THE SELF-SERVING BIAS IN CHILDREN

by

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ABSTRACT

This study examined the self-serving bias in elementary school-aged children. One hundred thirty one children in grades 1, 4, and 7 competed with a fictitious other in four tasks: two academic tasks and two sports tasks. Subjects and their opponents experienced different outcomes; when the subjects did well, their opponents did poorly. Children won and lost on one task within each domain. After completing each task, children rated their own and the other's wins and losses on the five dimensions of responsibility, internality, globality, stability, and controllability. The self-serving bias was operationally defined in four ways: ratings for wins greater than ratings for losses for the self; win/lose differences in ratings for self greater than this same difference for the other; ratings for wins of the self greater than for wins of the other (self-enhancement); and ratings for losses of the self greater than for losses of the other (self-protection). Regardless of how the self-serving bias was defined, evidence for the operation of a self-serving bias was found in children in all three grades and in two levels of self-perceived competence. Grade differences were evident on some dimensions; where found, they tended to show that attributional ratings made by the younger children were stronger than those made by older children. Self-perceived competence differences were also evident on some dimensions; where found, they indicated that ratings made by children high in self-perceived competence were significantly greater than those made by children low in self-perceived competence. No sex or domain differences were found. These results suggest that the self-serving bias does operate in elementary school-aged children. In addition to the differences found in ratings of wins and losses for the self and others (i.e., the 4 measures of self-serving bias), differences found for ratings of specific causes of wins and losses are discussed with reference to self-servingness.

DEDICATION

To K. R., my greatest supporter,

in memory of

Gaye

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"The question 'why?'should furnish, if at all possible, not so much the cause for its own sake as a certain kind of cause -- a soothing, liberating, alleviating cause."
Nietzsche, 1888

CHAPTER I

The central purpose of this study is to see whether children of different ages invoke the same types of attributions to explain their wins and losses, and whether the attributions they invoke to explain their wins and losses differ from the attributions they invoke to explain the wins and losses of others. In particular, this study will test the hypothesis that younger children are as susceptible to self-serving attributional biases as older children, or more susceptible.

Self-Serving Bias Defined

Conceptual definition.

Self-serving bias has been rather broadly defined as any attribution that enhances the self's appearance of responsibility for positive outcomes and minimizes the self's appearance of responsibility for negative outcomes (e.g., Heider, 1958; Feather, 1969; Bradley, 1978). The guiding principle of the self-serving bias is that the self's association with an outcome is perceived in a favorable light (Snyder, Stephan, & Rosenfield, 1976), usually such that credit is taken for success and blame is denied for failure. Consequently, when people take credit for their successes, usually defined as making internal attributions for them, and deny responsibility for their failures, usually defined as making external attributions for them, it is assumed that such attributions are self-serving in the sense that they link the self to the outcome in a positive manner (see for example Bradley, 1978 and Zuckerman, 1979).

Operational definitions.

The self-serving bias has been defined operationally in several different ways. With adults, the bias has been assessed using at least two paradigms: the interpersonal influence paradigm and the skill-oriented task performance paradigm. The interpersonal influence studies ask the subject to try to induce change in another, then estimate how much the subject believes the observed change is due to the subject's influence (e.g., Schopler & Layton, 1972 and Federoff & Harvey, 1976). Subjects in both the role of teacher and therapist have been found to make stronger self-attributions of responsibility for positive than for negative outcomes.

The skill-oriented task performance studies involve giving false performance feedback to subjects who have completed an experimental task. These studies can be categorized into two types, those in which the subject's performance is independent of another subject and those in which the subject's performance is interdependent. In the first type, subjects perform a task, receive false feedback about the outcome, then rate the influence of causes such as ability, luck, effort, and task difficulty (e.g., Miller, 1976 and Sicoly & Ross, 1977). Differences between attributions for success and failure for each of the causes is considered self-serving if they conform to the general requirement that internal causes (effort and ability) are rated higher for successes than for failures, and if external causes (task difficulty and luck) are rated higher for failures than for successes.

In the second type of skill-oriented task performance study, subjects' outcomes are reciprocally related, that is, when the subject performs well, his opponent or partner does poorly (e.g., Synder, 1976; Wolosin, Sherman, & Till, 1973; Streufert & Streufert, 1969).

Subjects are required to complete a task and, after being given false performance feedback, are asked to assign percentages of causal responsibility for the outcome to themselves and to their fictitious partners or opponents. Under cooperative (subject and partner) and under competitive (subject and opponent) conditions, subjects have been found to assign a greater percentage of causal responsibility to themselves for success than for failure outcomes, whereas the partner or opponent has been assigned greater responsibility for failure than for success outcomes.

Overall, the self-serving bias has been observed consistently in adults across studies using different operational definitions, and is considered to be one of the most well-established phenomena in social psychology (see Bradley, 1978; Zuckerman, 1979; Greenwald, 1980; Miller & Ross, 1975; and Miller & Porter, 1988 for reviews).

With children, the self-serving bias has been operationalized in more limited ways. In almost all the research directly assessing the self-serving bias in children, children either have made attributions about themselves or about others; rarely have they made attributions about both self and other in the same study. When attributions are made for the outcomes of another, researchers have assumed that children will project their own thoughts and feelings onto the other and answer as if for themselves (see Fincham, Diener, & Hokada, 1987 for a discussion of this).

The typical strategy is to describe a hypothetical incident of success or failure, usually of another, sometimes of the self, and supply children with four causes (luck, effort, ability, task difficulty) to rate, rank, or estimate in terms of the presence or influence of each. Sometimes, children have been asked to rate the influence of the four causes following their own success or failure on an experimental or naturally-occurring task. The

researcher then classifies these causes into the categories to which they theoretically belong, such as internal (e.g., effort or ability) or external (e.g., luck or task difficulty). Evidence in favor of self-serving bias is inferred when the difference between ratings of each cause for success and failure are compared. For example, if a child rates ability or effort higher (i.e., more important or influential) for success than for failure, this is taken as evidence of a self-serving bias for these causes -- a higher internal score for success and a lower internal score for failure.

Functions of the Self-Serving Bias

The self-serving bias supposedly has several adaptive functions. The bias is generally believed to operate to enhance or protect one's self-esteem (e.g., Heider, 1958; Bradley, 1978; Zuckerman, 1979); it has been termed the "high self-esteem attributional style" (Ickes, 1988, p. 89). According to Brown (1986), such attributions make an "affective difference" (p. 145), and have been found to relate to positive affective states. For example, more pride or satisfaction is reported by subjects who make internal attributions for success than by subjects who make external attributions for success (e.g., Weiner, 1979; Weiner, Russell, & Lerman, 1979). Studies such as those noted above have also found more shame and dissatisfaction were reported when failure was attributed to internal causes than when it was attributed to external causes.

Weiner (1985) has hypothesized that such a bias may simply feel good and feeling good may lead to the positive behavioral consequences, for example, perseverance and optimism, that have been associated with the bias. Studies with depressed individuals also provide evidence of the relation between causal attributions for success and failure and affective states. Findings from several studies suggest that the self-serving bias may, when

used consistently, protect one from feeling helpless, and may then promote optimism, perseverance, and improved performance (Rizley, 1978; Metalsky, Abramson, Seligman, Semmel, & Peterson, 1982; Seligman, Abramson, Semmel, & vonBaeyer, 1979; Lewinsohn, Mishel, Chaplin, & Barton, 1980; Alloy & Abramson, 1979; Greenwald, 1980; Dweck, 1975).

Others feel that the main benefit is the sense of control a self-serving attributional process promotes (e.g., Kelly, 1972; Wortman, 1976; Lerner, 1970). Miller and Norman (1975), for example, felt that a control motive may underly self-esteem oriented attributions. Individuals may be most willing to make dispositional attributions for their behavior when outcomes are positive, and this may be seen as related to some need to perceive oneself as experiencing effective control. Believing oneself responsible for good events and not responsible for bad events may protect one from the negative feelings associated with believing oneself to be helpless, vulnerable, or victimized.

What the functions of the self-serving bias are for adults, or how cognitive and motivational factors influence it, has been disputed and these issues remain unresolved. It is not the purpose of this study to resolve issues pertaining to the functions of the self-serving bias, but, rather, to determine whether the attributional bias identified as self-serving in adults is present in elementary school age children. A developmental approach to the study of self-serving bias may prove useful in understanding how early in life evidence of the bias can be found, how it develops, and perhaps what functions it serves for individuals of different ages.

Individual Differences in Self-Serving Bias in Adults

Although there is an abundance of evidence to support the existence of a self-serving bias in attribution, the tendency to take credit for successes and to deny responsibility for failures does not appear to be universal (Brown, 1985). Individual differences in attributional style have been found to relate to individual differences in self-esteem. In general, high self-esteem subjects are more likely to attribute success to internal factors and to attribute failure to external factors than are low self-esteem subjects (e.g., Ickes, 1988; Arkin, Appleman, & Burger, 1980; Feather, 1983; Ickes & Layden, 1978; Marsh, 1986). One group of individuals characterized by both low self-esteem and a tendency not to engage in self-serving attributions is depressives. Depressed individuals have been found to be more "even-handed" in their attributions for success and failure than non-depressed individuals (e.g., Miller & Moretti, 1988; Abramson, Seligman, & Teasdale, 1978; Seligman ,Peterson, Kaslow, Tannebaum, Alloy, & Abramson, 1984).

Evidence of Self-Serving Bias in Children

Although Miller and Porter (1988) consider the self-serving bias to be the "most heavily researched attribution bias" (p. 5), this is true only for research with adult populations; this bias remains relatively unstudied in child populations. This is surprising because Piagetian research has revealed two characteristics of children relevant to this bias: first, young children have a limited, and often erroneous, understanding of causality -- their understanding of contingency has been termed illusory; second, young children tend to be egocentered and believe that they are influential in causing most events. The question of whether any biases found in children can be thought of as self-serving has not yet been directly investigated. Perhaps this lack of research can be attributed to the emphasis on the

cognitive capabilities of children and/or the belief that self-esteem is less important as a motivator of children's behavior. Whatever the reasons may be, the fact remains that information regarding the origins and development of the self-serving bias has not yet been directly looked for in childhood. What follows is a discussion of developmental research that either directly or indirectly has implications for the question of whether or not the self-serving bias operates in childhood.

Illusory contingency.

In his studies of illusory contingency, Weisz (1980; 1981) reported finding evidence of what could be called a self-serving bias in kindergarten and grade 4 children. In a 1980 study, children drew cards blindly from a deck. Two sets of 10 cards were used: one set had a blue spot on one side and the other deck had a yellow spot on it. The child was given 5 cards from each set and was asked to shuffle them. Then, the child drew 5 cards from the deck and was told that s/he could win up to 5 poker chips, one for each blue (or yellow) card picked from the deck. These chips, if enough were won, could then be traded in on a prize. Winning was controlled by using 2 decks, hidden from the children, one all blue and one all yellow. On 5 trials children won either 1 or 4 chips. Children with either low or high winnings then made judgments about others' performance. Many of the responses of the kindergarten children were uncodable (e.g., I don't know) and so evidence of self-serving bias is less compelling for this age. Children (kindergarten and grade 4) with codable responses answered the following two questions: Why did a (fictious) child pick the wrong (or right) color every time?. Children who won one chip gave noncontingency answers (e.g., "It's just luck") more often than children who won 4. High winners were more likely to attribute the child's success to trying hard or some other similar response indicating contingency.

These findings indicate a tendency to evaluate the contingency of the successes and failures of others differently, depending on one's success or failure experience with the event. When children win at a game, they tend to view the outcome as controllable, yet when they do poorly, they tend to view the outcome as uninfluenceable.

Weisz (1981) reported similar findings with children in two age groups, 6 - 10 and 11 - 14 years of age. These children were approached at a state fair after they had participated in one of 4 games of chance. Children were interviewed and asked about what it would take for someone to win. Children who won judged that hypothetical children who tried hard would win more. Weisz concluded that in addition to age-related intellectual limitations (i.e., difficulty perceiving noncontingency), "a bias toward self-aggrandizement may also lead to mistaken perceptions of contingency in children" (p. 488). Actually, since the events studied are uncontrollable, it is interesting that only losers judge them to be uncontrollable. Losing appears to make children more accurate, at least in this case.

Unfortunately, Weisz did not compare children's judgments on chance tasks to judgments on contingent tasks, at least as they relate to winning and losing. In a later study Weisz and colleagues (Weisz, Yeates, Robertson, & Beckham, 1982) did find that, with age, children increasingly recognized the futility of increasing effort on chance tasks; however, winning and losing was not manipulated so it is not known if losing children see both skill and chance tasks as noncontingent. It is interesting that young children, those whom Weisz found to have difficulty detecting noncontingency, would view any task as noncontingent, even if they lost. Of course, it is also possible that when children say, "it's only luck", they do not mean that it is noncontingent. As Nicholls and Miller (1985) have pointed out, luck may not be viewed as uncontrollable by children.

Although these findings are intriguing, Wiesz leaves many questions unanswered about self-servingness in young children. Children did not report on the causes of their own success or failure so it is difficult to know whether they would explain their own success differently from their own failure. Additionally, it is not clear if they would explain their own versus others' successes and failures differently. An added point that needs to be addressed is how children conceptualize attributions like luck, effort, ability et cetera in terms of dimensions such as locus and controllability.

Attributional style.

Evidence of bias in children's attributions has been reported by Seligman and colleagues (1984), who found that children's attributions, as assessed by the Children's Attributional Style Questionnaire (CASQ), showed an optimistic bias. Nondepressed children tended to make internal, stable and global attributions for positive events and external, unstable, and specific attributions for negative events.

In the CASQ, the child selects one of two statements that the researcher has classified on attributional dimensions. It is unknown whether children would view the statements as reflecting the same attributional dimensions as the researcher infers they reflect, nor is it known whether children have ever experienced the events described in the CASQ, find the outcomes indicative of success or failure, or would spontaneously give such statements as explanations for the events. For example, the item, You get an A on a test, is followed by the following two options which presumably both reflect internal and stable attributions but vary on globality: I am smart (global); and I am good in that subject (specific). It seems that a child could endorse either of these items and mean the same

thing. For example, I am smart, may be specific; the child who chooses this option may believe it means "I am smart at the subject". Similarly, endorsing the alternative, "I am good in that subject" could reflect a global attribution and mean I'm always good in that subject, and I'm good at most things. It is also unknown if smart and good in a subject are viewed similarly by children, that is, both may be viewed as stable dispositions, or both may be viewed as variable attributes. Findings from other somewhat related lines of developmental research indicate that young children do not view attributes of the self or others as stable (Rholes & Ruble, 1984), which suggests that young children are unlikely to share adults' assumptions about the underlying dimensions of the causes provided for them.

Although the CASQ has been used successfully to differentiate depressed from nondepressed children, it seems less adequate as a measure of normal children's causal attributions for the reasons stated above. It is also possible that when the child chooses the self-description "I am smart" after getting an A on a test, this is an evaluation of the self rather than the child's view of the cause of the event. Children are not given the opportunity to produce causes for the events given, nor are they asked on which dimensions the causes vary. The direct assessment of dimensions of causes seems especially necessary in children given evidence that indicates children of different ages conceptualize various causes differently in terms of their underlying dimensions (e.g., Nicholls, 1978; Weisz, 1980, 1981; Stipek & DeCotis, 1988).

Ratings of causes after success or failure on experimental tasks or naturally-occurring events.

When children have been asked to rate causes for success and failure, they have been found to rate causes like ability and effort higher for successes than for failures, and to rate causes like luck and task difficulty higher for failures than for successes. For example, in a meta-analytic study, Whitley and Frieze (1985) chose 25 studies that had children rate the extent to which ability, effort, luck, and task difficulty were responsible, or were present, for their own successes and failures. In these studies, children in grades 1 to 7 made judgments about success or failure outcomes on either experimental tasks or naturally-occurring events. Whitley and Frieze found that children who had experienced success rated their ability and effort higher than did children who had experienced failure, whereas children who had failed rated the task as more difficult than did children who had been successful.

It is interesting that in these studies, when children were asked the extent to which ability, effort, luck, or task difficulty 'caused' their outcome, attributions made were not self-serving. The only cases in which self-serving attributions were made were when the question wording was what the authors called 'informational' (i.e., asked if the causes were present rather than if the causes caused the outcome). One could question the validity of the informational approach in measuring causal attributions because individuals may, for example, view themselves as possessing ability, but may not feel ability caused them to win because the task was so easy. Zuckerman (1979), in his review of the self-serving bias in adults, states that studies that ask subjects to evaluate the difficulty of a task, and the ability, effort, and luck et cetera it may require are not measuring subjects' perceptions of the causes of outcomes. Consequently, findings of differential evaluations of a task after

success and failure are likely based on simple informational processes. For example, a task one fails on is most likely to be evaluated as more difficult than a task one succeeded on. Failure on the task is evidence that the task is difficult, at least for oneself. Evaluating a task one fails on as difficult is not the same as attributing failure to a difficult task (p. 254).

Ratings of causes after hypothetical success or failure on questionnaire measures.

When questionnaires have been used to assess children's causal judgments about performance on a variety of tasks, evidence of the self-serving bias is mixed. For example, Whitehead, Anderson and Mitchell (1987) found that children in grades 1 to 4 rated ability and effort as greater for own and others' hypothetical successes in fishing, leisure, and social events than for their failures - evidence of a self-serving bias. However, these same children also rated luck as greater for their own and other's succeses and failures - evidence against a self-serving bias.

In a developmental study of children from grades 3 to 9, Harter (1985) used Connell's (1985) MMCPC questionnaire to test for the self-serving bias. In this study, responsibility for own successes and failures in the cognitive (academic) domain were examined. Evidence of the self-serving bias was taken as the attribution of higher ratings of internal responsibility for success than for failure, along with attributions of higher ratings of internal responsibility than external responsibility for success, and attributions of higher ratings of external than internal responsibility for own failure. This pattern was observed in only a small percentage of children (7%). The most frequently observed pattern was one in which children assumed more internal responsibility for both successes and failures in the academic domain (52%).

The only developmental finding was that the tendency to take responsibility for failures decreased with age, whereas the tendency to take responsibility for successes remained high. By grade 9, 65% of the children were showing what Harter called a 'weak' version of the self-serving bias. In this pattern, children assumed more internal responsibility for their successes than for their failures; however, they also assumed more internal than external responsibility for their failures. So, although children might rate ability and effort (internal causes) higher for success than for failure, they may also rate ability and effort higher than luck or task difficulty for both success and failure when the outcomes are considered separately rather than compared.

The conclusion of Harter's (1985) investigation of the self-serving bias was that the strong form of the self-serving bias is relatively rare in children, although "across the elementary and junior high years examined, it would seem that children gradually come to adopt a pattern that provides a certain degree of self-protection or enhancement" (p. 112).

One problem with this conclusion is that it is based on only one dimension - locus of control. Attributing the source of one's successes and failure to oneself, especially in the cognitive domain where the criteria for success and failure are clear, may be self-serving if the reason the self is responsible is viewed as unstable and controllable. In the MMCPC, the child is asked whether the locus of control is within the self, powerful others, or is unknown, but the child is not asked what attributes of the self or others are responsible or how these attributes vary on dimensions such as stability or controllability.

In part, the conclusions reached regarding the self-serving bias depend on what is taken as evidence of a self-serving bias. If self-serving bias is defined as a predominance of internal attributions for success and a predominance of external factors for failure, children

do not appear to use this bias. In general, such studies find that children, in fact, prefer internal over external attributions for both successes and failures. For example, Nicholls & Miller (1985) found that most kindergarten children, when forced to choose, chose internal causes such as "tried hard" or "is smart", over external causes such as "was lucky" or "guessed" for other's successes and failures on both a chance and skill task (versions of a matching familiar figures task). And as stated earlier, Connell (1985) found that children endorsed internal control to a greater extent than external for both their own successes and failures, in all domains except the general (non-domain specific perceptions), in which case children acknowledged the need to please the people in charge (powerful others) in order to get what they wanted.

Ratings of the dimensions of causes.

A more recently developed method of assessing self-serving bias is to assess directly the dimensions of causes used to explain performance outcomes by asking individuals to rate the internality, controllability, stability, and/or globality of the cause (Russell, 1982; Seligman et al, 1984). The advantage of such a method is clear. When causal dimensions are assessed directly, and not inferred from causes, individual and/or age differences in how causes are conceptualized become irrelevant in interpreting findings regarding causal attributions. Although, Seligman and colleagues (1984) report some difficulty in having children respond to the ASQ, the global questions in particular, other researchers appear to have successfully used similar procedures for eliciting attributions regarding the underlying dimensions of causes from children as young as 5 to 6 years of age (Stipek & DeCotis, 1988; McAuley, Duncan, & McElroy, 1988).

In one study, children were given stories about hypothetical others' successes and failures in achievement domains in which the causes (ability, effort, task difficulty and luck) for each outcome were given to the children. Children were asked questions about the locus and controllability of the outcomes. Successful outcomes of others, regardless of cause, were rated as more internal and more controllable than were others' failures (Stipek & DeCotis, 1988). Similarly, when winning and losing in a competitive bicycle ergometer task were manipulated, children aged 9 to 12 years who won rated the causes of their wins as more stable and more controllable than did children who lost (McAuley et al, 1988).

Individual Differences in Self-Serving Bias in Children

Individual differences also have been found in use of the self-serving bias in children. Depressed children, like depressed adults, appear even-handed in their attributions for success and failures (Seligman et al, 1984), whereas nondepressed children exhibit an 'optimistic bias'.

Children's perceptions of competence also have been investigated in relation to attributional patterns. Children who report high levels of competence in a particular domain have been found to assign higher ratings to internal causes when explaining academic successes than when explaining failures (Marsh, 1986). The size of the difference rating for success and failure has been found to relate significantly to the child's overall self-perceived competence, and even more so to self-perceived competence in specific domains (Marsh et al, 1984). Moreover, when perceptions of competence have been manipulated by giving children previous success or failure experiences, children made more stable and controllable attributions in the high competence (past success) condition than in the low competence (past failure) condition (McAuley et al, 1988).

Developmental Differences

Only a few studies have looked at developmental differences in self-serving bias, and they have generally reported few or no differences. Of the studies that ask whether internal causes such as ability and effort are rated higher for success than for failure, the general finding has been that age is not a factor. In general, elementary school children tend to rate internal causes higher for successes than for failures. The meta-analysis by Whitley and Frieze (1985), for example, found no grade differences in self-serving bias acoss grades 1 to 7. Similarly, no age differences between grade 5 and 9 students were found by Marsh (1986), or by Varma and Krishnan (1986) between 11 to 13 year olds and 17 to 19 year olds, indicating that internal attributions were generally rated higher for success than for failure.

Similarly, when the question is, do the dimensions (i.e., locus, stability, controllability) associated with outcomes differ, age differences have not been found in how success and failure are viewed. For example, Stipek & DeCotis (1988) found that children in grades 1, 4 and 7 viewed successful outcomes, regardless of cause, as more internal and controllable than failure outcomes. And age differences were not found between 9 - 12 year olds in the locus, stability, or controllability dimensions used to classify causes of outcomes on a competitive bicycle ergometer task (McAuley et al., 1988).

Where age differences are found, however, is when the question asked is, do the dimensions of causes vary. In this case the answer is yes. Not only are the causes, in terms of their effectiveness, viewed differently by children of different ages (Skinner et al, 1988),

but children of different ages also view the dimensions of the causes differently, and this is a major problem with research on self-serving bias. For example, young children view luck as controllable, whereas older children view luck as uncontrollable (Stipek & DeCotis, 1988). Whereas Russell (1982) has pointed out situation differences (e.g., outcome, domain) in how causes are viewed by adults, research with children also has to consider developmental differences in how causes are viewed.

Developmental differences in how causes are viewed mean some evidence against the self-serving bias in children, for example, the finding of Whitehead, Anderson, and Mitchell (1987) that the external cause, luck, is rated higher for children's success than for their failure may, in fact, be evidence of the self-serving bias because young children may conceptualize luck as internal. Again, this point illustrates the need to assess dimensions of causes directly, especially in chidren. Aside from age differences in how the causes are conceptualized, there also may be age differences in tendencies to make internal or external attributions for outcomes. For example, Harter (1985) found differences in the tendency to make internal attributions for cognitive (academic) failures; with age, children were less willing to make internal attributions for cognitive failures. With a developmental approach, age differences also may be found in the salience of particular causes and/or dimensions children use to explain events.

