had offered this hypothesis as a possible underlying basis for sex differences in empathic responding. Since there were no sex differences found for the present verbal reports of empathy, it is not surprising that no differences were obtained for the imaginal involvement question.

It appears then, that there are no sex differences in whether or not the child places him/herself in the situation, at least for the particular stimuli used in this study. However, it is necessary to replicate this finding across different kinds of affective stimuli as the findings could be a result of the particular affective stimulus used.
Summary

The present study was an attempt to explore some issues in the study of empathy in children. With the recent development of new measures for exploring empathic responding, the relationship among these measures has become an important methodological question. However, from the present investigation it appears that the three kinds of measures used in empathy research share little common variance. Part of the problem may be with the validity of the measures themselves, with their different definitional emphases, as well as with the theoretical issue of whether empathy is viewed as a general response across a variety of affective situations or as a response to a specific kind of affective situation. The latter seems to be a particularly important distinction for investigations of the relationship between empathic responding and prosocial behaviors such as helping.

Choosing the particular stimuli used to elicit empathic responses is another important consideration. The present study was limited to one particular type of incident used to investigate empathic responding. This limitation, as well as the fact that the vignettes were extremely brief, may explain the lack of convergence across the different measures. This suggests that further research be conducted to assess the stimuli used to induce empathic responding.

Another problem which has arisen is the relationship between verbal reports of empathy and nonverbal measures such as
facial expressions. It has been suggested that we should rely more on nonverbal indices as they are less subject to self-presentation biases. However, when using facial expression as an index of affective arousal, one must be aware that facial expressions can also be controlled and lack of expressiveness does not necessarily indicate lack of empathy. In lieu of the problems associated with using individual measures of empathy, it is advisable that researchers should probably not rely on one measure but rather use both verbal and nonverbal measures.

The hypothesis that females are more empathic than males appears to limited to self-report measures, particularly questionnaires measuring dispositional empathy. While most studies have relied on only one measure, the present study used three different measures of empathy. The present findings support the idea that sex differences in empathy may be limited to self-report questionnaires. This suggests that researchers should be wary of conclusions drawn on the basis of only one measure. Consistent with the lack of sex differences found with the verbal reports, there was little indication that girls are more likely to imagine themselves in the other person's place. There appears to be little difference in how boys and girls respond to affectively arousing situations. Although this may be a result of the situations used, it still suggests that sex differences are not always apparent.

Furthermore, the relationship found between masculine/feminine attributes and empathy scores suggests that
dispositional or global empathy may be an aspect of feminine attributes that both sexes may share.

Directions for future research based on present findings might include exploring sex differences across different affective stimuli as well as naturalistic observation of empathic responses in real settings. This would help in determining what kinds of situations boys may inhibit empathic expression. In addition, it has been suggested that sex differences may lie in the communication of empathic feelings rather than in the expression of these feeling while observing someone in distress. A study in which empathic responses could be investigated while both observing affective stimuli and later when reporting these feelings would help in clarifying this issue.
REFERENCES


Dear Parent:

I am investigating empathy in children, that is, how children understand and respond to emotional expressions and characteristic situations that may make people feel happy or sad, for example. I would like to invite your child to participate in this study, supervised by Dr. Janet Strayer of Simon Fraser University. Your involvement in the study will be greatly appreciated.

The procedures to be used are fairly simple. Children's reactions while viewing a short videotape will be recorded, and they will be interviewed regarding their recall and interpretation of events and characters in the film. Children will also be asked to answer some questionnaires. Each child will be seen individually and the whole procedure will take approximately an hour. All materials used in the study will be available for parents to preview.

Care will be taken to ensure that the activities are in no way upsetting to participants or disrespectful of the rights of any persons involved. Participants will, of course, be able to discontinue at any time, and all attempts will be made to make participation convenient for you.

The information gathered in the study concerning your child will remain anonymous and confidential. A summary of the findings of the study will be made available to participants.

If you have any questions, feel free to ask the project researcher, Nicole Chovil. Thank you. I trust the study will be both enjoyable and interesting for you.

Sincerely yours

Nicole Chovil
II. Permission to Use Videotape

EMPATHY PROJECT VIDEOTAPE

This videotape can be used and viewed by the researchers involved in the empathy project for data analysis purposes, and in published reports of the project's findings.