Problems with Research on the Self-Serving Bias in Children

There are several problems with research related to the self-serving bias in children. In general, the source of these problems is that different researchers have operationalized self-serving bias in different ways. Some have used judgments only about the self, and others have used judgments only about others. Most have had children rate causes, but

have differed in what has been considered evidence of self-serving bias. Evidence of the self-serving bias has been defined as the differential assignment of types of causes to outcomes (e.g., causes such as ability, effort, luck; Nicholls & Miller, 1985), and as the differential assignment of the degree to which causes are assigned to outcomes (e.g., how much was success/failure due to luck, effort, ability etc). Others such as Harter (1985) and Connell (1985) have assessed the locus of control children rate highest in explaining their successes and failures. More recently, researchers have begun to assess dimensions of causes (e.g., locus, stability, controllability e.g., Russell, 1982; Seligman et al, 1984), but this too may be problematic because researchers with different theoretical orientations may define these dimensions differently. This section will examine why these are problems in the study of self-serving bias in children, and how the proposed study intends to deal with them.

Self versus other.

Research on self-serving bias in adults has considered differential attributions for self and for other. Some researchers contend that the "crucial test" of whether differential attributions for success and failure are self-serving is evidence of self-other differences (e.g., Synder, Stephan, & Rosenfield, 1976; Stephan, Rosenfield, & Stephan, 1976; Ross, Bierbrauer, & Polly, 1974 ; Regan, Gosselink, Hubsch, & Ulsh, 1975; Zuckerman, 1979). If subjects attribute their own success more than the success of others to internal causes, this is taken as evidence of a self-enhancing effect. If subjects attribute their own failures more than the failures of others to external causes, this is taken as evidence of a self-protective effect.

Adults have been found to attribute their own wins more to internal causes (e.g., skill, effort), and the wins of others more to external factors (e.g., luck), evidence of a self-enhancing effect. Further, adults have been found to attribute their own losses more to external causes, and the losses of others more to internal causes, evidence of a self-protective effect (Synder et al, 1976).

In the literature on self-serving bias in children, self-other differences largely have been ignored. In almost all the previous research on children's attributions of causes for success and failure, children have made judgments either about a hypothetical other or about themselves. Evidence that children use this same attributional style to explain the successes and failures of self and other children makes the self-serving nature of this attributional pattern less convincing than if this pattern were used differently for the self and others.

In only one recent study were children asked to make judgments about their own as well as others' successes and failures (Whitehead, Anderson, & Mitchell, 1987). Consistent with findings from other areas of research, for example, morality (Piaget, 1932; Fincham & Jaspers, 1979; Fincham, 1981; cited in Fincham, Diener & Hokoda, 1987), children did not make differential judgments for their own versus others' outcomes. There are, however, several limitations to this study which, in my estimation, leave this question unanswered. The numbers of children in the four grades studied were small, ranging from a low of 8 in grade one to a high of 19 in grade four. The children rated the four causes (luck, ability, task difficulty, and effort), which were assigned to dimensions by the researcher. Children may have viewed the dimensions of the same cause differently for themselves versus others. For example, Russell (1982) found that adults rated ability as

less stable when they were explaining failure than when they were explaining success; such a difference may exist when the same cause is used for self and other.

The researchers suggested that asking the children to judge the outcomes of hypothetical others on the same hypothetical situations on which they had just made judgments about themselves may have made the children aware of being consistent. Other explanations include the possible operation of a parity or equalizing bias in the attributions of young children; children may have wanted to maximize the appearance of similarity with others (see Nicholls & Miller, 1984 for a discussion). Or, children may simply have identified with the hypothetical other and answered as if for themselves.

In order to decrease the likelihood that findings are due to the above explanations, researchers need to adequately separate self and other. In cooperative situations or when working with friends, children are more likely to equalize perceived ability and effort. For example, Nicholls and Miller (1984) found that children made more judgments of equal ability for themselves and their partner than they did for another and his or her partner. And Bryant (1977) found that children's enhancement of others depended on whether the context in which they were evaluated was cooperative or competitive. In the competitive context children engaged in social comparison that enhanced the self at the expense of others.

It therefore seemed prudent in planning this study to have children experience success and failure in a competitive context in which their success is dependent on others' failure and vice versa. This would decrease the likelihood the child would identify with the other. In addition, because children could make judgments for different outcomes for self

and other in each task, inconsistency would be less obvious than if children were asked to make judgments about the same outcomes on the same tasks.

Given that children tend to identify with friends and others in cooperative relationships, differences between self and other would tend to be strongest in self-other comparisons polarized in competitive relationships, especially when the other is an unseen stranger. In this study the context in which children experienced success and failure was competitive. The competitive nature of the situation has been shown to be effective in eliminating a tendency, found in studies with adults, to view an unknown other in a positive manner (see Feather & Simon, 1971; and Zuckerman, 1979 for a discussion of this). Although one could argue that children, like adults, might be willing to extend this attributional style to 'intimates' or others with whom one identifies, it is unlikely individuals would extend this pattern to 'opponents' (Streufert & Streufert, 1969; Feather & Simon, 1971; Wortman, Constanzo, & Witt, 1973; Wolosin, Sherman, & Till, 1973). Further, it is unlikely than children would want to maximize the appearance of similarity (parity) between themselves and a stranger with whom they are in competition.

Ego-involvement.

The competitive nature of the tasks also would increase the likelihood of ego-involvement (see Bradley, 1978 or Nicholls & Miller, 1984 for a discussion of this). For the most part, researchers have failed to verify that children have had any investment in the idea that they succeeded or failed on the tasks for which they were asked to make attributions. It would seem that one way to determine if the tasks are ego-involving would be to have children rate their competence in the domains on the specific tasks for which they made attributions for winning and losing.

Theoretically, perceptions of competence are central to one's self-concept, and causal attributions in areas of competence are the most elaborate (see Markus & Wurf, 1987 and Harter, 1985 for a discussion). Accordingly, biases should be invoked mainly in attributions for domains of competence. If one feels competent at something one expects to do well at it, and when this expectation is confirmed an internal, stable judgment is likely to follow. When performance is inconsistent with expectation and past experience, an unstable, situational, attribution is likely to follow.

In this study children's perceptions of competence in the domains tested were assessed, and the attributions for outcomes in each domain made by children with higher perceived competence in that domain were compared to the attributions made by children with lower perceived competence.

Problems with rating causes.

As stated earlier, the typical strategy for assessing self-serving bias in children has been to describe an incident of success and failure, and supply the children with four causes (luck, ability, effort, task difficulty) to rate, rank or estimate the influence or presence of. These causes are then classified by the researcher into dimensions such as internal or external. It is not, however, known whether children would spontaneously generate the causes given to them by the adult researcher if they were permitted to generate them on their own. There is also reason to question whether the researchers' assumptions about the ways in which the causes vary in terms of underlying dimensions are shared by the children who respond to them (see for example Russell, 1982). This second problem is especially important when one looks at the self-serving bias developmentally, because

children may not view causes in the same way as adults or even in the same way as children of other ages. The way in which causes are viewed in terms of dimensions and relative to one another affects their amenability to self-serving purposes.

The following causes are commonly assumed to consist of or to be structured in terms of the following dimensions (see Weiner, Frieze, Kukla, Reed, Rest, & Rosenbaum, 1971, & Weiner, Graham, & Chandler, 1982a):

1. luck: external, unstable, uncontrollable;
2. task difficulty: external, stable, uncontrollable;
3. ability: internal, stable, uncontrollable;
4. effort: internal, unstable, controllable.

The first three causes are commonly assumed to be used in a self-serving way for self and other as follows (see for example, Stephan et al, 1976; and Synder et al, 1976):

	Self		Other	
	Success	Failure	Success	Failure
Luck		"bad luck"	"good luck"	
Task		"difficult"	"easy"	
Ability	"high"			"low"

Effort is more problematic. In a mature conception, ability and effort are assumed to relate to each other in the following way: the same level of performance can be attained by either a combination of high ability and low effort, or low ability and high effort, what Nicholls (1978) has identified as the inverse-compensation schema. However, the relation

between ability and effort can be problematic because acknowledging low effort for self may make one blameworthy, and attributing high effort to others may make them praiseworthy. So faced with failure for self, one could enhance the self by saying, "I didn't try" despite having the ability, or saying, "I tried hard" and therefore deserve praise for trying, even though it may indicate lower ability.

Although the causes under discussion are commonly believed to be the ones invoked by adults and are assumed to vary on the dimensions stated above, this may not be true for children. The causes children attribute to success and failure may mean different things to them, that is, they may consist of different dimensions than the same causes when attributed by adults. Consider for example the cause luck. Adults typically view luck as an external and uncontrollable cause, but children below grade 2 have been found to view luck as under the control of the individual who experiences it (Weisz, 1980; 1981; Stipek & DeCotis, 1988). It could therefore, be self-serving for a young child to attribute success to luck if luck is viewed as internal and/or controllable. Several researchers report that, for young children, luck is imperfectly differentiated from effort, ability and task difficulty, becoming clearly differentiated only at age 12 (Arden & Miller, 1985; Nicholls, 1978; Nicholls & Miller, 1984; Weisz, 1980; 1981).

Another cause that is interpreted differently by adults and children is ability. Whereas adults usually view ability as uncontrollable, children interpret ability, like effort, as controllable (e.g., Kun, 1977; Nicholls, 1978, Nicholls & Miller, 1984). And, in contrast to adults, children under the age of 11 or 12 years do not judge ability as more internal than effort (Stipek & DeCotis, 1988). There is a general increase with age in the belief that ability is or could be innate. Prior to the acquisition of this belief, ability is not thought of as a capacity that limits the effect of effort (Watkins & Montgomery, 1989).

Children, who view ability as unstable and controllable could conceivably be more likely to explain failure as due to ability than children who view ability as stable and uncontrollable. Because older children, more so than younger children, have been found to view ability as more likely to be innate, they are less likely than younger children to use this cause to explain failure. However, it is also true that young children are less likely to understand the implication regarding one's ability of making a task difficulty attribution.

Children younger than six typically base their judgments about ability on the effort expended or on the results of performance (Nicholls & Miller, 1984). If young children value trying, and view ability as related to trying, they may be more likely to explain failure as due to the task. Children who try hard also have ability and should win if the task isn't too hard. By the same token, children who win are children who tried, are lucky, have ability, and had an easy task; a style Kun (1977) called the halo schema. This could lead to a positive view of the successes of others, and probably does in a noncompetitive task. However, whether a competitive task changes this tendency to view another positively remains to be seen.

It is worthwhile here to note a developmental difference regarding task difficulty. For young children, success at a task means the task is easy. Because their concept of ability and effort are not well differentiated, they do not seem to realize the implication of saying a task one won on was easy (e.g., ability wasn't necessary). In contrast, older children have been found to better understand the self-enhancing consequences of winning on a difficult task. In order to enhance the self on task difficulty judgments, younger children are more likely to rate the task as easy, whereas older children are more likely to rate the task as difficult (Nicholls, 1978).

It is clear that one cannot gratuitously assume a particular cause has the same meaning (i.e., is structured in terms of the same underlying dimensions) in children of different ages, and therefore has the same implications for the self-serving bias. It is also clear that one cannot assume an invariant link between internal-success, external-failure, and self-serving function, as the following findings regarding effort attributions show.

Researchers have quite consistently found a predominance of effort attributions in open-ended questionnaires about performance (e.g., Russell, McAuley, Tarico, 1987; Frieze, 1976; Frieze & Snyder, 1980). The use of effort to explain failures for the self seems contrary to traditional definitions of self-serving bias, because effort is generally categorized by researchers as an internal factor. Yet invoking an internal cause such as effort to explain failure may fulfill self-serving purposes.

Several lines of research have shown that negative experiences such as failure or tragedy may lower self-esteem and one's sense of personal control; taking responsibility for one's misfortune (making an internal causal attribution) may be viewed as self-serving if it restores one's sense of control and esteem (e.g., Weiner, 1985; Janoff-Bulman, 1979; Janoff-Bulman & Lang-Gunn, 1988). The catch is that the internal cause must be one the individual can control. A person may fail an exam and wish to blame an external source such as the difficulty of the exam; however, if others pass the exam, this excuse implies one is less able. In such a case, the best way to save face and preserve the perception that one is able is to make an internal, but controllable attribution such as not having tried.

As the children competed with another who had won on the task they lost on, they might be expected to make internal, but controllable attributions for their failure (especially the older children who may realize that saying the task is hard implies that one is less able

than the other), or they may make external attributions for their own failure and for the other's success (self lost because the task was hard, and other won because s/he was lucky).

There is also some evidence that effort may vary on the stability dimension (Weiner, Russell & Lerman, 1978) so that one could see one's own lack of effort for failure as temporary and others' lack of effort for failure as a stable trait. Similarly, there are individual differences in the extent to which people view ability as stable (Dweck & Bempchat, 1988). An attribution to ability has different implications depending on whether the lack of ability is seen as a "temporary deficit in obtainable skills" or a "more general intellectual deficit" (Dweck, 1975, p 675).

Even a cause that clearly seems external such as task difficulty may vary on causal dimensions. For example, a person may report failing because the task was difficult. The person may further report that the task was difficult because the person failed to study (internal) so that this same task will be easier next time (controllable). Clearly, investigators who study causes need to attend to information regarding the dimensions on which these causes vary, and because this changes across individuals and across domains the dimensions must be generated by the individual.

The self-serving bias, from an attributional perspective, is interpreted in terms of the dimensions of the causal attributions, not the causes themselves. The basic question is whether individuals make internal attributions for the causes of successful outcomes and external attributions for the causes of failure outcomes. Typically, the researcher goes from the causal attribution made to a theory-based judgment of whether the attribution is internal or external to the individual. In assessing the self-serving bias, the researcher is not

primarily interested in assessing the specific causal attribution (e.g., luck, ability, effort, task difficulty) -- it is the underlying dimensional characteristics of the causal attribution (e.g., locus, stability) that are used to define the self-servingness of the attribution (see Russell, 1987 for a discussion).

Studies that assess causes and then assign them to dimensions base their conclusions on an assumption that has been shown to be false; namely, that the dimensions associated with causes are invariant and can be accurately translated into dimensions by the researcher on the basis of theory. Only two studies on causal attributions for children's performance reviewed in this paper (Stipek & DeCotis, 1988; McAuley, Duncan & McElroy, 1988) allowed children to rate the attributional dimensions of causes themselves, and only one study had children generate both causes and dimensions (McAuley et al., 1988).

Although this move in the field toward a more direct assessment of the dimensions of causes is valuable, it may not be enough. The self-serving bias refers to a tendency to take credit (i.e., assume responsibility) for successful outcomes, and to deny blame (i.e., not assume responsibility) for failure outcomes. Researchers who emphasize perceptions of control interpret this tendency as due to a greater willingness to attribute successful outcomes to the self (internal locus of control), that is, as due to (produced by) the self (e.g., Connell, 1985; Harter, 1985), and as due to an unwillingness to attribute failure outcomes to the self, evident in a greater likelihood that failure outcomes will be attributed to an external locus, for example, the situation. More recently, this definition has been broadened to include viewing failure outcomes as due to the self, that is, under the control of the self, and, hence, able to be avoided. In my opinion, the information most relevant to assessing self-serving bias is whether the self is viewed as responsibile or not responsible

for an outcome, and whether the assumption of responsibility enhances the self's association with the outcome.

The process of determining one's responsibility for an outcome starts with the outcome. Faced with an outcome that needs to be explained, one possible explanation is that the self is responsible. Another explanation is that the self is not responsible for the outcome. One has a variety of causes to choose from that can support one's assumption or denial of responsibility for an outcome. The choice of cause is considered to be important because the cause is thought to provide information about whether the individual is assuming responsibility or denying responsibility for an outcome. It seems to go something like this. A person experiences a successful outcome and says, "I won because I have ability". The researcher then either rates ability as internal, or the person is asked to rate the locus of ability, as on the CDS (Russell, 1982). Either way, the next conclusion is: "Ability is internal", that is, due to me and/or resides in me. The researcher then reasons: "If the individual won, and if s/he thinks ability is the cause, and if ability is internal, then, the individual is taking responsibility for the outcome. It seems much simpler to me to just ask individuals whether or not they are responsible for an outcome. This is not to deny that causes can be used to further enhance how one feels about an outcome. For example, it undoubtedly feels better to win for some internal reasons than others. And failing may not feel so bad when it's attributed to some external causes over others. Or when external causes can't be used reasonably to explain failure, attributing the failure to an internal, but unstable cause likely feels better than blaming something about the self which cannot be changed.

This use of causes to moderate responsibility for outcomes may not, however, be possible for young children. There is evidence that young children's feelings about

outcomes are not determined by the causes of the outcome, but, rather, by the outcome itself (Weiner, Kun, & Benesh-Weiner, 1980; Graham & Weiner, 1986; Weiner, Graham, Stern, & Lawson, 1982). Regardless of the cause, young children report feeling happy and proud of a positive outcome. Further, when children were asked why they felt happy and/or proud, younger (grade 2) children were less likely to refer to causes than were older (grade 5) children (Thompson, 1987). With increasing age, children's understanding of the link between causal attributions and feelings increased such that feelings reported were linked more intensely with the causes of outcomes. Older children, with more differentiated concepts of the causes, were likely to report feeling more proud of a positive outcome when they were personally responsible for it. So, for example, the older child is more likely than the younger child to report feeling proud of winning because he or she tried hard or is skilled at a task, whereas the younger child is likely to report feeling proud because he or she won. Moreover, successful outcomes, even when described as externally caused, were rated by children as more internal and controllable than unsuccessful outcomes (Stipek & DeCotis, 1988). It seems younger children view any successful outcome that occurs as brought about by them. Recall, this was the basic finding of the Weisz studies on illusory contingency.

Self-serving attributions, in children especially, may be best understood if the questions they are asked refer to the outcome specifically and the cause only indirectly. Conclusions from studies assessing causes are generally reported in terms of the association between self and the outcome, even though this association has not been directly assessed, only implied. In the early studies with adults, both the interpersonal influence studies and the interdependent skill-task oriented studies asked subjects how responsible they were for the outcome. Only the independent skill-task oriented studies asked subjects to rate the influence of causes given to them.

The paradigm widely used in studying the self-serving bias in children has been the independent skill-task oriented paradigm in which subjects are asked to rate causes. This paradigm increases the distance between the self and the outcome -- in my opinion, unnecessarily. According to Ickes (1988) the emphasis on causes rather than outcomes is naive for two reasons. First, causes are not more important than outcomes in determining emotions and behavior. Weiner (1985), for example, contends the initial response of an individual to an outcome is outcome-dependent, attribution-independent. Positive events feel good and negative events feel bad, regardless of what caused them. Although, again, this is not to deny that good and bad feelings can be intensified or diminished by specific causal attributions. Second, the emphasis on causes doesn't take into account that the same cause may have different behavioral implications depending on the outcome. Russell's (1982) work was able to show that the cause, ability, was viewed differently, as more stable, when given as the cause of success than when given as the cause of failure. This is, however, not a problem if the dimensions of causes are assessed as in the ASQ or the CDS.

One problem with emphasizing outcomes rather than causes is the lack of dimensions on which outcomes are thought to vary. Early locus of control research emphasized the degree to which outcomes were within or outside of one's control, that is, whether or not one believed one could produce good outcomes and avoid bad outcomes. Controllability could, therefore, be a dimension on which outcomes could vary. Another dimension on which outcomes could vary is responsibility, the extent to which one is responsible or not responsible for positive or negative events. Although these dimensions have been used to classify causes, they have also been used to classify outcomes. In fact, the early work on self-serving bias asked about one's responsibility for positive and

negative outcomes. One could argue that the assessment of outcomes on these two dimensions, which correspond roughly to the internal/external locus of causality (i.e., due to you), are the most consistent with conceptual definitions of the self-serving bias.

A major difference between this study and others investigating the self-serving bias in children is the attempt to assess responsibility for winning or losing directly, that is, in terms of outcome, in addition to assessing responsibility for the spontaneous causes given for winning and losing. Children experienced winning and losing then made judgments about their responsibility for the outcome, whether the outcome was due to them and controllable by them, and whether they expected they could win in the future on the game they had played (and, on others) with the same opponent. They were then asked to generate causes for their outcomes. The dimensions (locus, stable, globality, control, responsibility) associated with these causes were rated by the children. The assessment of both outcomes and causes of outcomes provides an opportunity to determine the relation between ratings on both of these. The attributions for outcomes and causes are likely to be more positively correlated with age because older children understand better the causes and the implications the causes have for implying responsibility.

Problems with measuring dimensions.

In the past, when researchers have inferred certain causes are composed of certain dimensions, it seems some subtle differences in the meaning of dimensions, given different theoretical positions, may have been obscured (see Appendix A for a review of constructs related to control theories). With the more recent interest in measuring dimensions, these differences need to be considered. Consider, for example, how controllability has been assessed. Whereas attribution theorists have attempted to determine the controllability of the

cause (e.g., how controllable is ability versus effort versus task difficulty), locus of control theorists have based their predictions on the controllability of the outcome (e.g, can positive outcomes be produced and failure outcomes be avoided). To ask whether a cause such as ability is controllable is not the same as to ask if the successful outcome can be reproduced or the failure outcome avoided or prevented. When subjects are asked to rate the controllability of a cause, they may not be referring to the cause when they rate it as controllable; they may be referring to the outcome. If individuals are being asked to rate the cause, it is theoretically inconsistent to rate ability as stable and also as controllable (Weiner, 1985). It seems more likely that when stable causes are given for positive outcomes, the outcome is viewed as under one's control. This would also explain why stability and controllability are correlated for positive outcomes only; negative outcomes attributed to stable causes are not also attributed to controllable causes (Russell, 1982).

Further, what is being measured when subjects are asked about controllability is not always clear. For example, Russell's control items refer to responsibility in general (is someone responsible), intention in general (intended by you or other people), and controllability in general (controllable by you or other people); all questions that refer back to the self or others. When you consider these questions with reference to causes and then to outcomes, their meaning seems somewhat different. For example, for the cause, ability: Are you or is someone responsible for your (ability); Did you or someone intend your (ability); Do you or does someone control your (ability). In the last question, for example, does control over one's ability mean one controls when it is used, how much of it one has, or whether one can improve it? In the former case, ability could be considered stable, in the latter, ability would have to be viewed as unstable. These questions are somewhat clearer in terms of outcome. For example, Are you or is someone responsible for your (success); Did you or someone intend to (succeed); and Do you or does someone control your (success)?

Another potential problem with the questions on the Russell scale arises because the items group the self in with "someone else" or "other people" so that endorsing controllability on this scale does not necessarily indicate that an individual feels he or she had any personal control over the cause or, for that matter, the outcome.[1] An additional problem with this dimension is that controllability on the CDS (Russell, 1982) includes the item about responsibility; this same item has been used by others as part of an internal scale (e.g., Stipek & DeCotis, 1988). This may explain why Russell (1982) found the internality and controllability scales to be highly correlated. In view of the above considerations, questions in the present study will assess responsibility (explanation for past performance, e.g., blame and credit) separately from controllability (expectation for future performance, e.g., ability to avoid or produce outcomes), and separately from internality (locus of cause, e.g., within or outside of the individual). It is expected that children will be less willing to take the blame for failures (responsibility over past outcomes) than successes, and will be more likely to expect to be able to produce future successes and to avoid future failures (control over future outcomes). To the extent that children take responsibility (blame) for failures, it is expected that they will view the cause of the failure as unstable and controllable (changeable) and future failure outcomes as avoidable (controllable).

Another dimension that seems to be defined differently by different researchers is stability. Stability items on the ASQ (Seligman et al., 1984), for example, refer to a cause that will be present in the future, whereas stability on the CDS (Russell, 1982) refers to a cause that is permanent and does not vary or change. Not all causes that can be present in the future, for example effort, can also be described as permanent and unchanging.

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[1]Since the writing of this introduction, the control items on the CDS have been revised so that personal and external control are measured separately, see McAuley, Duncan, & Russell, 1992.

Labelling a cause as stable does not mean the same thing on each of these measures. Russell's definition of stability seems close to Weiner's definition of a controllable cause. Consequently, in this study, stability is operationalized in the same manner as on the ASQ, that is, as likely to be present in the future. And the control dimension is used to capture the modifiability of causes and outcomes in terms of one's ability to produce or prevent the occurrence of outcomes.

Conclusion

Overall, the research on self-serving bias in children is inconclusive. Part of the problem is the lack of research on children dealing with self-other differences in self-serving bias. Yet another problem is the limited ways in which self-serving bias has been investigated in children. Studies from related lines of research, however, suggest that children can and do make self-serving attributions. Such findings suggest that a self-serving bias may operate in children as young as three years of age (Stipek & Hoffman; 1980). Children have been found to: (a) have higher expectations for their own versus another's future success following failure (age 3 - 6 years) (Stipek & Hoffman, 1980); (b) maintain an unrealistic optimism about their own future performance when failure is consistently repeated, while at the same time making more realistic estimates of another's chances for success (Parsons & Ruble, 1977; Weiner, Frieze, Kukla, Reed, Rest & Rosenbaum, 1971); (c) allocate higher rewards to themselves than to others for the same performance (age 3 - 6 years) (Stipek & Hoffman, 1980); (d) view games they are successful at as more controllable than games they were relatively unsuccessful at (age 4 -5 and 8 -9 years) (Weisz, 1980; (e) deny their own lower effort at a task while recognizing the lower effort of another (age 6 - 7 years) (Nicholls & Miller, 1984); and (f) engage in statements that enhance themselves at the expense of others when the context is competitive

(age 8 - 10 years) (Bryant, 1977). These findings have implications for stability (a & b), credit and responsibility (c), control (d), self-other differences in effort attributions (e), and self-other differences in competitive situations (f).

The main purpose of this study was to examine the manner in which children of different ages associate winning and losing with themselves and with others. In the past, researchers have studied the causes children give for positive and negative outcomes, and the problem with this method has been discussed. Russell (1982) and others have recognized this problem and have suggested that researchers assess the dimensions of causes directly. This has been done, but a problem still remains.

The self-serving bias refers to the association between the self and the outcome. When individuals are asked to rate the dimensions of causes, the information given relates most directly to the link between themselves and the cause, and less directly to how the self is linked up to the outcome; this is likely to be true especially for young children whose view of outcomes may not be influenced by the cause. In this study the questions asked will relate both directly to the outcome and its relation to the self and to the other, and to the cause spontaneously generated by the child.

As stated earlier, only two studies were found in which children were asked to rate the attributional dimensions of causes themselves (Stipek & DeCotis, 1988; McAuley et al., 1988), and only one of these studies had children generate both causes and dimensions (McAuley et al., 1988). Findings from both of these studies can, at best, be described as suggestive.

In the Stipek and DeCotis study, children, ten each in grades 1, 4, and 7, were read 8 different stories in which four causes (luck, ability, effort, and help from other) appeared as causes for successes and failures. The 8 stories were about hypothetical girls and boys who experienced positive or negative achievement outcomes in school settings as a result of various causes. For example, a boy uses a picture drawn by his brother and gets a good grade (help from other/positive outcome), and a boy gets a bad grade because someone accidently spills on his picture (hindrance from other, negative outcome). After each story, children were asked to rate whether the outcome was due to something about the story child or something about something or someone else, how responsible the story child was for the outcome, and how much control the story child had over the outcome. The first two questions formed the locus scale (for the grade 1 and 4 children; only the second question was asked of the grade 7 children), and the last question the control scale. They found success outcomes of hypothetical others were rated as more internal and controllable than failure outcomes, regardless of cause.

The second study (McAuley et al., 1988) looked at the dimensions attributed to spontaneously-generated causes of success or failure for motor behavior. Children, aged 9 to 12 years (n=36) were matched by gender and asked to compete in a bicycle ergometer task in which one child won and the other lost. Prior to winning or losing, children were given 3 practice trials in which one of the children won 3 times and the other child lost 3 times. Following the practice trials, the children competed and the child who had won on the practice trials won, and the child who had lost on the practice trials lost. Thus, outcome on the practice trials was consistent with outcome on the test. Consequently, children either expected to win, and won, or they expected to lose, and lost. At the end of the competition, children completed Russell's (1982) Causal Dimensional Scale. Despite the fact that

performance was consistent with expectation, children who won rated the causes of winning as more stable and more controllable than children who lost.

Theoretically, performance consistent with expectation, regardless of whether it is positive or negative, should be attributed to internal causes (which in this case it was), and to stable causes (which in this case it was not). Children who lost repeatedly on the same task, and expected to lose, viewed the cause of their failure as internal, but not stable. They also felt the cause of the outcome was less controllable, which on the CDS includes being less responsible. The authors outline several limitations to this study. Performance was consistent with expectation and past performance; no-one who won expected to lose, and no-one who lost expected to win. Children did not make attributions for both winning and losing outcomes. The sample size was quite small, children aged 9 to 12 years were grouped together. Children, who competed in pairs, were matched by sex, but not age. In view of some of the limitations of this study, McAuley considers his findings "only exploratory" (pp. 72-73) and advises caution be used in interpreting them.

Given the very limited amount of research that assesses causal dimensions relevant to the self-serving bias in children of different ages, much remains to be discovered. It is currently unknown whether children across the elementary school years view themselves as more responsible for their successful performance than for their unsuccessful performance, and whether they will view their own successful outcomes as more internal, stable, global, and controllable than their unsuccessful outcomes when dimensions are looked at rather than causes. It is also currently unknown whether children, like adults, will exhibit self-enhancing effects (own success more internal, stable, controllable, one's responsibility than others' success), and self-protective effects (own failures less internal, stable, controllable, one's responsibility than others' failures).

The Present Study

In the present study, subjects made judgments about their own actual performance and the performance of others in two domains, the academic and sports domains. Children competed with other fictitious children of their own age and sex, and made judgments about both winning and losing. This study included more dimensions than have been used previously in a single study, and these dimensions refer to both the cause and to the outcome. Children judged whether outcomes were due to them (locus), could be produced or avoided by them (controllability), were expected on other occasions over time (stability), were expected in other situations (globality), and were their responsibility. In all, this study provided a more comprehensive look at how children of different ages view their own and others' performance on academic and sports tasks in a competitive situation than have previous studies investigating the self-serving bias in children.

Subjects in the present study were selected from three grades: grade 1, grade 4, and grade 7. The selection of these age groups was based on several considerations. Firstly, several developmental theorists have found evidence of a "shift" in thinking between the ages of 7 to 9 years (e.g., Harter, 1983, Harter & Pike, 1984; Ruble, 1983, Veroff, 1969, Nicholls, 1984; Butler, 1989; Piaget, 1932; Selman, 1980). This age range marks the shift from preoperational to concrete operational thought, and accompanying this change is the recognition that quantities and eventually, qualities remain stable despite superficial changes. Personality characteristics and abilities are increasingly recognized as stable.

Children at a given age level can be at various stages of development; the intention was to choose children who should be, theoretically, at the preoperational, concrete

operational, and early formal operational stage of cognitive development. In this way the chance that developmental differences will be masked by cognitive similarities at different ages will be minimized. For example, grade one children may be more alike than different from grade two children, however these similarities should be less likely to occur in comparing them to grade four children. Although these three groups should roughly approximate children at the three levels of cognitive development, obtaining children in the three cognitive-developmental levels would represent an ideal situation, and its occurrence is not necessary for the purposes of this study. At most it is expected that these three age groups will be different enough cognitively that if developmental differences do exist in self-serving attributional style, they will be apparent.

The key variables in this study are Outcome (win, lose) and Person (self, other). The figures in Appendix B summarize the relations predicted between the key variables on the five dimensions. Also indicated are the expected effects of other variables included in this study -- grade, sex, self-perceived competence, domain, and target (outcome versus cause). The rationale for these predictions follows, along with predictions and rationales associated with several secondary issues: cause selected, task selected to repeat, and evaluations of performance as they relate to the self-serving bias.

Predictions

Outcome (win, lose) x Person (self, other).

It is expected that successful outcomes and the causes attributed to them will be considered more Internal, Stable, Controllable, Global, and children will feel more Responsible for them than for failure outcomes. It is further expected that this relation will

prove to be stronger for the self than for the other. Self-enhancing (more positive ratings for self's wins than for other's wins) effects and self-protective effects (more positive ratings for self's losses than for the losses of the other) are expected.

Outcome x Person x Grade.

Grade differences have not been found on the dimensions of causes associated with success and failure, at least not on those that have been studied (locus, stability, and controllability) (e.g., McAuley et al., 1988; Stipek & DeCotis, 1988); however, there are methodological differences between this study and previous ones. For example, the definition of controllability and stability are somewhat different in this study and this may lead to age differences. What follows is a list of the dimensions and possible qualifications by grade that could be expected.

Responsibility: (Outcome) When children in grades 1, 4, and 7 were asked how responsible hypothetical others were for winning and losing, age differences were not found (Stipek & DeCotis, 1988). However, in this study, children were asked about their own personal responsibility for outcomes. I expect that younger children will make stronger assertions of being responsible for their own successes, and will make stronger denials of responsibility for their own failures than will older children. Younger children have been found to have higher expectations for their own than others' performance (Stipek & Hoffman, 1980), to be unrealistically optimistic about their own performance (Parsons & Ruble, 1977), and to deny their own lower effort while at the same time recognizing the lower effort of another (Nicholls & Miller, 1984). Older children are expected to be more conservative in assigning responsibility for their successes and failures.

(Causes) Similar age differences are also expected in how responsible children feel for the causes of their successes and failures.

Internal:(Outcomes) Older children may be more likely than younger children to make internal attributions for failure. Recall, making internal attributions for failures, specifically academic failures, is correlated with achievement orientation, mastery orientation, and actual achievement (Dweck & Reppucci, 1973). It is expected that older children will have learned that making internal, unstable (e.g., effort) attributions for academic failures is socially more acceptable, and usually more justified, than making external attributions. The older children are expected to better understand the implications attributing failure to external factors may have for the self.

(Causes) Age differences in children's ratings of the locus of causes of outcomes are expected such that younger children will view causes of winning as more internal than older children, and they will view the causes of losing as less internal, that is, less due to them, than the older children, who are expected to make more internal attributions for the causes of their failures (Dweck & Reppucci, 1973).

Control: (Outcome) When children are asked if they can prevent losing, I expect the most emphatic assertion will come from the youngest children, and that they will also be the most certain of being able to make themselves win. Younger children tend to be more optimistic than older children and this may lead the younger child to feel able to produce wins and to prevent losses despite past performance (Stipek & Hoffman, 1980; Parsons & Ruble, 1977; Weiner et al, 1971).

(Causes) All children are expected to view the causes of wins as less changeable than the causes of losses; however, because the younger children are expected to view most

causes, whether for winning or losing, as changeable, this effect is expected to be stronger for the older children (Stipek & DeCotis, 1988; Rholes & Ruble, 1984).

Stable: (Outcome) When children are asked if they will win on the same task in the future, younger children are expected to make optimistic predictions for themselves to a greater extent than older children; wins will be viewed as stable and losses will be viewed as unstable. Young children tend to be optimistic and do not expect future failure even after a series of failures (Parsons & Ruble, 1977; Weiner et al, 1971). Older children, whose expectations are tied more closely to past performance, will be more conservative in their predictions for future performance.

(Cause) Similar age differences are expected on the stability of causes, such that younger children, more than older children, will likely expect the causes of their successes to be more present in the future than the causes of their failures.

Global: (Outcome) Children are expected to make similar ratings for their performance on other tasks as they do for their future performance on the same task (stable). Younger children are expected to make the most optimistic predictions and will more likely generalize their positive view of their own performance beyond the particular situation to other situations than will older children. Similar age differences are expected on the globality of causes.

Outcome x Person x Self-perception of Competence.

Individual differences in self-serving causal attributions have been reported in the past (e.g., Marsh et al, 1984; Marsh, 1984; 1986) which indicate that children who have favorable self-concepts use the causes (luck, task difficulty, effort, ability) to explain

outcomes in a self-serving way. Although the developmental studies by Marsh looked at causes and not dimensions, a relation between self-concept and the attributional style that defines the self-serving bias could be argued on strictly theoretical grounds (see for example Markus & Wurf, 1987 and Harter, 1985). Consequently, self-perceptions of competence were measured in this study, and high and low groups were created on the basis of a median split. A main effect was predicted for perception of competence, such that children who score above the median on the Self-Perception Profile will rate their successes and the causes of them as more internal, stable, global, less changeable, and will assume greater responsibility for them than for their failures than will children who score below the median on the scale.

Outcome x Person x Sex.

Sex differences have not been found in any of the studies reviewed when either causes (Whitehead et al., 1987; Whitley & Frieze, 1985; Fincham et al., 1987; Marsh, 1986), or dimensions (Stipek & DeCotis, 1988; McAuley et al., 1988) have been assessed, and, thus, were not expected to affect the attributional dimensions used to explain causes or outcomes in this study. However, Harter (1985) reported higher competence scores for boys on the sports scales - boys may, therefore, rate the dimensions of causes and outcomes higher for success and lower for failure in the sports domain than girls. Based on the findings of Watkins & Montgomery (1989), it is expected that males may make more stable and less controllable attributions for winning and losing in the sports domain. These authors found males, more than females, attributed athletic competence to innate ability. Males, therefore, viewed athletic ability as more stable and due to a less controllable cause than females.

Outcome x Person x Domain.

Two domains, the academic and sports domains, were examined in this study. The academic domain may be the more well-differentiated in terms of the causes of outcomes; researchers have found a predominance of effort and ability attributions in the academic domain. Children may, therefore, make more self-serving causal attributions for academic outcomes than for the sports outcomes.

Causes selected.

It is expected that, consistent with past findings (e.g., Frieze & Synder, 1980; Russell, McAuley, & Tarico, 1987; Elig & Frieze, 1979; Frieze, 1976), a predominance of effort attributions will be found for success and failure on both the academic and sports tasks. Frieze and Synder (1980), for example, found that for children in grades 1, 3, and 5, effort attributions dominated an academic testing situation (65%), as well as a football situation (35%). Ability was the second most commonly used cause to explain performance on these tasks in these age groups. Frieze and Synder report an increase with age in the use of effort as a cause, and a decrease in the use of ability as a cause. Younger children are also expected to use the cause 'luck' more frequently than older children, who view this cause as less controllable and effective in producing or avoiding outcomes than do younger children (see earlier discussion on age differences in conceptualizing causes).

Domain differences may also be found. Watkins & Montgomery (1989) found that older children's concepts of what causes athletic competence in others differ from young children's ideas, in that they are based more on ability than effort, whereas younger children's descriptions are based more on effort (practicing). Older children are also more

likely to attribute athletic competence to cognitive skills such as concentration and strategy use. They also report a general increase with age in the belief that athletic ability is or could be innate.

Choice of task.

The children will be asked to choose, as their final task, one of the four tasks previously completed. Of interest is whether the children choose a task at which they won or lost, and how this relates to their perceived competence in the domain. A major variable assumed to affect mastery motivation is perceived competence (Boggiano, Main, & Katz, 1988); children who feel competent tend to prefer more challenging tasks than children who feel less competent. It is predicted that children who score above the median on the self-perception of competence measure will more frequently choose tasks at which they were unsuccessful than will children who score below the median.

Evaluation of performance.

It is expected that children will rate their performance more favourably when they win than when they lose, and more favourably than they rate the other's wins and losses. Further, older children are expected to evaluate their failure more negatively than younger children's ratings (Ruble, Parsons & Ross, 1976). Ruble and colleagues found that older children's ratings of affect (10-11 years) were more influenced by outcome information than younger children (6-8 years) such that their failures were rated as affectively more negative. It may be that older children, as a result of greater school experiences, are more aware of the social disapproval or punishment associated with failure. All children rated

their affect higher for success than failure, but younger children did not rate failure on the experimental task (matching familiar figures) as affectively negative.

It also is expected that children who are higher in perceived competence will make more favourable evaluations of their outcomes than will children low in perceived competence.

CHAPTER II

Method

Design

This study was based on a 3 (Grade: 1, 4, 7) x 2 (Sex) x 2 (Self-perception of competence: high, low) x 2 (Outcome: win, lose) x 2 (Person: self, other) x 2 (Domain: academic, sports) x 2 (Target: outcome, cause) mixed factorial design with repeated measures on the outcome, person, domain, and target (outcome, cause) factors. Assignment to high and low self-perception of competence groups was based on a median split of scores on Harter's measure of self-perceived competence. All participants completed two tasks in each domain, won and lost on a task, and made outcome and causal attributions for their own and for others' performance on these tasks. Order of responding to questions about the self and the other alternated as indicated in the proposal. The questions about outcomes always preceded those about causes; however, within each set of questions the order of the questions varied randomly.

Subjects

Students who participated in this study were from an Elementary School located in the Greater Vancouver area of British Columbia. Permission to participate was requested from the parents of all children enrolled in grades 1, 4, and 7. Of the 134 children invited to participate, 98% were granted permission. Thus, 131 students participated. Of this sample, 50 were first graders (19 boys and 31 girls), 45 were fourth graders (18 boys and 27 girls), and 36 were seventh graders (19 boys and 17 girls). The children in this sample

were primarily caucasion, spoke English as their first language, and were living in a lower-middle to middle class community. All subjects were tested individually by one of two female interviewers, the author and a paid research assistant.

Materials and Scoring

Self-perceptions of competence.

Susan Harter's "Self-Perception Profile for Children" (1983), intended for use with children 8 years of age and up, was used to assess this aspect of self-concept in children in grades 1, 4, and 7. This measure is a 36 item, self-report instrument designed to assess a child's sense of competence across different domains. The child's sense of competence is assessed in the domains of school competence (cognitive), peer relations (social), physical appearance, conduct or behavior, and outdoor games and sports (physical). The subscales of relevance to this study include the two domain-specific subscales: the cognitive and physical. Consequently, twelve items from the scale were used.

Items assessing school competence assess the children's perceptions of whether they are good at school work, doing well, just as smart as others, able to work quickly, able to figure out and remember things easily, and able to understand what they read. Items assessing physical skills ask whether the children do well at sports, new activities, new games, are good enough at sports, chosen first for sports, and whether they would rather play than watch (see Appendix C for a copy of this measure).

Scoring: There are six items in each subscale and they are answered in a "structured alternative format" (p. 89) that was designed to offset children's tendency to

answer in a socially-desirable manner. The child is first asked to choose which group of children he or she is most like from two alternatives. Then the child is asked whether the characteristic in question is really true for him or her or sort of true. In half of the items, the first part of the statement reflects high competence and in half of the items low competence is described first. Scores range from 1 to 4, where 1 represents low perceived competence and 4 represents a high value on this construct. Scores for each subscale are summed and averaged yielding separate subscale scores. Using this format, Harter found that the correlation between this scale and the Children's Social Desirability Scale (Crandall, Crandall & Katkovsky, 1965) was .09, considerably lower than is generally found between this measure of social desirability and measures of self-esteem that use a two-choice format (e.g., me/not me; Coopersmith Self-Esteem Inventory).

Reliability: Harter (1985) reports subscale reliabilities, assessed by employing coefficient alpha to provide an index of internal consistency, ranging from .80 to .85 for scholastic competence, and .80 to .86 for athletic competence. Test-retest reliabilities after 3 months were .78 for the scholastic subscale, and .87 for the athletic subscale; after 9 months the reliabilities were .78 for the scholastic and .80 for the athletic subscale. Reliability and construct validity data were collected on 4 samples of children, grades 3 through 8, with sample sizes ranging from 178 to 810.

The scholastic and athletic subscales were designed to reflect judgments about the self's capabilities in these specific domains, and seem particularly relevant to the aims of this study and the predicted relation between self-conceptions of ability and attributions for wins and losses in these domains. To facilitate younger children's understanding of the question format, the item content, and the use of trait labels, the items were read to children. Recent research by Marsh, Craven, and Debus (1991) indicates that limitations in

young children's ability to respond reliably to questions about self-concept can be improved by individually administering a self-concept measure. In addition to the written version, the Pictorial Version of this measure designed for children younger than 8 years of age was also given to 74% of the grade 1 children. The problem with using only the Pictorial Version for the grade 1 children is that the items on the measure are different from those on the written version. Consequently, if grade differences in self-perceived competence are found, I could not with certainty conclude that the differences are due to grade and not to differences between the tests. To determine how each version would relate to the key variables, both measures were given to a sample of the grade 1 children.

Postperformance questionnaire.

The categories and general style of the questions used were based primarily on two measures of the dimensions of causal attributions, the Attributional Style Questionnaire (ASQ; Seligman, Abramson, Semmel, and von Baeyer, 1979) and the Causal Dimensional Scale (CDS; Russell, 1982). Some modifications to the questions used were based on the concerns raised in the introduction and involved not only the wording of some items, but also the dimensions to which some items are assigned. Responsibility, for example, is a category that does not exist in either measure, but appears as an item on the control dimension of the CDS. Because this item also has been used as an item on a locus dimension (Stipek & DeCotis, 1988), it appears here as a separate scale. All questions were worded so that the subject answered the question only with reference to the self or the other. For example, a locus item asked if the event was totally due to the self (other) or not at all due to the self (other). This is in contrast to similar items on the CDS and ASQ which provide the following response options: totally due to the self versus totally due to someone else or the situation. This modification was made, partly, in order to render the items less

confusing to young children, and, partly, because the intent of this study is to assess the relation of the perceived event or cause to the self specifically (see Appendix D for current study questions and similar items used on the ASQ, CDS, and in other studies).

Scoring: The scores on each question ranged from a low of 1 to a high of 7. There are several ways self-serving bias can be defined operationally. In this study, the main way is to look at the difference between ratings for win and lose outcomes of the self, and then to compare them to ratings given for others' outcomes. In addition, differences between ratings for wins of the self and the other (self-enhancement), and between ratings for losses of the self and the other (self-protection) will be examined. Self-serving bias should present the following patterns on the dimensions of causes and outcomes:

1. Self win > Self lose
2. (Self win - self lose) > (other win - other lose)
3. Self win > Other win
4. Self lose < Other lose

on all dimensions except Control which reverses here for outcomes and causes. The controllability of a 'cause' has been found to be rated higher for success than for failure. However, if the cause 'ability' is selected to explain success, this cause (ability) may be rated as less controllable (i.e., less changeable) than a cause which might be selected to explain failure, for example, effort. If the cause, 'ability', is more likely to be given for success than failure, then the cause of success may be viewed as less controllable (i.e., less changeable) than the cause of failures.

Procedure

Children participated in one session. First, they completed the Self-Perception Profile. Following this they competed in a total of 4 tasks, 2 from each of two domains (academic and sports). The two academic tasks were the Similarities and the Arithmetic subtests of the Weschler Intelligence Scales for Preschoolers and Children; these were chosen because the same task could be used for children in all 3 grades without a 'ceiling effect' in the oldest children. The two sports tasks were pitching a ball and running. Children competed with a fictitious other whose scores were fabricated by the experimenter. Children won on half the tasks (1 from each domain) and lost on the other half. The other child won or lost, depending on the performance of the target child. Instructions were as follows: I have a couple of things for you to do. Some are like things you do in class and some are like things you do in gym or sports. I already have scores from children at another school and I'm going to compare your scores to the scores of a girl (or boy, if the target child was male) who is in the same grade as you. After you finish each activity, I'll tell you whether you or the other child got the highest score. Then you can tell me what you think about how you and the other child did.

After completion of each task, the researcher calculated a score and then consulted a list of scores supposedly obtained from the fictitious others. At this point, children were told either, "you got the highest score" or "s/he got the highest score". All children were told that their scores were private and that we were unable to identify any other child's score, including the scores of the child from the other school. Few children asked how their own scores compared to the others; however, when this occurred the score for the other was raised or lowered approximately the same amount above or below the target child's score depending on whether the target child or the other was the winner. When the

scores of the other were given, an effort was made to ensure that the scores of the child and the other were neither very similar nor very different. In the rare case, where a child was supposed to win and his or her score was so low that winning would seem unbelievable, the child would lose at this task and win at the other task in the same domain. If the other task was already completed, the child was given a second chance to improve his or her score. In only one case was this not successful -- the child correctly answered all questions on the similarities and arithmetic subtests of the WISC and was certain about his ability; consequently, the data from this child was not used. In general, however, this did not present a problem in the study because the subject was told whose score was higher; no matter how the subject scored it was possible that the other scored higher or lower.