Please circle: Yes No

Signed _____________________________

Date _______________________________
III. Consent Form for Parents and Children

The university and researcher conducting the empathy project subscribe to the ethical conduct of research and to the protection at all times of the interests, comfort, and safety of subjects. This form and the information contained are given to you for your benefit and full understanding of the procedures involved. Your signature on this form will insure that you have received all information necessary to give an informed consent to your participation and to that of your child.

As parent/guardian (print your name) __________________________________________
I consent to the participation of my child (print his/her name) __________________________________________ in the project described in "Study of Empathy in Children".

I understand that if any procedures are unclear to me, I will be encouraged to have them explained. In particular, there are no risks in taking part, and individual results are treated confidentially. Participants have the right to withdraw from the project at any time, and complaints may be brought to the attention of the project supervisor, Dr. Janet Strayer, or to the Chairman of the Psychology Department, Dr. Roger Blackman.

_________________________________________ Parent's Signature

_________________________________________ Child's Signature

_________________________________________ Address

_________________________________________ Telephone
IV. Empathy Index Questionnaire

For each statement, decide how much the statement sounds like you and write the corresponding number after each one.

<table>
<thead>
<tr>
<th>Exactly like me</th>
<th>Very much like me</th>
<th>Somewhat like me</th>
<th>Somewhat unlike me</th>
<th>Very much unlike me</th>
<th>Not like me at all</th>
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1. It makes me sad to see a girl who can't find anyone to play with.
2. People who kiss and hug in public are silly.
3. Boys who cry because they are happy are silly.
4. I really like to watch people open presents, even when I don't get a present myself.
5. Seeing a boy who is crying makes me feel like crying.
6. I get upset when I see a girl being hurt.
7. Even when I don't know why someone is laughing, I laugh too.
8. Sometimes I cry when I watch TV.
9. Girls who cry because they are happy are silly.
10. It's hard for me to see why someone else gets upset.
11. I get upset when I see an animal being hurt.
12. It makes me sad to see a boy who can't find anyone to play with.
13. Some songs make me so sad I feel like crying.
14. I get upset when I see a boy being hurt.
15. Grown-ups sometimes cry even though they have nothing to be sad about.
16. It's silly to treat dogs and cats as though they have feelings like people.
*17. I get mad when I see a classmate pretending to need help from the teacher all the time.

*18. Kids who have no friends probably don't want any.

19. Seeing a girl who is crying makes me feel like crying.

*20. I think it is funny that some people cry during a sad movie or while reading a sad book.

*21. I am able to eat all my cookies even when I see someone looking at me wanting one.

*22. I don't feel upset when I see a classmate being punished by a teacher for not obeying school rules.

*Scoring is reversed for these items.
V. Imaginal Involvement Scale

For each statement, decide how much the statement sounds like you and write the corresponding number after each one.

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<thead>
<tr>
<th>Exactly like me</th>
<th>Very much like me</th>
<th>Somewhat like me</th>
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<th>Very much unlike me</th>
<th>Not like me at all</th>
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1. When I am reading an interesting story or novel, I imagine how I would feel if the events in the story were happening to me.

2. After acting in a play myself, or seeing a play or movie, I have felt as though I were one of the characters.

3. When I watch a good movie, I can very easily put myself in the place of a leading character.
VI. Children's Personal Attributes Questionnaire

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<tr>
<th>Very true of me</th>
<th>Mostly true of me</th>
<th>A little true of me</th>
<th>Not at all true of me</th>
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<td>4</td>
<td>3</td>
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</table>

*1. I would rather do things for myself than ask grown-ups and other kids for help. (M)

2. It is easy for people to make me change my mind. (M)

*3. I am a very considerate person. (F)

4. It is hard for me to make up my mind about things. (M)

*5. I am often very pushy with other people. (M-F)

6. I am not good at fixing things or working with tools. (M)

7. I give up easily. (M)

*8. I almost always stand up for what I believe in. (M)

9. I do not help other people very much. (F)

10. I am a quiet person. (M-F)

*11. I try to do everything I can for the people I care about. (F)

*12. In most ways, I am better than most of the other kids my age. (M)

*13. I like younger kids and babies a lot. (F)

*14. I am kind to other people almost all of the time. (F)

*15. My artwork and my ideas are creative and original. (F)

16. I cry when things upset me. (M-F)

*17. I like art and music a lot. (F)

*18. When things get tough, I almost always keep going. (M)

*19. It is hard to hurt my feelings. (M-F)
*20. I am a gentle person. (F)

*21. I am often the leader among my friends. (M)

*Scoring is reversed for these items.
VII. Children's Social Desirability Questionnaire

This questionnaire lists a number of experiences that most children have at one time or another. I will read each of the statements to you and afterwards I would like you to decide whether it does or does not fit you. If it does fit you, circle "True", if it does not fit you, circle "False". If you have any questions, just stop me and I will explain it to you. Be sure to mark either "True" or "False" for all of the statements.