Children were interviewed regarding both their own and the other's performance after completion of each task. First, the children were asked how they felt they had performed. After answering this question, children were asked the 5 questions related to the controllability, responsibility, locus, stability and globality of first the self's (or other's) 'outcome', and then secondly, the 'cause' of the self's (or other's) outcome. Although children were not referred to as 'the winner or loser', the questions referred specifically to winning or losing. Children responded a total of 10 times for the self and 10 times for the other on each of four tasks; thus, in all, children answered 80 questions related to the dimensions of outcomes and causes. Completion of the session required approximately two hours.

The order in which children responded to questions about the outcomes for self and the other alternated so that responses for the other would not be consistently biased by previous responses made for the self's outcome. For example, if the self alternately won and lost on the 4 tasks, order of responding was:

1. self win (then other lose on Task 1)
2. other win (then self lose on Task 2)
3. other lose (then self win on Task 3)
4. self lose (then other win on Task 4)

In this way, unprimed attributions for self and other could be obtained within a task. This was to prevent self-other differences on the dimensions from arising simply because the children generalized the attribution they used to explain their own outcome to the outcome of the other. The self-serving pattern could arise only if children explained the wins and losses of self and other using differential ratings of the dimensions. The tasks were given in a constrained random order and subjects won lor lost in a constrained random order.

After the four experimental tasks were completed, children were asked to select one of the four completed tasks to do again. All children succeeded at this task. The only information of interest in the last task was whether the task selected was a task on which the child previously won or lost. Completion of the task provided the children with a final success experience and ensured that children viewed their performance in the study as very successful--children were told that their performance overall was more successful than the performance of their competitors.

CHAPTER III

Results

Results are organized in three main sections. The first section presents the results of preliminary analyses conducted to determine whether, on the key variables of Outcome (win, lose) and Person (self, other), there were any significant differences between:

(a) the two versions of the Self-Perception of Competence scale (Grade 1),

(b) the self-perception of competence academic and sports subscales,

(c) the tasks within domains (Arithmetic and Similarities in the academic domain; running and ball throw in the sports domain),

(d) attributions given for outcomes versus causes,

(e) attributions given for the academic and sports domains,

(f) attributions given by males and females, and

(g) attributions given for the five dimensions.

The purpose of conducting the above analyses was to determine whether scores on the above variables could be combined for use in further analyses.

The second section presents the main findings of this study. Results of analyses of the key variables of Outcome and Person as they relate to the hypotheses regarding the self-serving bias are presented.

The third section presents secondary results relevant to the self-serving bias, but not a primary focus of this study. This section includes discussion of the secondary issues of (a) Outcome (win/lose) and Person (self/other) differences in the dimensions of specific causes (e.g., effort, ability, luck) attributed by children in the three grades studied, (b)

Outcome and Person differences in evaluative ratings of performance, and (c) Self-perception of competence differences in type of task chosen to repeat (i.e., whether the task chosen was one on which child had won or lost).

Preliminary Analyses

Self-perception profiles.

The means and standard deviations for the scores of males and females in each of the 3 grades on the Self-Perception Profile and the Pictorial Version (sports, academic, and total) are presented in Table 1.

Table 1

Means and Standard Deviations for the Self-Perception Profiles -- Pictorial and Written Version.

	n	Sports M (SD)	Academic M (SD)	Combined M (SD)
Grade 1 (Pictorial)				
Males	18	3.16(.50)	3.31(.57)	3.20(.38)
Females	18	3.08(.56)	3.06(.51)	3.08(.39)
Grade 1 (Written)				
Males	19	3.29(.60)	2.81(.65)	3.05(.57)
Females	31	2.81(.73)	2.75(.86)	2.78(.72)
Grade 4				
Males	18	2.83(.63)	2.49(.67)	3.05(.57)
Females	27	2.77(.70)	2.83(.70)	2.80(.57)
Grade 7				
Males	19	3.00(.67)	2.85(.72)	2.93(.51)
Females	17	2.64(.57)	2.93(.57)	2.78(.42)

These values correspond to those reported by Harter (1985) for children in these grades. In general, Harter found the means fluctuated around 3.00 and the standard deviations ranged

from .50 to .85. Harter also reports that males in all four of her samples saw themselves as more athletically competent than girls did. Similarly, in this study, males' ratings of their athletic competence on the written version were significantly higher than the ratings of females, $F(1,125) = 6.51$, $p = .012$. There were no other sex or grade differences in levels of self-perceived comptence on either the pictorial or written version that reached significance.

The purpose of giving two measures of self-perceived competence to the grade one children was to determine whether the written measure could be used for all children. As described earlier, the pictorial version designed for young (grade 1) children is somewhat different in administration and content from the written version designed for the older participants.

Preliminary analyses showed that the Pictorial Version of the self-perception of competence measure, given to 74% of the grade 1 subjects along with the written version designed for older children, was significantly correlated ($r = .50$, $p = .0018$) with the written version. Although this correlation is not particularly strong, separate analyses of variance using both measures revealed essentially the same pattern of results on the Outcome and Person variables in this study (see Appendix E).

The only differences between the effects on the two tests were a significant interaction between Outcome (win, lose), Person (self, other) and Self-perceived competence on the Stable dimension for the pictorial version only, and a significant interaction between these same variables on the Responsibility dimension for the written version only. Inspection of these differences revealed that they differ in magnitude of the effects rather than in direction. For the purposes of this study it is important only that the

measures do not vary greatly in their relations with the key variables of Outcome and Person. Consequently, further discussion involving the measure of self-perceived competence will refer only to the written version which was given to all of the participants.

Self-perception of competence subscales.

The self-perception of competence measure contained two subscales -- academic and sports. The reason for giving subjects both subscales was to have some measure of children's self-perceived competence in the specific domains in which they would be competing. Preliminary analyses were conducted in which the subjects' scores on academic and sports tasks were analysed separately in conjunction with their respective self-perception of competence subscales. These analyses revealed that each of the two subscale measures of competence related to the other variables in essentially the same way (see Appendix F), and that both subscales of this measure were correlated highly with the total score -- r = .82 between the sports subscale and the total, and r = .84 between the academic subscale and the total. Consequently, the two subscale scores were combined and the overall self-perception of competence score was used in subsequent analyses.

Tasks within domain.

There were two tasks in each domain: math and similarities in the academic domain, and running and ball throwing in the sports domain. Children who won on one task within a domain always lost on the other task. Winning and losing on the tasks was randomly assigned. To determine whether task within domain exerted an effect on outcome measures, separate analyses of variance were conducted for each domain, with tasks within domain as a factor. These analyses failed to reveal any significant interactions with any of

the key variables on any of the dimensions. Furthermore, none of the Outcome or Person effects were qualified by task on any of the dimensions (see Appendix G for a summary). Consequently, ratings on dimensions for the two tasks in each domain were combined in subsequent analyses.

Target (outcome vs. cause).

The Outcome x Person x Target (outcome, cause) interaction was significant on two of the dimensions studied -- Internal and Control (see Appendix F). Internal attributions for the other's losses were significantly greater for outcome than for cause. Ratings of internality for the outcome and the cause were combined and mean scores were used in subsequent analyses. On the dimension of Control, the Outcome x Person interaction was found for both the cause and the outcome; however, the direction reversed. Attributions for wins were rated higher than were attributions for losses for the outcome, whereas attributions for the causes of wins were rated lower than were attributions for the causes of losses. Unless otherwise indicated, analyses discussed regarding Control are for the outcome only. Because the pattern for Control of the causes of winning and losing reversed, that is, attributions for losses were greater than attributions for wins, analyses for the controllability of causes are discussed separately.

Domain and sex.

The Outcome x Person interaction found for each dimension was not qualified by domain (academic and sports) or by sex (see tables in Appendix I). In subsequent analyses the domains and sexes were collapsed.

Dimensions.

Dimension was included as a repeated measures factor in preliminary analyses with ratings of attributions as the dependent measure. There was a main effect for Dimension, $F(4,121) = 99.23$, $p < .00005$, a Dimension x Grade interaction, $F(8,242) = 7.42$, $p < .00005$, and a significant interaction with the key variables of Outcome and Person, $F(4,496) = 4.10$, $p < .0028$. This interaction indicates the Outcome x Person interaction is not the same on every dimension.

Because the Outcome x Person interaction was significant on all dimensions, futher analyses were conducted in which pairwise comparisons of the dimensions were made (dimensions were run as a series of 2 level factors in analyses of variance) in order to see on which dimensions the Outcome x Person interaction differed. The dependent variable was a global self-serving bias score created by taking the difference between win and lose for the self (win self - lose self) and subtracting from this the difference between win and lose for the other (win other - lose other); this pattern was reversed for Control for cause (lose self - win self minus lose other - win other). This global self-serving bias score corresponds to the Outcome x Person interaction. Figure 1 illustrates the self-serving bias scores (i.e., the interaction) on each dimension by grade. Subjects made significantly higher ratings of Internality and Stability than of Responsibility, Globality, and Controllability. The ratings of Internality were significantly greater than the ratings of Stability for grade one students only; for grade four and seven students this pattern reversed such that ratings of Stability were significantly greater than ratings of Internality. As a consequence of these differences, and in consideration of the position that these

dimensions, even when empirically related, are conceptually distinct[1], the five dimensions were analyzed as multiple dependent variables in a multivariate analysis of variance (MANOVA) and separately in follow-up univariate analyses.

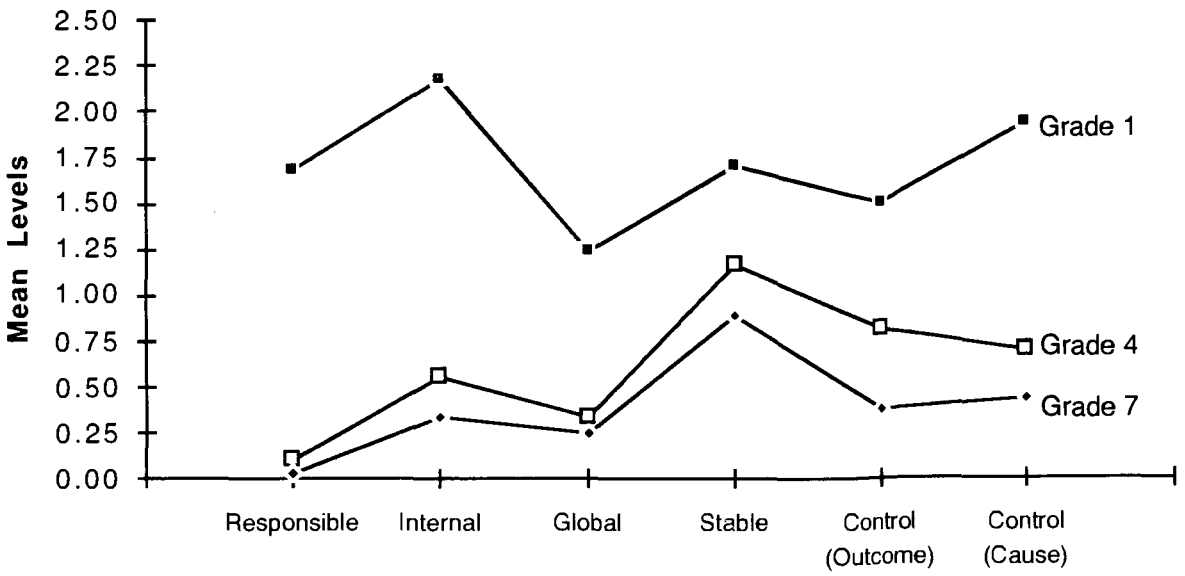


Figure 1. Mean levels of Self-Serving Bias for each dimension in grades one, four, and seven.

Note. Significant grade differences were found for Responsible, Internal, and Control (Cause), Grade 1 > 4, 1 > 7; Global, Grade 1 > 7.

Analyses Relevant to the Primary Issues Related to Self-Serving Biases

Multivariate and Univariate Analyses of Variance Results on the Key Variables of Outcome (Win/Lose) and Person (Self/Other)

The main purpose of this study was to determine whether the attributions of elementary school-aged children could be thought of as self-serving. There were four ways

[1]See Peterson's (1991) target article and commentaries by Weiner (1991) and Abramson, Dykman & Needles (1991) for a discussion of controversy regarding use of composite.

the self-serving bias was operationalized in this study. The main way was to examine the difference between ratings for win and lose outcomes for the self, as compared to ratings for win and lose outcomes for the other; an Outcome x Person interaction [(ws-ls) > (wo - lo)] was predicted.

The remaining three ways of operationalizing the self-serving bias were in terms of comparisons between the four cells of the Outcome x Person interaction: win self (ws), win other (wo), lose other (lo), and lose self (ls). The most popular way of defining the self-serving bias in past studies with children has been to compare attributions for self's wins and self's losses (ws vs. ls). In this study, it was predicted that ratings for self's wins would be more positive than ratings for self's losses on each of the five dimensions. In addition to this comparison, comparisons were made between ratings for self's wins versus other wins (ws vs. wo), the self-enhancing effect, and between ratings for self's losses versus other's losses (lo vs. ls), the self-protective effect. Ratings for the self's wins were expected to be more positive than ratings for the other's wins, and ratings for the self's losses were expected to be more positive than ratings for other's losses. Hence, the pattern predicted for mean ratings on dimensions was self win > other win > other lose > self lose on all but Control for cause in which the predicted pattern was lose self > lose other > win other > win self. The trends in the results are displayed in Figures 2 to 13, which show the mean ratings on each dimension for each of the 4 conditions (win self, win other, lose other, and lose self) for the three grades (Figures 2 -7) and for the two levels of self-perceived competence (Figures 8 - 13).

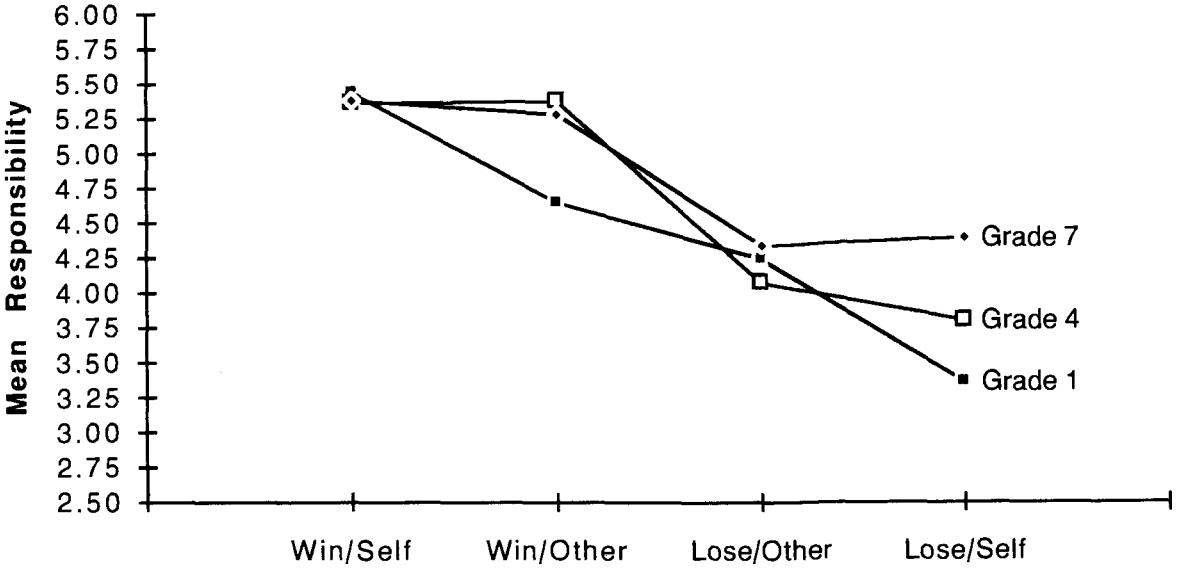


Figure 2. Mean Responsibility ratings for three grades across the four Outcome (Win, Lose) x Person (Self, Other) conditions.

Note. Significant grade differences were found for Win/Other, Grade 4 > 1, 7 > 1; Lose/Self, Grade 7 > 1, 7 > 4.

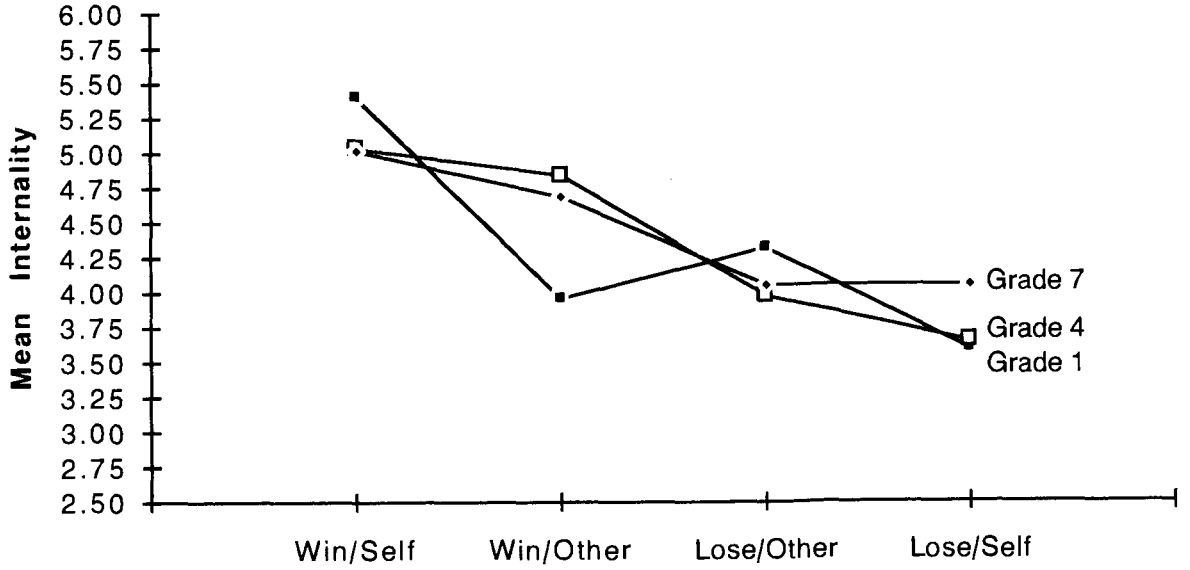


Figure 3. Mean Internality ratings for three grades across the four Outcome (Win, Lose) x Person (Self, Other) conditions.

Note. Significant grade differences were found for Win/Other, Grade 4 > 1, 7 > 1; Lose/Self, Grade 7 > 1, 7 > 4.

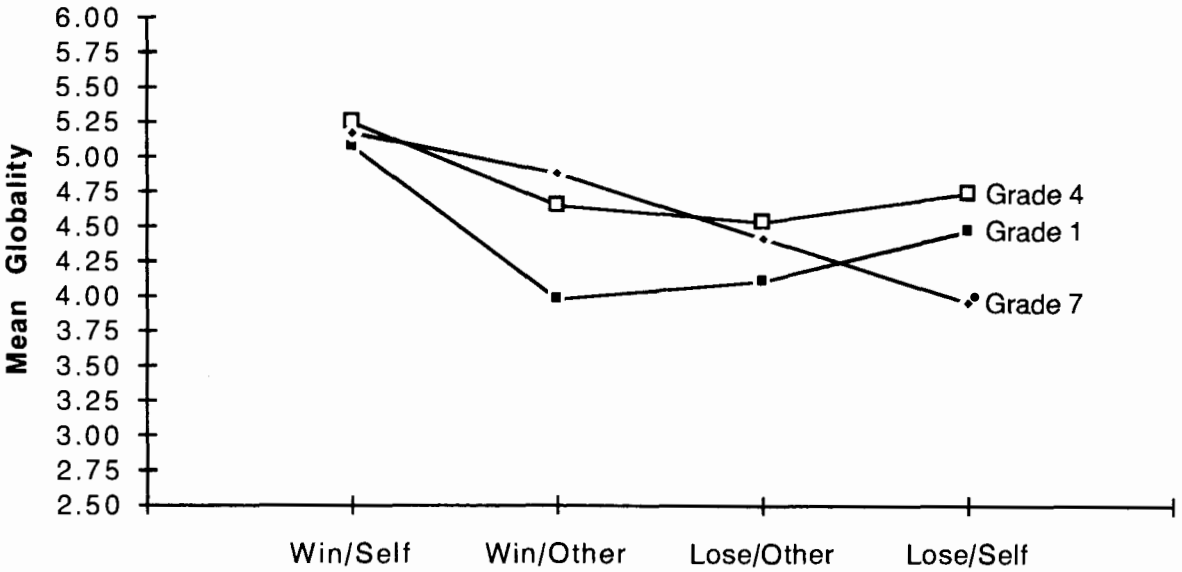


Figure 4. Mean Globality ratings for three grades across the four Outcome (Win, Lose) x Person (Self, Other) conditions.

Note. Significant grade differences were found for Win/Other, Grade 4 > 1, 7 > 1; Lose/Self, Grade 4 > 7, 1 > 7.

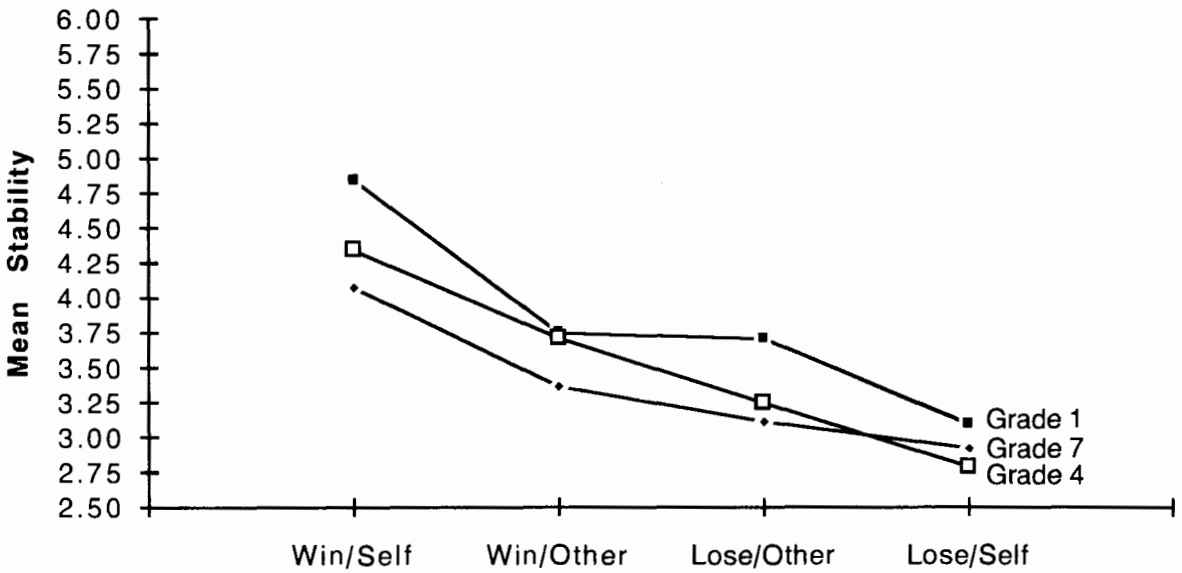


Figure 5. Mean Stability ratings for three grades across the four Outcome (Win, Lose) x Person (Self, Other) conditions.

Note. Significant grade differences were found for Win/Self, Grade 1 > 4, 1 > 7; Lose/Other, Grade 1 > 7, 1 > 4; Lose/Self Grade 1> 4.

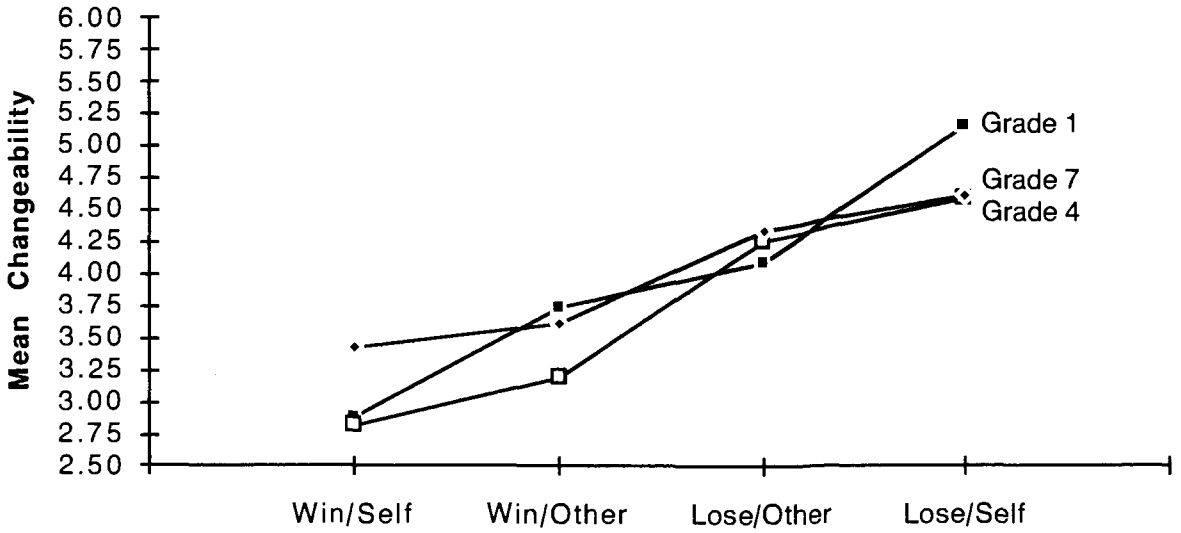


Figure 6. Mean Controllability (Cause) ratings for three grades across the four Outcome (Win, Lose) x Person (Self, Other) conditions.

Note. Significant grade differences were found for Win/Self, Grade 7 > 1, 7 > 4.

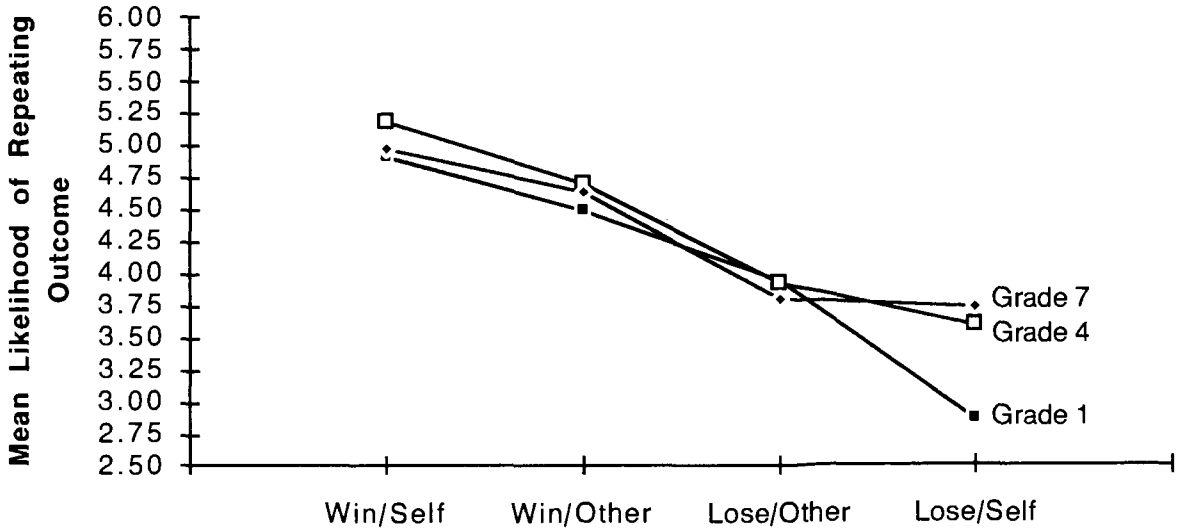


Figure 7. Mean Controllability (Outcome) ratings for three grades across the four Outcome (Win, Lose) x Person (Self, Other) conditions.

Note. Significant grade differences were found for Lose/Self, Grade 4 > 1, 7 > 1.

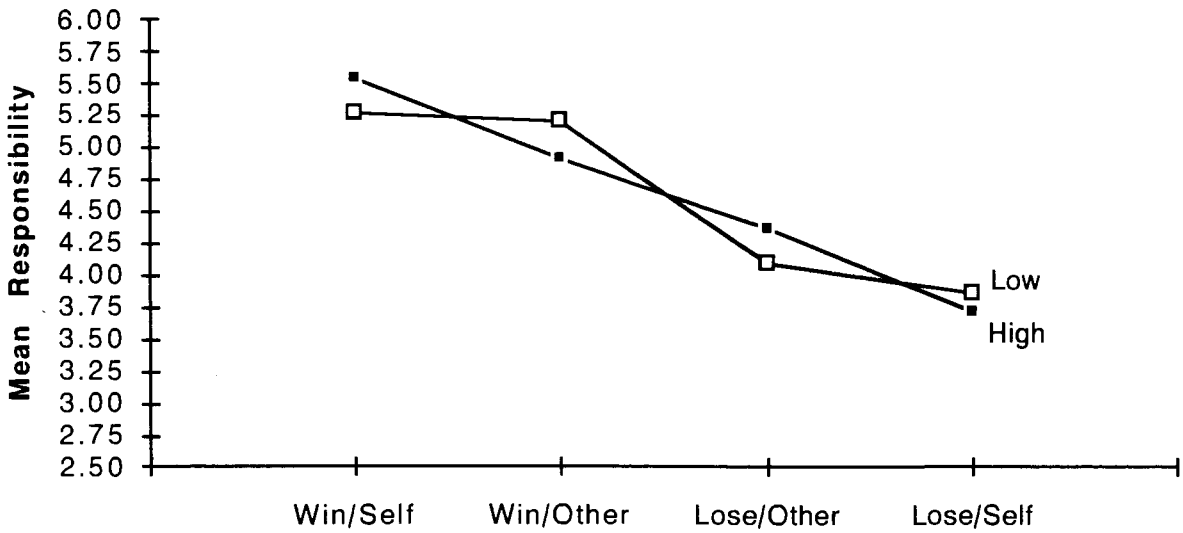


Figure 8. Mean levels of Responsibility for High and Low levels of Self-perceived competence across the four Outcome (Win, Lose) x Person (Self, Other) conditions.

Note. No significant self-perceived competence differences were found within conditions.

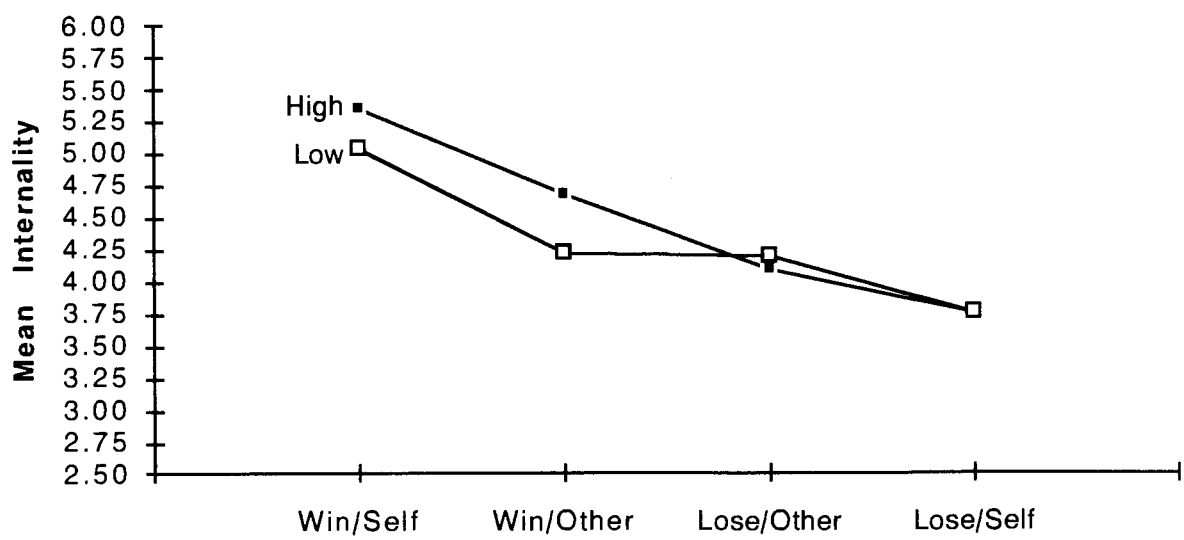


Figure 9. Mean levels of Internality for High and Low levels of Self-perceived competence across the four Outcome(Win, Lose) x Person(Self, Other) conditions.

Note. Significant Self-Perceived competence differences were found for Win/Self and Win/Other, High > Low.

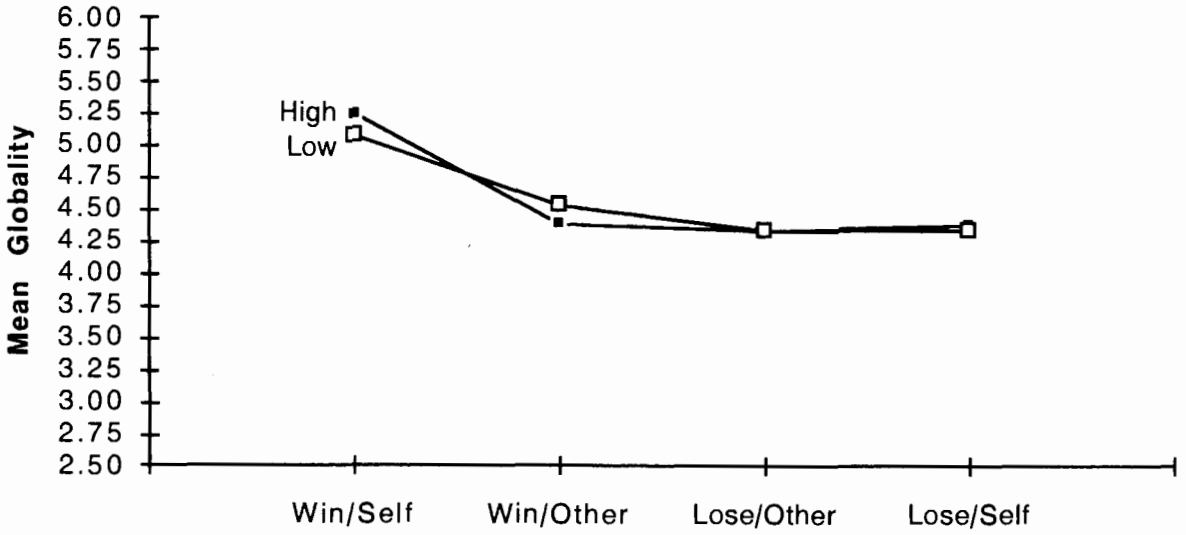


Figure 10. Mean levels of Globality for High and Low levels of Self-perceived competence across the four Outcome(Win, Lose) x Person(Self, Other) conditions.

Note. No significant self-perceived competence differences were found within conditions.

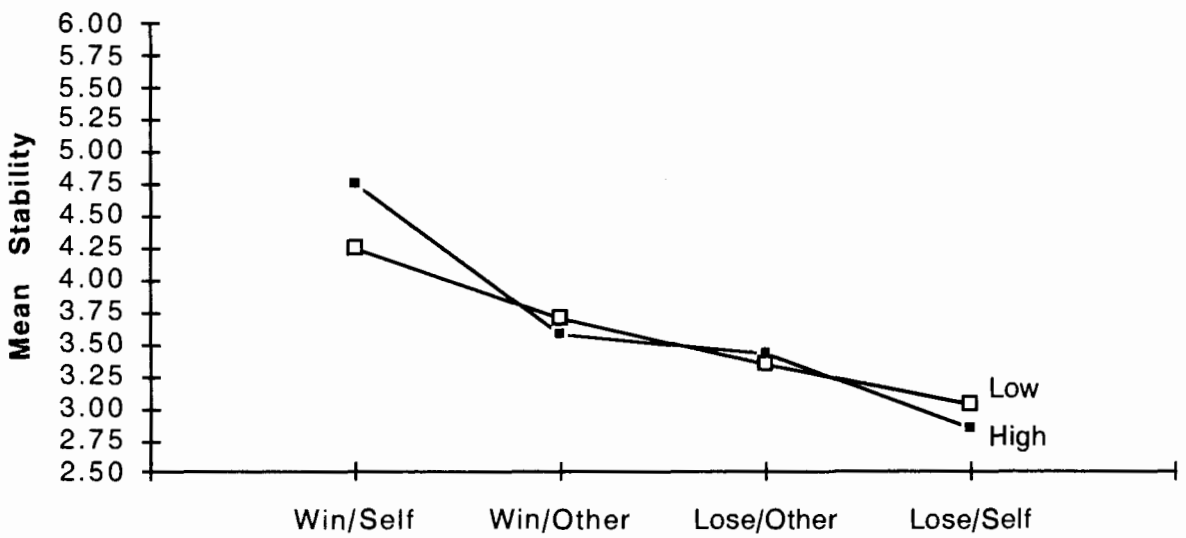


Figure 11. Mean levels of Stability for High and Low levels of Self-perceived competence across the four Outcome(Win, Lose) x Person(Self, Other) conditions.

Note. Significant Self-Perceived competence differences were found for Win/Self, High > Low.

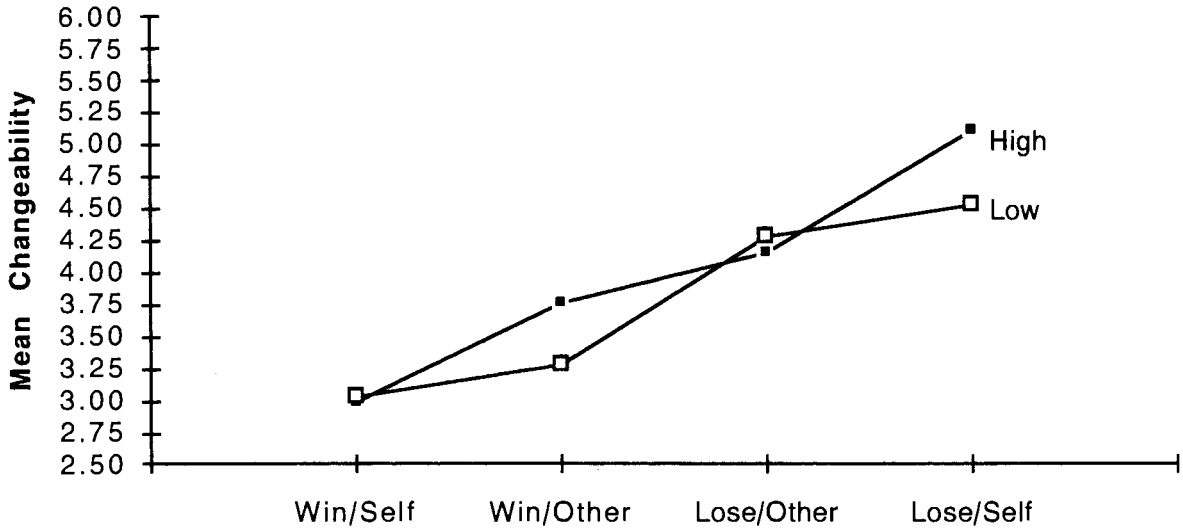


Figure 12. Mean levels of Controllability (Cause) for High and Low levels of Self-perceived competence across the four Outcome(Win, Lose) x Person(Self, Other) conditions.

Note. Significant Self-Perceived competence differences were found for Lose/Self, High > Low.

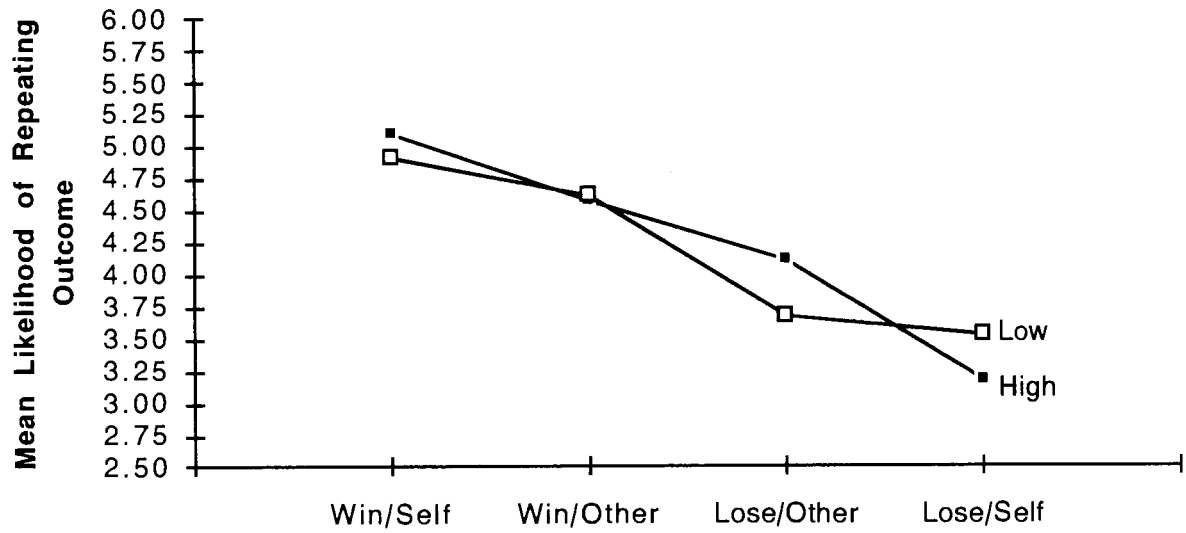


Figure 13. Mean levels of Controllability (Outcome) for High and Low levels of Self-perceived competence across the four Outcome(Win, Lose) x Person(Self, Other) conditions.

Note. Significant Self-Perceived competence differences were found for Lose/Other, High > Low.

A 3 x 2 x 2 x 2 (Grade: 1, 4, 7; Self-perceived competence: low, high; Outcome: win, lose; Person: self, other) MANOVA was conducted on the 5 dimensions of Responsible (R), Internal (I), Global (G), Stable (S) and Control (C), along with follow-up univariate analyses on each dimension separately. Simple effects analyses were conducted to determine the significance of the differences observed between the conditions of interest (ws vs. wo, lo vs. ls, and ws vs. ls) on each of the dimensions. On the dimension of Control, cause and outcome attributions were analysed separately. Despite the directional differences noted earlier, the pattern of significant effects, though reversed, means essentially the same in that attributions were more positive for self's success and failure (see note in Appendix B for an explanation). Consequently, unless differential effects were found that reflected a meaningful difference in the predicted pattern outlined above, discussion of Control will refer to both outcome and cause; differences will be noted where they occur.

Overview of Results.

Regardless of how the self-serving bias was defined, significant self-serving effects were found. As illustrated in Figures 2 - 13, ratings for the difference between wins and losses for the self tended to be larger than differences between win and lose for the other on every dimension in every grade, and across both levels of self-perceived competence. The predicted Outcome x Person interaction was found on the MANOVA, where dimensions were combined, and on each univariate analysis where the dimensions were analysed independently. This interaction was, however, qualified by grade on all dimensions, except Stable and Control (outcome). It also was qualified by self-perceived competence on all dimensions, except Global (see Table 2 and Appendix J).

Table 2

Results of Manova Outcome x Person Interaction.

Outcome x Person

	MS	F	DF	P
ALL	TSQ = 59.92	11.52	5, 121	.00005
R	233.11	14.58	1, 125	.0002
I	555.84	47.29	1, 125	.00005
G	193.26	16.45	1, 125	.0001
S	798.41	44.76	1, 125	.00005
C outcome	25.77	14.94	1, 125	.0002
C cause	36.30	24.40	1, 125	.00005

Outcome x Person x Self-Competence

	MS	F	DF	P
ALL	TSQ = 13.32	2.58	5, 121	.0297
R	108.41	6.78	1, 125	.0103
I	71.51	6.08	1, 125	.0150
G	7.52	0.61	1, 125	.4348
S	96.71	5.42	1, 125	.0215
C outcome	9.18	5.32	1, 125	.0227
C cause	10.24	6.88	1, 125	.0098

Outcome x Person x Grade

	MS	F	DF	P
ALL	TSQ = 40.42	3.75	10, 242	.0001
R	137.78	8.62	2, 125	.0003
I	175.57	14.94	2, 125	.00005
G	55.00	4.68	2, 125	.0110
S	31.82	1.78	2, 125	.1723
C outcome	3.50	2.03	2, 125	.1358
C cause	5.66	3.80	2, 125	.0250

Outcome x Person x Self-Competence x Grade

	MS	F	DF	P
ALL	TSQ = 8.62	0.85	10, 242	.5791
R	5.10	0.32	2, 125	.7275
I	24.88	2.12	2, 125	.1247
G	3.95	0.34	2, 125	.7153
S	3.98	0.22	2, 125	.8006
C outcome	.21	0.12	2, 125	.8873
C cause	2.26	1.52	2, 125	.2223

When the self-serving bias was defined as differences between ratings for own wins and losses, significant self-serving effects were found on all dimensions, Fs (1, 124) range = 51.74 (G) - 248.48 (I), all ps < .00005. These effects were qualified by grade on 3 dimensions (Responsible, F (2, 124) = 7.46, p = .0009; Internal, F (2, 124) = 6.98. p = .0013; and Control / cause, F (2, 124) = 4.50, p =.0129), and by level of perceived competence on 2 dimensions (Stable, F (1, 124) = 8.10, p = .0052; and Control / cause, F (1, 124) = 4.91, p = .0285).

When the self-serving bias was defined as differences between ratings for the self's and other's wins, ratings for self's wins were significantly more positive than ratings for other's wins on every dimension, Fs (1, 124) range = 4.83(R) - 43.86(S), all ps < .04. This self-enhancing effect was qualified by grade on 3 dimensions (Responsible, F (2, 124) = 5.90, p = .0036, Internal, F (2, 124) = 12.88, p = .00005, and Global, F (2, 124) = 3.86, p = .0237, and by self-perceived competence on 3 dimensions (Responsible, F (1, 124) = 7.27, p = .0080, Internal, F (1, 124) = 8.65, p = .0039, and Stable, F (1, 124) = 5.33, p = .0227).

When the self-serving bias was defined as differences between ratings for self's and other's losses, self-serving effects were found on all dimensions, Fs (1, 124) range = 8.28(R) - 21.16(C-cause), all ps < .005, except Global. This self-protective effect was qualified by grade on 3 dimensions (Responsible, F (2, 124) = 4.50, p = .0130, Internal, F (2, 124) = 6.22, p = .0027, Control (outcome), F (2, 124) = 4.66, p = .0112, and Control (cause), F (2, 124) = 3.46, p = .0344), and by self-perceived competence on the two versions of Control (outcome, F (2, 124) = 8.30, p .0047, and cause, F (2, 124) = 6.63, p = .0112).

The following results examine grade differences in, firstly, whether the Outcome x Person interaction was significant in each grade, and secondly, whether each of the planned comparisons was significant in each of the grades.

Grade Differences

Hypothesis 1. (Self win - self lose) > (Other win - other lose).

The Outcome x Person interaction was not qualified by grade on the 2 dimensions of Stable and Control/ outcome.

In grade 1, the main effect of Outcome (win/lose) was qualified by Person (self/other) on all dimensions, Fs(1,125) range = 26.69 - 80.84, all ps < .00005. The difference in win/lose ratings for the self was significantly greater than this same difference for the other on every dimension. This was the only grade in which mean ratings on two dimensions, namely Internal and Global, for the others' losses were higher than were ratings for the others' wins; this difference was significant on Internal (F (1, 124) = 4.77, p = .0309). The other's losses were viewed as more due to him or her than were his or her wins. This is the most self-serving pattern observed in this study.

In grade 4, the Outcome x Person interaction also was significant on the 2 dimensions of Internal, $F(1,125) = 5.63$, p =.0192, and Control / cause, $F(1,125) = 6.40$, p = .0126).

In grade 7, the Outcome x Person interaction was not significant on any dimensions other than Stable and Control (outcome).

Hypothesis 2. Self-enhancing Effects (ws vs. wo).

Self-enhancing effects were not qualified by grade on the dimensions of Stable, Control (outcome) and Control (cause).

In grade 1, ratings for the self's wins also were significantly more postive than ratings for the others' wins on all remaining dimensions, Fs (1, 124) range = 18.20(R) - 70.20(I), all ps < .00005. The youngest children engaged in the most self-enhancement.

In grade 4, ratings also were significantly more positive for self's wins than for the wins of others on the dimension of Global, F (1, 124) = 6.74, p = .0106.

Hypothesis 3. Self-protective Effects (ls vs lo).

Self-protective effects were not qualified by grade on the dimensions of Stable or Global. Self-protective effects were significant in all grades on Stable, and were not significant in any grade on Global.