1. I always enjoy myself at a party. True False
2. Sometimes I don't like to share my things with my friends. True False
3. I am always respectful of older people. True False
4. I never get angry if I have to stop in the middle of something I'm doing to eat dinner or go to school. True False
5. I tell a little lie sometimes. True False
6. I would never hit a boy or girl who was smaller than me. True False
7. Sometimes I do not feel like doing what my teachers want me to do. True False
8. I never act "fresh" or "talk back" to my mother or father. True False
9. When I make a mistake, I always admit I am wrong. True False
10. I feel my parents do not always show good judgement. True False
11. I have never felt like saying unkind things to a person. True False
12. I always finish all of my homework on time. True False
13. Sometimes I have felt like throwing or breaking things. True False
14. I never let someone else get blamed for what I did wrong. True False
15. Sometimes I say something just to impress my friends. True False
16. I am always careful about keeping my clothing neat and my room picked up. True False

17. I never shout when I feel angry. True False

18. Sometimes I feel like staying home from school even if I am not sick. True False

19. Sometimes I wish that my parents didn't check up on me so closely. True False

20. I always help people who need help. True False

21. Sometimes I argue with my mother to do something she doesn't want me to. True False

22. I never say anything that would make a person feel bad. True False

23. My teachers always know more about everything than I do. True False

24. I am always polite, even to people who are not very nice. True False

25. Sometimes I do things I've been told not to do. True False

26. I never get angry. True False

27. I sometimes want to own things just because my friends have them. True False

28. I always listen to my parents. True False

29. I never forget to say "please" and "thank you". True False

30. Sometimes I wish I could just "mess around" instead of having to go to school. True False

31. I always wash my hands before every meal. True False

32. Sometimes I dislike helping my parents even though I know they need my help around the house. True False

33. I never find it hard to make friends. True False

34. I have never been tempted to break a rule or a law. True False

35. Sometimes I try to get even when someone does something to me I don't like. True False
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<tr>
<td>36.</td>
<td>I sometimes feel angry when I don't get my way.</td>
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<td>37.</td>
<td>I always help an injured animal.</td>
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<td>38.</td>
<td>Sometimes I want to do things my parents think I am too young to do.</td>
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<td>39.</td>
<td>I sometimes feel like making fun of other people.</td>
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<td>40.</td>
<td>I have never borrowed anything without asking permission first.</td>
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<td>41.</td>
<td>Sometimes I get annoyed when someone disturbs something I've been working on.</td>
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<td>42.</td>
<td>I am always glad to cooperate with others.</td>
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<td>43.</td>
<td>I never get annoyed when my best friend wants to do something I don't want to do.</td>
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<td>44.</td>
<td>Sometimes I wish that the other kids would pay more attention to what I say.</td>
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<td>45.</td>
<td>I always do the right things.</td>
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<td>46.</td>
<td>Sometimes I don't like to obey my parents.</td>
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<td>47.</td>
<td>Sometimes I don't like it when another person asks me to do things for him.</td>
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<td>48.</td>
<td>Sometimes I get mad when people don't do what I want.</td>
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Table 1: Correlations Among All Measures Used in Study

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<th>Measures</th>
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<td>1. Empathy Index All items</td>
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<td>4. Imaginal Involvement Scale</td>
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<td>7. Masculinity-Femininity Scale</td>
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<td>8. Social Desirability</td>
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<td>9. Peabody Vocal Test</td>
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<td>10. Verbal Report to D.C.</td>
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<td>11. Verbal Report to S.M.</td>
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<td>12. Verbal Report Both Vignettes</td>
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<td>15. Imagination Both Vignettes</td>
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<td>16. Facial Expressivity to D.C.</td>
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<td>17. Facial Expressivity to S.M.</td>
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<tr>
<td>18. Facial Expressivity Both Vignettes</td>
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*p < .05 (two-tailed test)

**p < .05 (one-tailed test)