In grade 1, ratings for self's losses were significantly more positive than were ratings for the losses of the other on all remaining dimensions, Fs (1, 124) range = 14.99(S) - 30.16(I), all ps < .0003.

In grade 4, ratings for self's losses were significantly more positive than were ratings for others' losses on the dimension of Internal, F (1, 124) = 6.12, p = .0147.

Hypothesis 4. Win versus Lose (ws vs. ls).

In all 3 grades, ratings for self's wins were significantly more positive than for self's losses on all dimension, Fs (1, 124) range (grade 1) = 157.63(I) - 41.19(G), all ps < .00005; Fs (1,124) range (grade 4) = 92.88(I) - 7.88(G), all ps < .0059; Fs (1, 124) range (grade 7) = 32.97 (I) - 12.29(G), all ps < .0007.

In summary, significant self-serving effects were found within every grade; however, on some measures of self-serving bias, the number of dimensions on which they were found decreased as grade increased. Differences between self's wins and losses were significant in every grade, whereas self-enhancing and self-protective effects were found on fewer dimensions as grade increased.

The following results examine whether there were any grade differences in the size of the Outcome x Person interaction, and whether there were grade differences in the magnitude of effects found both within the cells of the interaction (ws, wo, lo, ls), and when the cells were compared as planned (ws vs. wo, lo vs. ls, ws vs. ls).

Hypothesis 1. Outcome x Person x Grade. [(self win - self lose) - (other win - other lose)] x Grade.

The Outcome x Person interaction was significantly stronger in grade 1 than grades 4 and 7 on all dimensions except Stable and Control (outcome), Fs (1, 128) range = 22.39

(R, grade 1) - 4.49(C, grade 1), all ps < .0360. Significant grade differences for this interaction were not found between grades 4 and 7 on any dimension (see Figure 1).

Hypothesis 2. (Self Win - Other Win) x Grade (see Figure 14).

The self-enhancing effects found to be significant in all 3 grades did not differ in magnitude (Stable, Control: outcome & cause).The questions used to assess the stability of outcomes and causes ask how often the individual will win in future, and the likelihood that the cause of winning will be there to make the individual win again. The questions assessing the controllability of causes and outcomes ask about an individual's ability to make him or herself win again, and about how hard it would be to change the cause of the win. Consequently, on these dimensions, all children could be said to be responding with equal optimism regarding their own future wins as compared to the future wins of others.The size of the difference between ratings for own and other's wins was greater in grade 1 than in grades 4 or 7 on 2 dimensions (Responsible 1 vs. 4, F (1,93) = 7.38, p =.0079; 1 vs. 7, F (1,84) = 5.10, p = .0265; & Internal 1 vs. 4, F (1,93) = 20.50, p = .00005; 1 vs. 7, F (1.84) =15.04, p = .0002 respectively). This difference was also greater for grade 1 than grade 7 on the dimension of Global, F (1, 84) = 6.47, p = .0128.

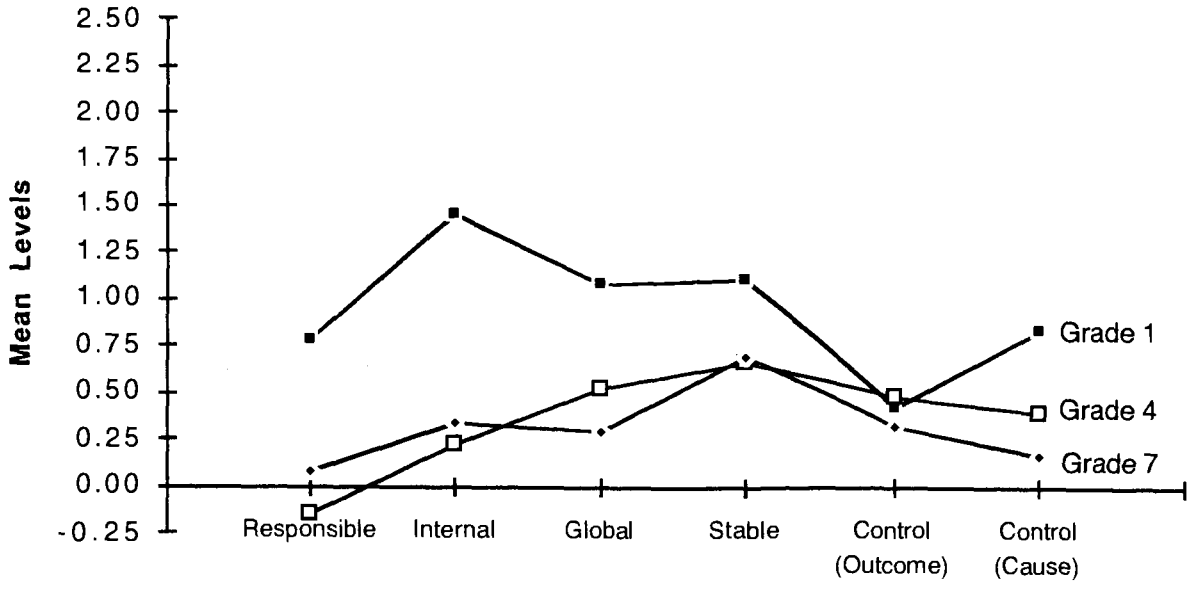


Figure 14. Mean levels of Self-Enhancement (Win Self - Win Other) for each dimension in grades one, four, and seven.

Note. Significant grade differences were found on Responsible and Internal, Grade 1 > 4; Global, Grade 1 > 7.

Hypothesis 3. (Other Lose - Self Lose) x Grade.

As shown in Figure 15, the self-protective effect (ratings for other's losses - self's losses) on the dimension of Control (cause) was stronger in grade 1 than in grade 4, F (1, 93) = 8.80, p = .0038; and in grade 7, F (1, 84) = 10.70, p = .0016. And, self-protective effects in grade 1 were significantly stronger than in grade 7 on Internal, F (1, 84) = 13.47, p = .0004; and on Responsible, F (1, 84) = 8.50, p = .0046. On the dimension of Control (outcome), self-protective effects were stronger in grade 1 than grade 4, F (1, 93) = 4.90, p =.0294; or grade 7, F (1, 84) = 10.56, p = .0017.

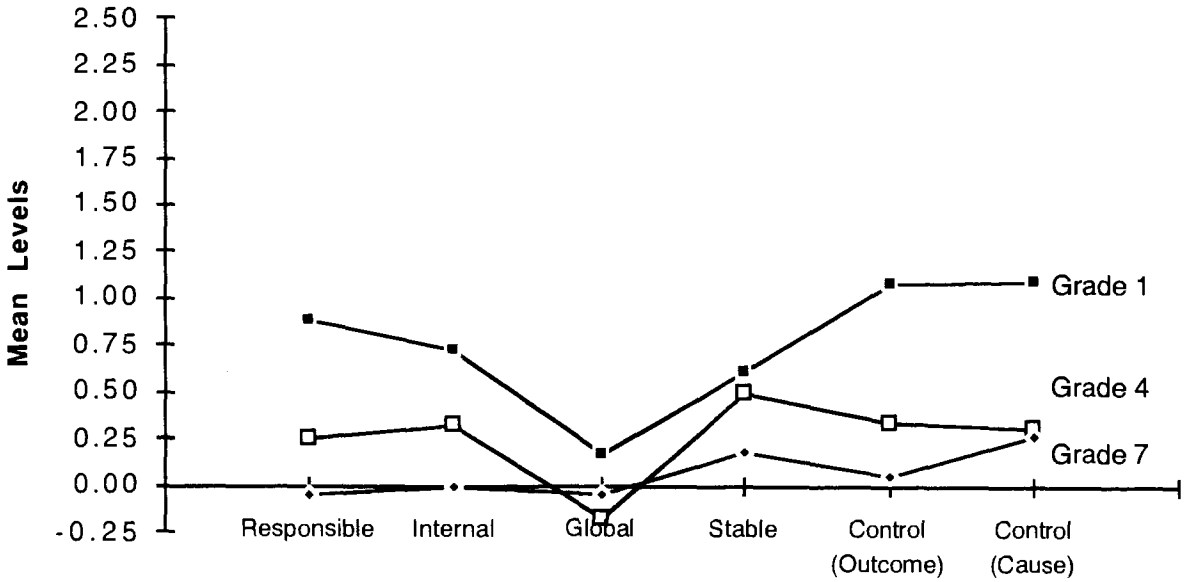


Figure 15. Mean levels of Self-Protection (Lose Other - Lose Self) for each dimension in grades one, four, and seven.

Note. Significant grade differences were found on Responsible, Internal and Control (Cause & Outcome), Grade 1 > 7; Control (Cause & Outcome), Grade 1 > 4.

Hypothesis 4. (Self Win - Self Lose) x Grade.

There was a significant grade interaction on the dimensions of Responsible, F (2, 124) = 7.46, p = .0009, Internal, F (2, 124) = 6.98, p = .0013, and Control (cause), F (2, 124) = 4.50, p = .0129 (see Figure 16).

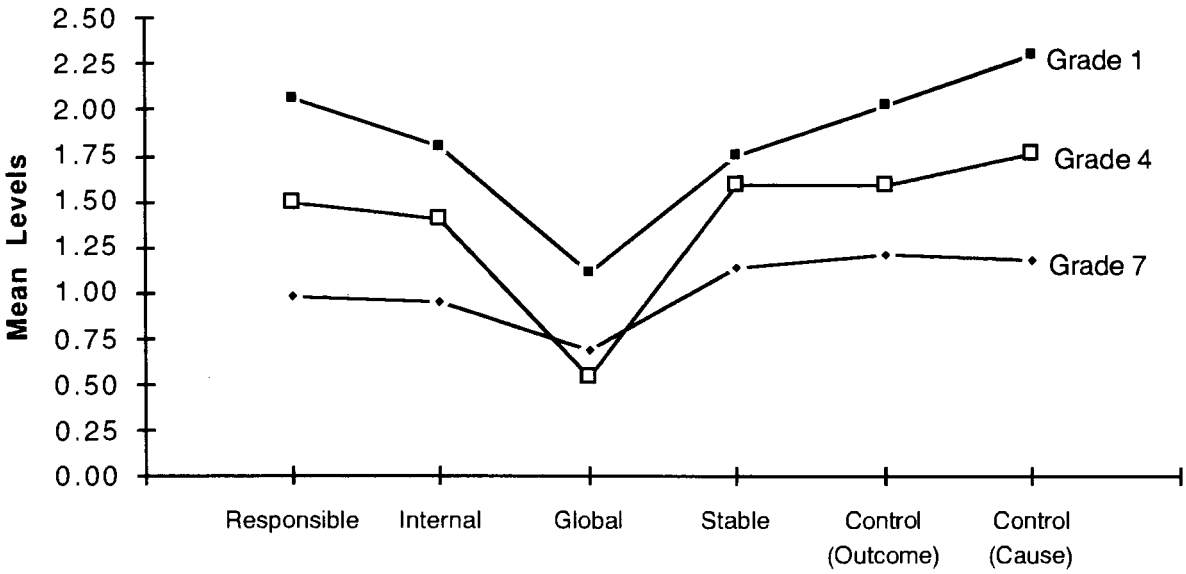


Figure 16. Mean levels of Self-Serving Bias (Win Self - Lose Self) for each dimension in grades one, four, and seven.

Note. Significant grade differences were found on Responsible, Internal and Control (Cause), Grade 1 > 7, 4 > 7.

I had predicted that younger children would make more positive dimensional ratings for their wins and losses (e.g., stronger assertions of being responsible for their own wins, and stronger denials of responsibility for their own losses) than older children. Consistent with this prediction, the difference between ratings for wins and losses was stronger in grade 1 than in grade 7 on Responsible, F (1, 82) = 11.89, p = .0009, Internal, F (1, 82) = 14.68, p = .0002, and Control (cause), F (1, 82) = 9.69, p = .008. The younger children's expectation about their ability to make themselves win or prevent losses in future, or to be able to win on other tasks, was not significantly different from that of the grade 4's or 7's. Other grade differences were found between grades 4 and 7 where the difference between win/lose ratings was significantly greater for grade 4 children than for grade 7 children on the dimensions of Responsible, F (1, 77) = 6.76, p = .0112, and Internal, F (1, 77) = 3.89, p = .0521, and Control (cause), F (1, 77) = 102.92, p < .00005.

Grade differences within each condition (see Figures 2 - 7)

Self Win x Grade.

Grade differences were not found for attributions for self's wins on any dimension, except Stable, F (2, 124) = 5.55, p = .0049 where grade 1 children rated their wins as more likely to reoccur than did grade 4, F (1, 91) = 4.93, p = .0289, or 7, F (1, 82) = 9.80, p = .0024 children (see Figure 5), and Control (cause) where children in grade 1 and 4 rated the changeability of causes of wins lower than did grade 7's (see Figure 6). Consistent with prediction, the youngest children were optimistic about winning again on the same task (stable); however, it was not expected that the younger children would rated the causes of winning as less changeable than the older children. Recall, younger children were expected to view all causes as relatively easy to change.

Other Win x Grade.

In contrast to the above findings regarding own wins, grade differences regarding the wins of others were found on the three dimensions of Responsible, Internal and Global (see Figure 2 - 4). Dimensional ratings for others' wins were significantly greater for grades 4, Fs (1, 91) = 9.78(R), 29.31(I), 7.76(G), ps = .0024, .00005, .0065, and 7, Fs (1, 82) = 5.64(R), 15.40(I), 18.65(G), ps = .0199, .0002, .00005, than for grade 1 on these dimensions. That is, grade 1 children rated the wins of the other less positively than did the older children.

Other Lose x Grade.

Grade differences were found on only one dimension for others' losses. On the dimension of Stable, grade 1 children rated the other's losses as more likely to be present in the future than did children in grades 4 or 7, F (1,91) = 5.80, p = .0180; F (1, 82) = 7.62, p = .0071 respectively (see Figure 5).

Self Lose x Grade.

In contrast to the finding of few grade differences regarding self's wins or other's losses, grade differences were found for ratings of self's losses on every dimension, Fs (2, 124) range = 3.43(S) - 9.19(G), all ps < .04, except Control (cause). Consistent with prediction, children in grade 7 rated their losses higher in Responsibility, F (1, 82) = 9.83, p = .0024; F (1. 77) = 6.98, p = .0100, and Internality, F (1, 82) = 9.60, p = .0027; F (1, 77) = 9.16, p = .0034, than did grades 1 or 4 children (see Figure 2 - 3). I had predicted that the younger children would be the least likely to feel that losing was global, that is, likely on other tasks; however, it was the older children (grade 7's) who reported the lowest ratings of Globality for losses -- significantly lower than grade 1's, F (1, 82) = 6.03, p = .0162, and grade 4's, F (1, 77) = 3.90, p = .0517 (see Figure 4). Overall, these findings indicate the tendency to take responsibility for losing increases with age. This increase in willingness to take responsibility for losing is accompanied by an increase in the view that losses are specific to the task on which one failed.

Children in grades 4 and 7 rated themselves as less able to prevent losing (control outcome) than did children in grade 1. Grade 1 children were more optimistic in their belief that they could prevent losing again.

Grade 1 children rated their losses as more Stable than did children in grade 4 (see Figure 5).

Also note that whereas there were no significant grade differences in how changeable the causes of losses were thought to be, there were significant grade differences in how changeable the causes of wins were thought to be.

Conclusion.

The finding of few grade differences in ratings for self's wins indicates that, in general, children in the 3 grades rated their wins similarly, and the grade differences found on the measures of self-serving bias were not due to differences between grades in their ratings of own wins. The younger children did not make more positive ratings for their wins on Responsible, Internal, Global, and Control (outcome). This indicates that younger children were not displaying a general tendency to respond more strongly (i.e., choose extreme ratings) independent of the outcome.

In general, it appears that the grade differences found in differential win/lose ratings were due to grade differences in ratings of Responsibility for and Internality of self's losses, and ratings of the changeability (Controllability) of causes of self's wins.

In view of the findings regarding grade differences within ratings for self's wins and ratings for other's wins, it appears that grade differences in self-enhancement on the Responsible, Internal and Global dimensions were due primarily to grade differences in how the other's wins were rated.

Similarly, in view of the findings regarding grade differences within ratings for self's losses and ratings for other's losses, it appears that grade differences in self-protection were due primarily to grade differences in how children rated their own losses.

The significant Outcome x Person interaction appears to be due to both self-enhancing and self-protective effects on essentially all dimensions in grade 1. In grade 4, there were self-enhancing effects on all but Responsible, and self-protective effects on all but Global. And in grade 7, there were self-enhancing effects on 3 dimensions (Stable, Control-outcome, & Control-cause) and self-protective effects on Stable. Overall, the self-enhancing and self-protective effects were more prevalent in the younger children (see Table 3 for pattern of significant effects).

Table 3

Pattern of significant effects in the four measures of Self-Serving Bias by Grade for dimensions on which a significant WL x SO interaction was found.

	Dimension	Outcome x Person (WS-LS)>(WO-LO)	Win Self vs Lose Self (WS > LS)	Self-Enhancement (WS > WO)	Self-Protection (LO > LS)
Grade 1					
	R	****	****	****	****
	I	****	****	****	****
	G	****	****	****	ns
	S	****	****	****	****
	C outcome	****	****	****	****
	C cause	****	****	****	****
Grade 4					
	I	*	****	ns	*
	S	***	****	**	**
	C outcome	****	****	**	*
	C cause	****	****	*	*
Grade 7					
	S	****	****	**	**
	C outcome	****	****	*	ns

Note. * $p \leq .05$; ** $p \leq .01$; *** $p \leq .001$; **** $p \leq .0001$ (all tests are non-directional)

Self-Perceived Competence Differences

The following examines the Outcome x Person interaction and the planned comparisons within each level of self-perceived competence.

Hypothesis 1. Outcome x Person interaction.

The main effect of Outcome (win/lose) was qualified by Person (self/other) on all dimensions within the high level of self-perceived competence, *Fs*(1,125) range = 11.05 - 41.21, all *ps* < .001, and on 3 (Internal, *F*(1,125) = 10.34, *p* = .0017, Global, *F*(1,125) = 5.69, *p* = .0186, and Stable, *F*(1,125) = 10.11, *p* = .0019) within the low level.

Hypothesis 2. Self-enhancing Effects.

Differences between ratings for self's and other's wins were found in both levels of self-perceived competence. Children who perceived themselves to be highly competent rated their own wins higher than the wins of the other on every dimension, *Fs* (1, 124) range = 10.09(R) - 45.12(I), all *ps* < .002. Children low in self-perceived competence rated their wins as more Internal, *F* (1, 124) = 6.08, *p* = .0150, Stable, *F* (1, 124) = 10.24, *p* = .0017, and Global, *F* (1, 124) = 9.83, *p* = .0021, than the wins of the other.

Hypothesis 3. Self-protective Effects.

(Other Lose - Self Lose) within levels of Self-perceived Competence.

Ratings for self's losses were significantly more positive than were ratings for other's losses in both levels of self-perceived competence. At the high level, significant self-protective effects were found on all dimensions, Fs (1, 124) range = 10.16(R) - 39.03(C-cause), all ps < .002, except Global. At the low level, self-protective effects were found on 2 dimensions (Internal, F (1, 124) = 8.32, p = .0046; Stable, F (1, 124) = 4.10, p = .0450).

Hypothesis 4. Win versus Lose (Self).

Ratings for wins were significantly more positive than for losses on all dimensions in both levels of self-perceived competence. In the low level, Fs (1, 125) range = 104.57(I) to 23.86(G), all ps < .00005; in the high level, Fs (1, 125) range = 147.90(I) to 26.00(G), all ps < .00005.

Overall, significant self-serving effects were found within both levels of self-perceived competence; however, on some measures of self-serving bias, the number of dimensions on which they were found decreased with level of self-perceived competence. Whereas differences between self's wins and losses were significant in both levels, self-enhancing and self-protective effects were found on fewer dimensions in the low group.

The following results examine whether there were any self-perceived competence differences in the size of the Outcome x Person interaction, and whether there were self-

perceived competence differences in the magnitude of effects found both within the cells of the interaction (ws, wo, lo, ls), and when the cells were compared as planned (ws vs. wo, lo vs. ls, ws vs. ls).

Hypothesis 1. Outcome x Person interaction. [(win self - lose self) - (win other - lose other)] x Self-perceived Competence (Figure 17).

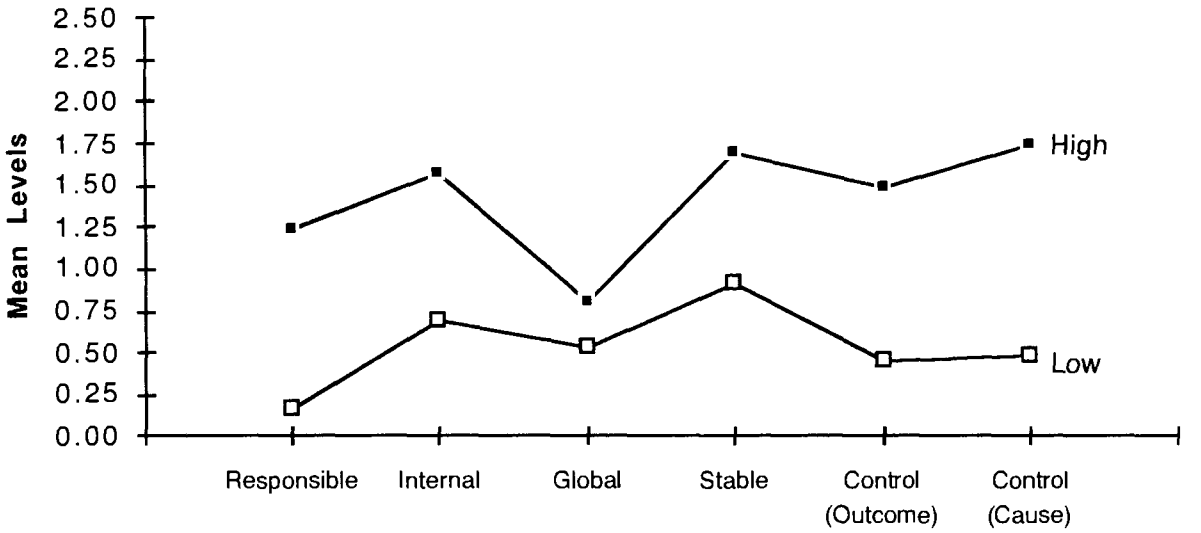


Figure 17. Mean levels of Self-Serving Bias (Outcome x Person) for each dimension in high and low levels of Self-perceived competence.

Note. Significant self-perceived competence differences were found on all dimensions but Global, High > Low.

There was no significant self-perceived competence difference on this measure of self-serving bias on the dimension of Global. On the remaining dimensions (Responsible, Internal, Stable, & Control / outcome and cause), this self-serving effect was stronger for those high in self-perceived competence (see Table 2 and Appendix J).

Hypothesis 2. (Self Win - Other Win) x Self-perceived Competence.

As illustrated in Figure 18, the self-protective effect was significantly stronger in the high self-perceived competence children than in the low group on 3 dimensions (Responsible, F (1,124) = 7.27, p = .0080; Internal, F (1,124) = 8.65, p < .0039; and Stable, F (1, 124) = 5.33, p = .0227. Although Control (outcome and cause) was significant only in the high group, there was no significant difference between highs and lows on this dimension.

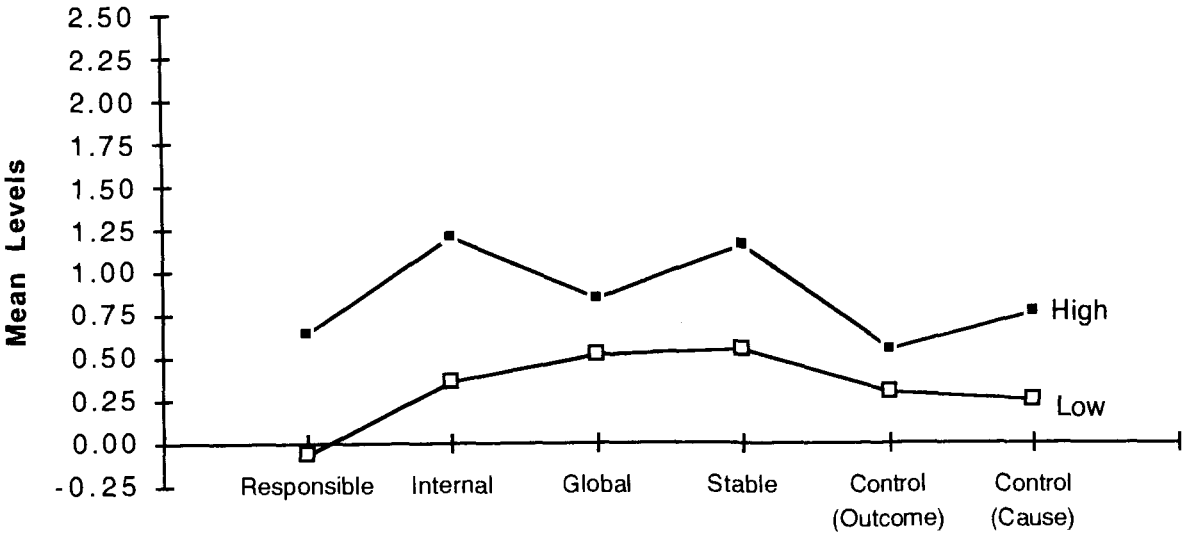


Figure 18. Mean levels of Self-Enhancement (Win Self - Win Other) for each dimension in high and low levels of Self-perceived competence.

Note. Significant self-perceived competence differences were found on Responsible, Internal and Stable, High > Low.

Hypothesis 3. (Other Lose - Self Lose) x Self-perceived Competence.

Self-protective effects were qualified by self-perceived competence only on the dimensions of Control (outcome, F (1,124) = 8.30, p = .0047) and Control (cause, F (1,124) = 6.63, p = .0112); on both dimensions, the effect was stronger for children high in self-perceived competence (see Figure 19).

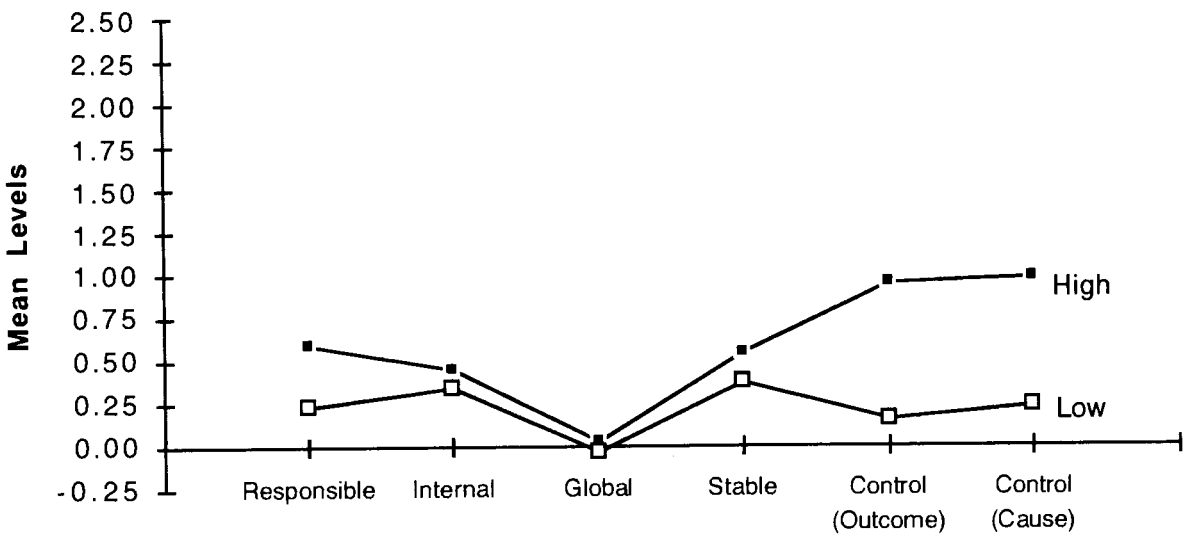


Figure 19. Mean levels of Self-Protection (Lose Other - Lose Self) for each dimension in high and low levels of Self-perceived competence.

Note. Significant self-perceived competence differences were found on Control (Outcome & Cause), High > Low.

Hypothesis 4. (Win Self - Lose Self) x Self -Perceived Competence.

Differences between ratings for wins and losses for the self were stronger in the high self-perceived competence group on the dimensions of Control (cause, F (1,124) = 4.91, p = .0285) and Stable, F (1, 124) = 8.10, p = .0052 (see Figure 20).

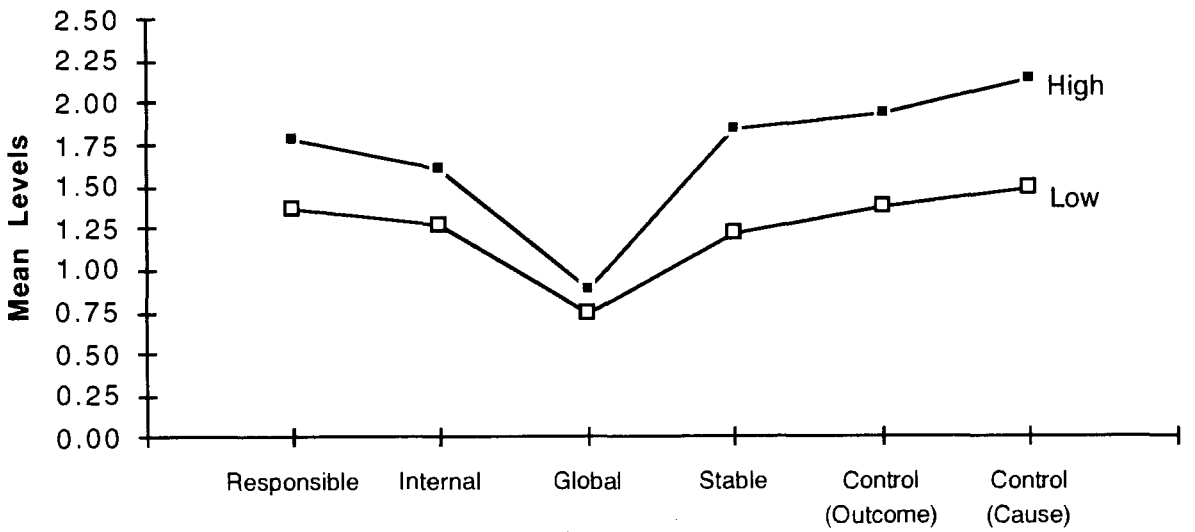


Figure 20. Mean levels of Self-Serving Bias (Win Self - Lose Self) for each dimension in high and low levels of Self-perceived competence.

Note. Significant self-perceived competence differences were found on Stable and Control (Cause), High > Low.

Self-perceived competence differences within conditions (see Figures 7 - 13)

Self Win x Self-perceived Competence.

Within the win self condition, self-perceived competence differences were found on 2 dimensions (Internal, F (1, 124) = 4.38, p = .0384, and Stable, F (1, 124) = 6.46, p = .0122; see Figures 9 & 11). Children high in self-perceived competence rated their wins as more due to them and likely to reoccur in the future than did those in the low group.

Other Win x Self-perceived Competence.

Children high in self-perceived competence rated other's wins as more Internal than did those low in self-perceived competence, F (1, 124) = 3.81, p = .0532 (see Figure 9). It was not expected that high competence children would give the other more credit for wins than low competence children.

Other Lose x Self-perceived Competence.

There was also only one self-perceived competence difference in ratings for others' losses; children high in self-perceived competence rated the other as less able to prevent losing on the same task (control over outcome) than did those low in self-perceived competence, F (1, 124) = 5.20, p = .0242 (see Figure 13).

Self Lose x Self-perceived Competence.

Within the self lose condition, self-perceived competence differences were found on only the dimension of Control (cause). Children high in self-perceived competence rated the causes of their losses as easier to change, F (1, 124) = 5.15, p = .0249, than did those low in self-perceived competence (see Figure 12).

Conclusion.

In view of the differences found above for ratings within self's wins and self's losses, the self-perceived competence differences between ratings for wins and losses appear to derive from differences on ratings of self's wins on Stable, and from differences on ratings of self's losses on Control (cause).

Similarly, self-perceived competence differences within self's wins and other's wins indicate that the significant self-perception of competence differences found for self-enhancement were due to differences within both self's and other's wins on Internal and to differences within ratings for self's wins on Stable. The significant difference found on Responsible was likely due to the marginally significant difference found within ratings for self's wins, F (1, 124) 3.43, p = .0663.

Furthermore, self-perceived competence differences within ratings for self's losses and other's losses, indicate that self-perception of competence differences found for self-protection were due primarily to differences in how controllable the causes of self's losses were thought to be, and how able to prevent future losses the other was thought to be.

The significant Outcome x Person interaction appears to derive from both self-enhancing and self-protective effects in the high and in the low self-perceived competence groups. These effects were, in general, stronger for those high in self-perceived competence (see Table 4 for pattern of significant effects).

Table 4

Pattern of significant effects in the four measures of Self-Serving Bias by Self-Perceived Competence for dimensions on which a significant WL x SO interaction was found.

Self-Perceived Competence	Dimension	Outcome x Person (WS-LS)>(WO-LO)	Win Self vs Lose Self (WS > LS)	Self-Enhancement (WS > WO)	Self-Protection (LO > LS)
Low					
	I	**	****	ns	**
	G	*	****	**	ns
	S	**	****	**	*
High					
	R	**	****	**	**
	I	*	****	****	***
	G	*	****	****	ns
	S	*	****	****	****
	C outcome	***	****	**	****
	C cause	**	****	***	****

Note. * $p \leq .05$; ** $p \leq .01$; *** $p \leq .001$; **** $p \leq .0001$ (all tests are non-directional)

Summary

In all grades and across both levels of self-perceived competence, the self-serving bias, defined as maximizing the self's credit for wins, compared to losses, was evident; win attributions were significantly more positive than lose attributions for the self. Further evidence for the self-serving bias was found in the significantly greater differences between win and lose for the self than for the other on all dimensions in grade 1, three dimensions in grade 4 (I, S, C), and two dimensions in grade 7 (S, C-outcome). Similarly, evidence

for the self-serving bias was found in the significantly greater differences between win and lose for the self than for the other on all dimensions for the high self-perceived competence group, and on Internal, Global and Stable for the low group. There were also significant differences between win and lose ratings for the self and win and lose ratings for the other; those high in self-perceived competence made more self-serving ratings on all dimensions, except Global than did those in the low group.

Self-enhancing effects (win for self > win for other) were evident in all three grades on the dimensions of Stable and Control (outcome and cause). Of the remaining dimensions, self-enhancing effects were found on Responsible and Internal in grade 1, and in Global in grades 1 and 4. These grade differences in differential self-enhancement on the Responsible, Internal and Global dimensions were due primarily to grade differences in how the other's wins were rated.

Self-enhancing effects were also found in both levels of self-perceived competence. On the dimensions of Responsible, Internal and Stable, the self-enhancing effect was stronger for those high in self-perceived competence. Self-perceived competence differences in self-enhancement appeared to be primarily due to differences within both self's and other's wins for Internal, and to differences within ratings for self's wins for Stable.

Similarly, self-protective effects were found in all grades on the dimension of Stable, and were not found in any grade on the dimenion of Global. In grade 1, ratings for self's losses were significantly more positive than were ratings for the losses of the other on all remaining dimensions. In addition to Stable, grade 4's ratings for self's losses were significantly more positive than were ratings for other's losses on the dimension of

Internal. In general, self-protective effects (ratings for other's losses - self's losses) were stronger in grade 1 than in grades 4 and 7. Grade differences in self-protection were due primarily to grade differences in how children rated their own losses.

The self-protective effects found on every dimension were qualified by self-perceived competence only on the dimensions of Control (outcome) and Control (cause); on both dimensions, the effect was stronger for children high in self-perceived competence. Self-perceived competence differences in self-protection were due to differences in how controllable the causes of self's losses were thought to be, and how able to prevent future losses the other was thought to be.

Whereas grade differences between wins and losses for the self, and between own and other's losses were due primarily to differences in how one's own losses were rated, grade differences between self and other for wins were due primarily to how the wins of the other were rated. Self-perceived competence differences were more evenly distributed between the conditions compared.

Analyses Relevant to the Secondary Issues Related to Self-Serving Biases: Ratings of Individual Causes, Performance Evaluations, and Task Repeated

Outcome and Person differences in ratings of causes.

Looking only at the types of causes (e.g., effort, ability, luck, task difficulty, and powerful others) used by children to explain wins and losses of themselves and others, would, I believe, lead one to conclude what other researchers looking a specific causes have concluded in the past -- the self-serving bias does not appear to operate in childhood.

In fact, children appear to prefer internal over external attributions for both successes and failures, and further, according to this study, for both themselves and for others. The most frequently chosen causes given to explain the wins and losses of both the self and the other were effort and ability, causes considered, theoretically, to be Internal (see Table 5; also see Appendix J for percentage by grade and domain).

Table 5

Percentage of Subjects choosing the 5 causes in each of the four Outcome x Person conditions for either the sports or academic domain.

Condition	Win/Self	Win/Other	Lose/Other	Lose/Self
Cause				
Effort	63	63	52	48
Ability	62	55	63	50
Luck	11	18	23	31
Task Difficulty	13	4	13	21
Powerful Others	0	7	< 1	7

Note. n = 131.

In this study, where the focus is on the underlying dimensions of the causes, there are two questions that were asked of the data gathered on the type of cause chosen to explain performance: firstly, are the data consistent with the idea that causes themselves cannot be examined independent of the dimensions underlying them (i.e., does the meaning of a particular cause differ in relation to whether it is attributed to self or other, win or lose); and secondly, if differences in the underlying dimensions of causes are found to vary situationally, are the differences consistent with differences expected with regard to the self-serving bias, that is, are causes for self winning rated more positively in terms of Responsibility, Internality, Globality, Stability and Controllability than the same causes when given for self losing. Further, are such differences observed when attributions are being made for another's performance.

As illustrated in Figures 21 to 24, effort and ability in both domains, in general, follow the self-serving pattern predicted -- win self > win other > lose other > lose self. The pattern is less consistent with the remaining causes of luck, powerful others and task difficulty (see Figures 25 - 30). For example, for luck in the academic domain the pattern of mean ratings for the other is win other < lose other on all but Control where win other = lose other. Across all dimensions, mean ratings for win self are greater than for lose self. The reversal of the pattern for win and lose for other is not what was predicted; however, it is more self-serving than the predicted pattern where win, even for the other, was expected to be viewed more positively than lose. In the sports domain, the pattern for the self is the same (win self > lose self), and the pattern for the other is as predicted (win other > lose other) on all dimensions but Global where the pattern was reversed. In all grades, luck was used more to explain the losses of self and others than to explain wins.

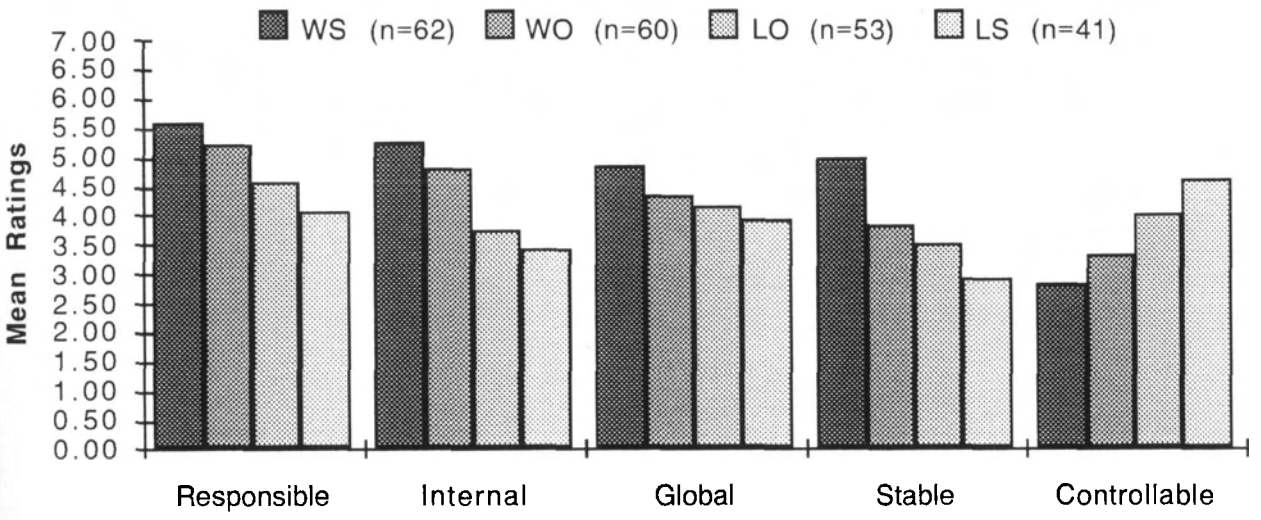


Figure 21. Mean Ratings of Responsibility, Internality, Globality, Stability, and Controllability for Effort (Academic domain) across the four Outcome(Win, Lose) x Person(Self, Other) conditions.

Note. Significant grade differences were found in LS: Responsible, grade 1 > 4; Global, grade 4 > 1, 4 > 7; WO: Internal, grade 4 > 1.

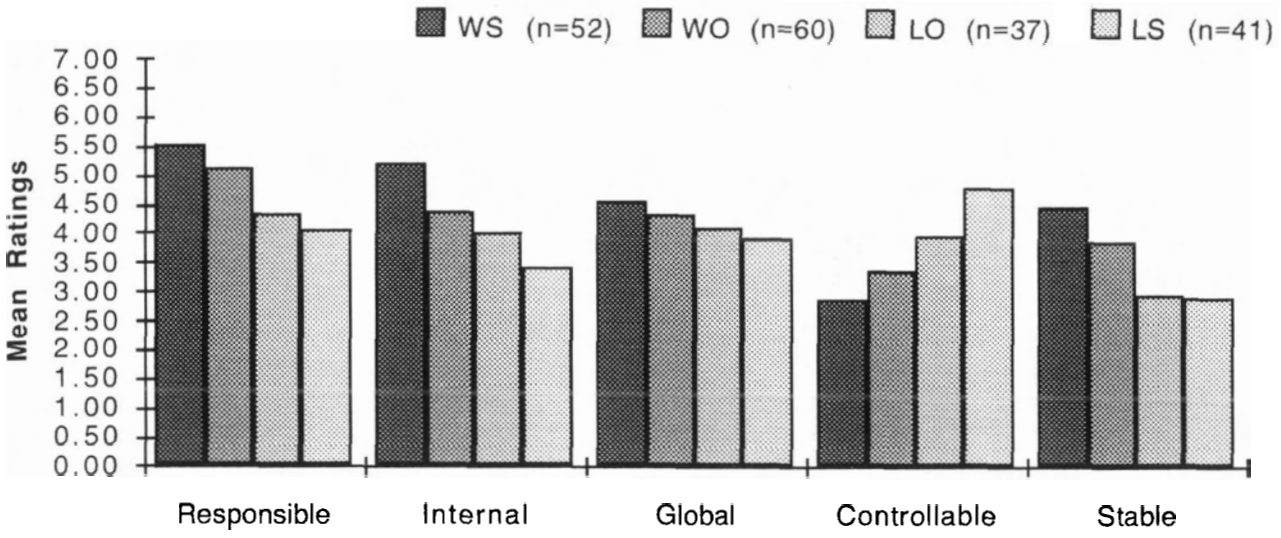


Figure 22. Mean Ratings of Responsibility, Internality, Globality, Stability, and Controllability for Effort (Sports domain) across the four Outcome(Win, Lose) x Person(Self, Other) conditions.

Note. Significant sex X self-perceived competence differences were found in WS: Global, hi > lo, F > M.

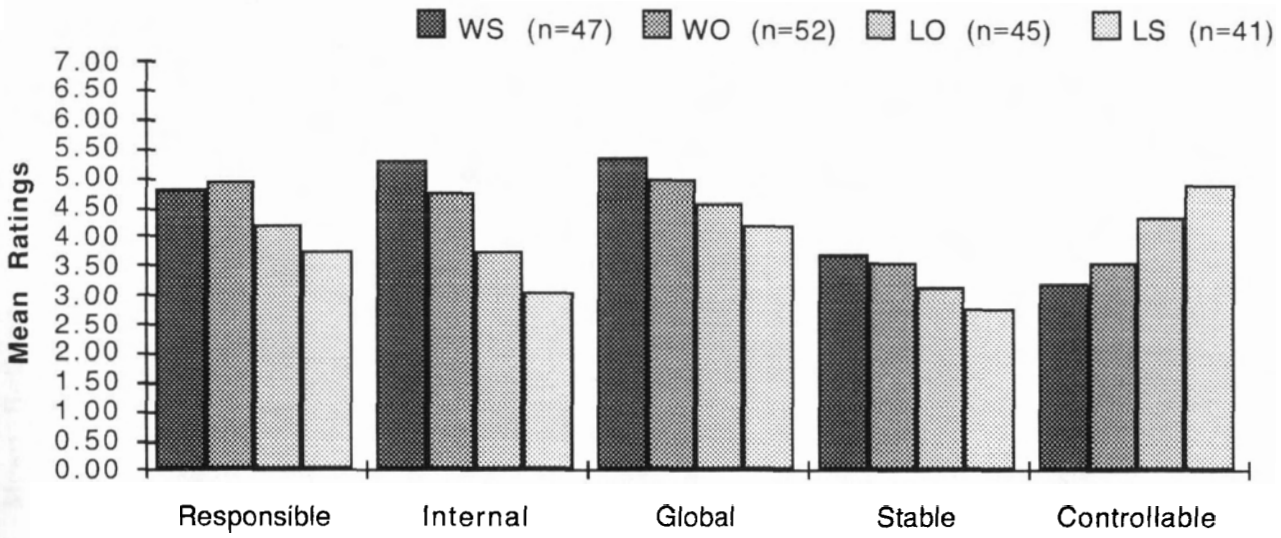


Figure 23. Mean Ratings of Responsibility, Internality, Globality, Stability, and Controllability for Ability (Academic domain) across the four Outcome(Win, Lose) x Person(Self, Other) conditions.

Note. Significant grade differences were found in WS: Global, grade 1 > 4; LS: Internal, grade 4 > 1, 7 > 1. Significant self-perceived competence differences were found in WO: Internal, lo > hi; Control, hi > lo; LO: Responsible, hi > lo; Global lo > hi. A significant sex difference was found in WO: Internal, M > F.

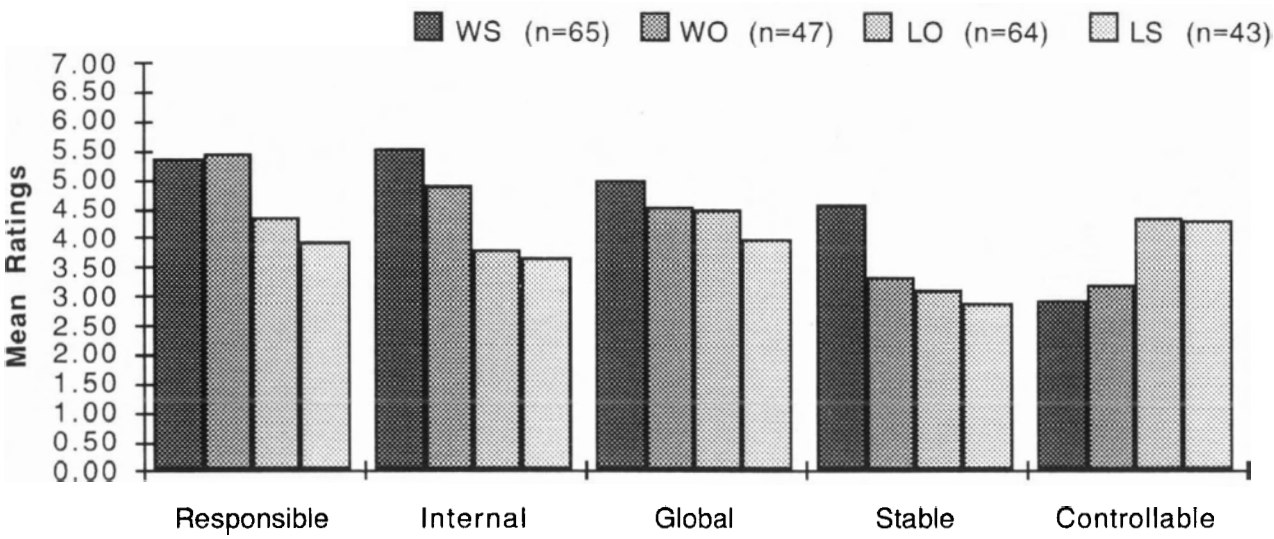


Figure 24. Mean Ratings of Responsibility, Internality, Globality, Stability, and Controllability for Ability (Sports domain) across the four Outcome(Win, Lose) x Person(Self, Other) conditions.

Note. A significant grade difference is found in LO: Stable, grade 7 > 1. Significant self-perceived competence differences were found in WS: Global, lo > hi; WO: Internal, lo > hi. A significant sex X self-perceived competence difference was found in LO: Responsible, hi > lo for males; Stable, lo > hi for females, hi > lo for males.

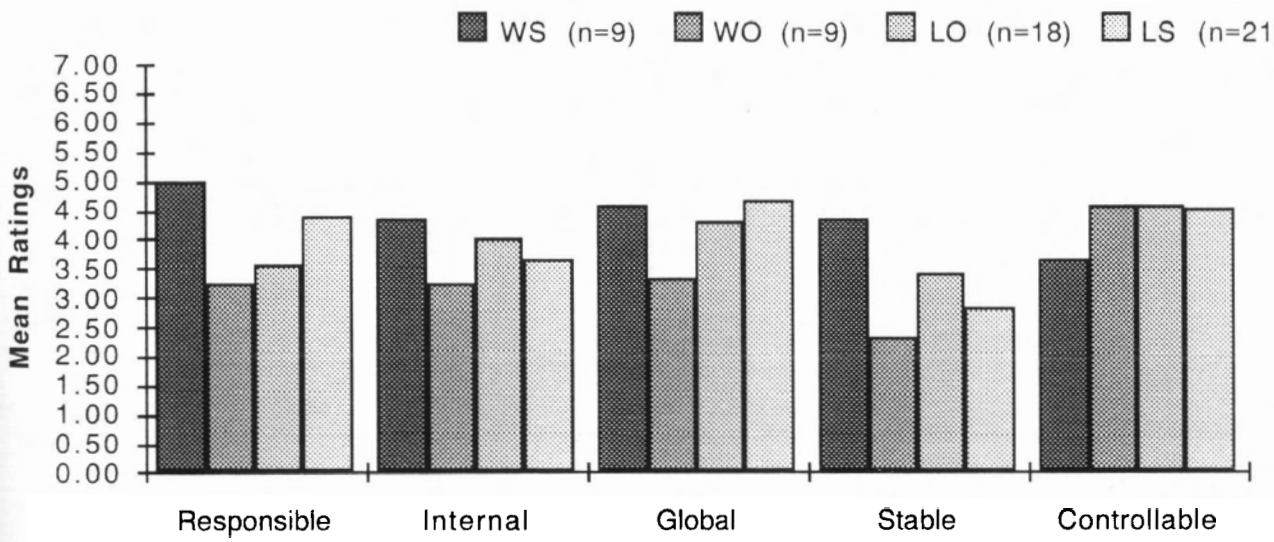


Figure 25. Mean Ratings of Responsibility, Internality, Globality, Stability, and Controllability for Luck (Academic domain) across the four Outcome(Win, Lose) x Person(Self, Other) conditions.

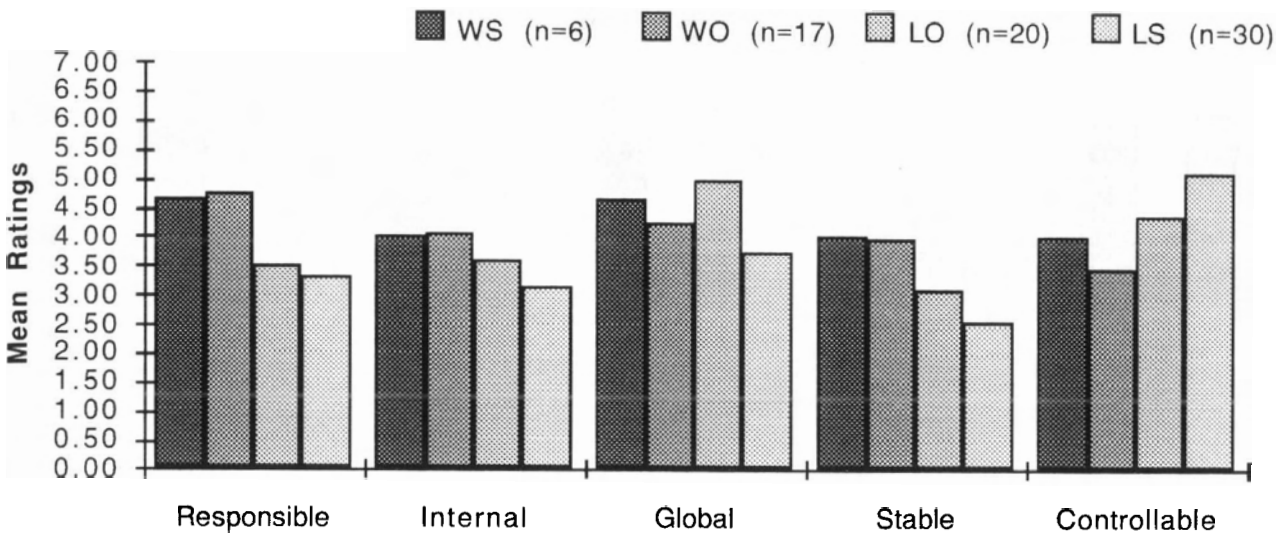


Figure 26. Mean Ratings of Responsibility, Internality, Globality, Stability, and Controllability for Luck (Sports domain) across the four Outcome(Win, Lose) x Person(Self, Other) conditions.

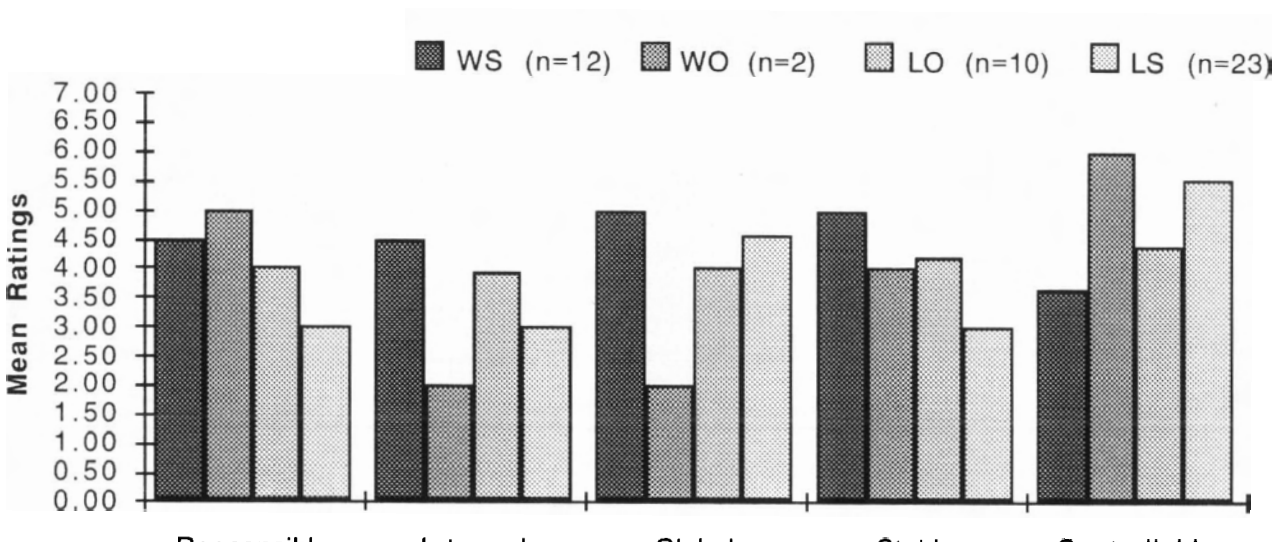


Figure 27. Mean Ratings of Responsibility, Internality, Globality, Stability, and Controllability for Task Difficulty (Academic domain) across the four Outcome(Win, Lose) x Person(Self, Other) conditions.

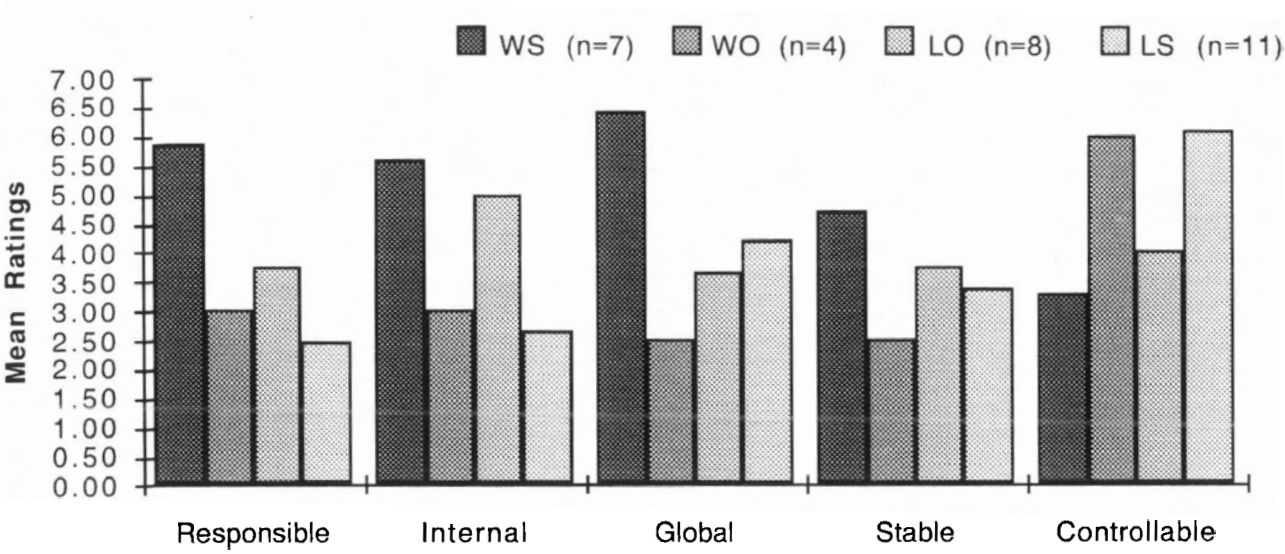


Figure 28. Mean Ratings of Responsibility, Internality, Globality, Stability, and Controllability for Task Difficulty (Sports domain) across the four Outcome(Win, Lose) x Person(Self, Other) conditions.

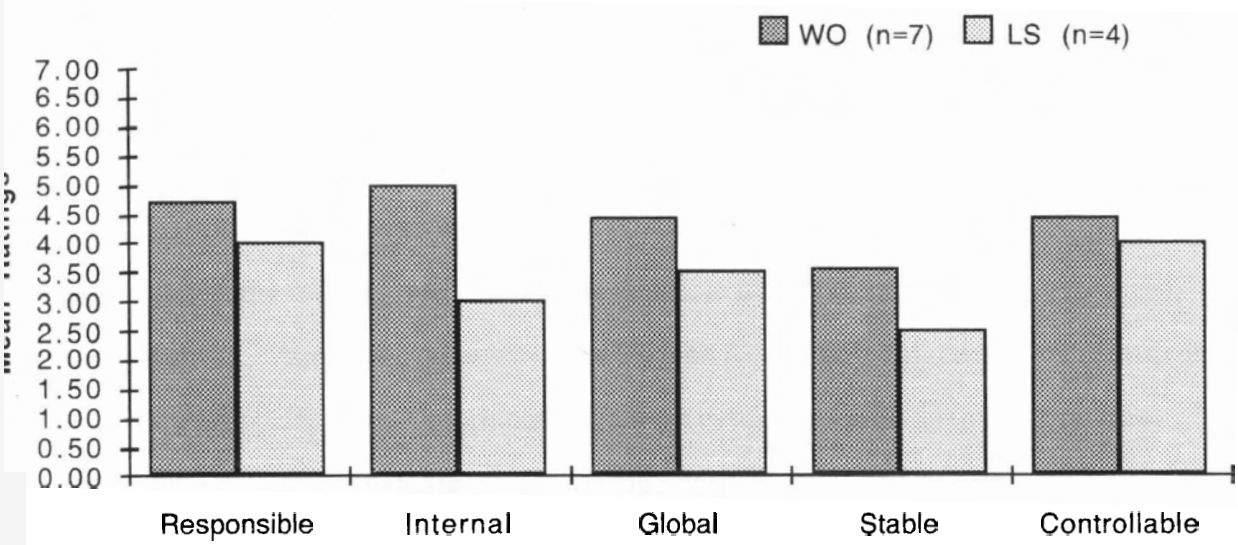


Figure 29. Mean Ratings of Responsibility, Internality, Globality, Stability, and Controllability for Powerful Others (Academic domain) across two of the four Outcome(Win, Lose) x Person(Self, Other) conditions.

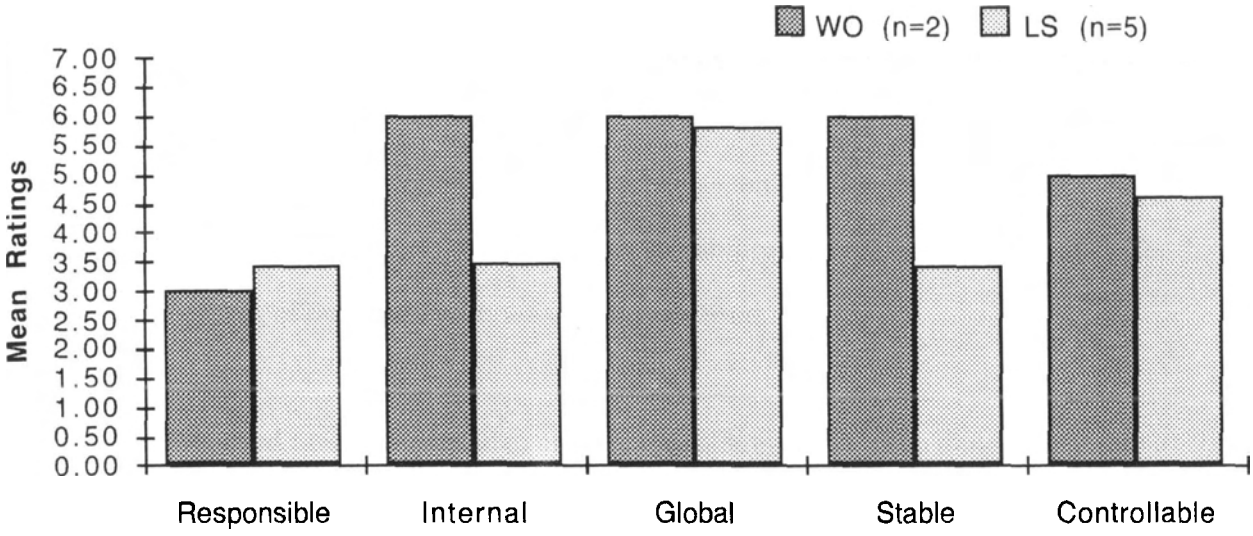


Figure 30. Mean Ratings of Responsibility, Internality, Globality, Stability, and Controllability for Powerful Others (Sports domain) across two of the four Outcome(Win, Lose) x Person(Self, Other) conditions.

Although it was infrequently used as a cause to explain outcomes, powerful others was used almost exclusively to explain the wins of the other and the losses of the self in both domains. That is, the other was viewed as winning because of assistance, and the self was viewed as losing because of hindrance. Similarly, when an outcome was attributed to task difficulty, the self was viewed more favourably on the five dimensions (R,I,G,S,C). For example, the self was rated as more Responsible for a task being easy than for a task being difficult, whereas the other was rated as more Responsible for the task being difficult than for a task being easy. Unfortunately, in most cases, the small numbers of subjects using these causes prohibits significance testing of the differences observed.

The following analyses were conducted to examine the significance of Outcome and Person differences in how the dimensions of specific causes were rated. Because subjects were permitted to choose only one cause -- the one they felt was the 'main reason' for the outcome experienced -- it was possible for one cause to be chosen for one outcome (e.g.,

self's win) and for another cause to be chosen for another outcome (e.g., self's loss). In order to look at the significance of win/lose differences in dimensions underlying specific causes, only cases where subjects chose the same cause for winning and losing for themselves or for others were analyzed. In addition, only causes for which there was sufficient data were analyzed, namely, effort and ability, and only attributions made for the specific causes of outcomes (not outcomes) were used.

Matched t-tests were used to analyze the differences in mean dimensional ratings for the causes, effort and ability, used to explain winning and losing. The purpose of conducting these analyses was to see whether a cause, for example, effort, would be rated differently in terms of Responsibility, Internality, Globality, Stability, and Controllability when one won or lost, or when one was making attributions about another's wins and losses. Results showed that causes used to explain one's own wins were viewed more positively in terms of underlying dimensions than were the same causes used to explain one's own losses. That is, they were generally viewed as more Internal, Stable, Global, Controllable, and one's Responsibility when one won. Although differences between causes used to explain the wins and losses of others were in the predicted direction, that is, more positive for winning than for losing, the differences observed did not reach significance as consistently as the same differences for the self (see Table 6 for the pattern of results for effort and ability).

In summary, the ratings of causes in terms of the five dimensions (Responsible, Internal, Global, Stable, and Control) depended on whether the outcome was winning or losing, and on whether the person experiencing the outcome was the self or the other. The differences observed were in the self-serving direction, that is, attributional ratings for causes for winning outcomes were more positive than attributional ratings for causes of

losing outcomes, and attributional ratings for causes for own wins and losses were more positive than attributional ratings for causes made for the other's wins and losses.

Table 6

Pattern of significant results for Win/Lose differences for Self and for Other on Effort and Ability.

Cause	Effort				Ability			
Person	Self		Other		Self		Other	
Domain	Acad	Sports	Acad	Sports	Acad	Sports	Acad	Sports
	(n=25)	(n=20)	(n=35)	(n=20)	(n=18)	(n=27)	(n=27)	(n=29)
Dimension								
R	**	*	ns	ns	ns	***	ns	***
I	**	****	ns	ns	****	****	**	***
G	*	ns	ns	ns	*	ns	ns	ns
S	****	****	ns	*	*	***	ns	ns
C	**	***	ns	ns	**	**	ns	***

Note. * $p \leq .05$; ** $p \leq .01$; *** $p \leq .001$; **** $p \leq .0001$

Effort and Ability: Sex, Grade, and Self-perceived Competence differences in ratings of dimensions within the Outcome x Person x Domain conditions

Figures 21 to 30 give the mean ratings of Responsibility, Controllability, Internality, Stability and Globality for each of the four Outcome x Person conditions for the five causes -- effort, ability, luck, powerful others and task difficulty in both the sports and the academic domain. Where there existed an adequate sample size (at least 10 subjects per cell), the results of analyses of variance which used the ratings of the dimensions of a cause as the dependent variables, and Sex, Self-perceived Competence, and Grade as the independent variables are reported. These analyses were conducted within the 8 conditions created by crossing Domain with Outcome and Person (Academic Self Win, Academic Self

Lose, Academic Other Win, Academic Other Lose, Sports Self Win, Sports Self Lose, Sports Other Win, Sports Other Lose), and were conducted separately for the causes effort and ability. All significant sex, grade, and self-perceived competence differences are indicated on the figures. For all other causes, the sample sizes were too small to permit such analyses.

The point of conducting the analyses described above was to see whether or not there were any sex, grade, or self-perceived competence differences among the subjects who chose effort (or ability) as the cause for a specific condition. These analyses allowed use of all subjects who had selected a particular cause (e.g., effort) within one of the 8 conditions to determine whether grade, self-perceived competence, or sex differences could be found in the ratings of the dimensions of causes. This study was not designed to investigate the differences in how specific causes were defined dimensionally, consequently, these analyses are, at best, only suggestive.

Grade.

There were significant grade differences in how effort was rated in the academic domain for both own losses and other's wins. Responsibility for self's lack of effort when losing was rated significantly higher in grade 1 than in grade 4; however the likelihood that this same lack of effort would cause one to lose at other tasks (Global) was rated higher in both grades 4 and 7 than in grade 1, that is, grade one subjects were more optimistic. Grade 1 subjects also rated higher than grade 4's the likelihood that their own ability would lead to future wins on academic tasks (Global). When trying (effort) was given as the reason for the other's academic win, grade 4 subjects rated the other's trying as significantly more Internal (due to the other) than did subjects in grade 1.

There were also significant grade differences in how ability was rated. Subjects in grades 4 and 7 rated their own lack of ability on academic tasks they had lost on as more Internal (due to themselves) than did grade 1 subjects. When the other lost at sports and lack of ability was given as the cause, grade 7's rated the Stability of this lack of ability higher (more likely to reoccur on the same task in the future) than did grade 1 subjects. This increase with grade in the rating of stability for ability is consistent with the view that with age comes an increased understanding that ability is a relatively stable attribute. It is, however, interesting that grade differences in ratings of the stability of ability do not occur for other's wins or self's wins or losses.

Self-perceived Competence.

Significant self-perceived competence differences were found only when the cause, ability, was used. When ability was used to explain the academic and sports wins of the other, it was rated as more Internal (due to the other) by low self-perceived competence subjects than by those high in self-perceived competence; however, high self-perceived competence subjects rated other's ability for academic wins as more changeable than did subjects low in self-perceived competence. The other's responsibility for lack of ability on academic tasks was rated higher by high than by low self-perceived competence subjects. The self's own ability for sports and the other's lack of ability for academic tasks were rated by low self-perceived competence subjects as more Global (likely to reoccur in other tasks) than by subjects high in self-perceived competence.

Sex.

A significant sex difference was found for ability for other's wins at academic tasks. Males more than females rated the other's ability as more Internal (due to them). Sex did interact with self-perceived competence in the sports domain for effort for self's wins -- own effort for wins was rated as more Global (likely to cause wins on other tasks in future) by high self-perceived competence subjects than by those low in self-perceived competence; the effect was stronger for females than for males. The other's responsibility for lack of ability at sports tasks was rated higher by high than by low self-perceived competence subjects; this effect was stronger for males. The other's lack of ability was also rated as more Stable (likely to reoccur at other times on the same task) by high than by low self-perceived competence males; this effect reversed for females, where Stability of other's lack of ability was rated higher by low than by high self-perceived comptence subjects.

Summary

Overall, there were fewer grade differences found than I would have expected; in part this is due to the restriction sample size has placed on the interpretation of significant grade main effects and grade interactions with other variables. The differences observed do, I think, suggest that children of different ages view the underlying dimensions of causes such as effort and ability differently, even when given the same conditions (e.g., self's academic win). That the self-perceived competence differences reached significance only for the cause, ability, and primarily when explaining the other's performance is interesting. It appears that credit for the other's ability is most likely to come from low self-perceived competence children, who also view the other's lack of ability as more likely to produce losses on other tasks in the future. Perhaps, children low in self-perceived

competence view ability as less changeable (Controllable) for both wins and losses of the other, although significance was reached only for ability for other's wins. Children high in self-perceived competence held the other more responsible for their lack of ability than did low self-perceived competence children, and they viewed the other's ability when winning as more changeable. There was only one significant sex difference and few interactions with sex; one for effort and one for ability. Males, more than females, appear to view the other as more responsible for their lack of ability at sports and to view that lack of ability as leading to continued failure on the same tasks. Males, more than females, also viewed the other's ability on academic tasks as due to them.

Performance Evaluations

Performance evaluations were obtained after each participant won or lost at each task. The evaluations were made for the self's and for the other's performance. At issue here was whether the self's performances, winning and losing, would be viewed more favourably (rated higher) than the performances of the other. A 2 (Person) x 2 (Outcome) x 2 (Self-perceived competence) x 3 (Grade) x 2 (Sex) x 2 (Domain) ANOVA with repeated measures on Person, Outcome, and Domain was conducted with performance evaluations as the dependent variable.

Overall, evaluations for wins were significantly greater than evaluations for losses. The Outcome main effect was not qualified by person, grade, sex, domain, or self-perceived competence. A Person main effect was also found; the self's performance was rated more positively than the other's performance, $F(1,125) = 10.56$, $p = .005$. The Person main effect was not qualified by domain or sex differences. There were, however, grade differences, $F(2,125) = 13.48$, $p < .00005$, and self-perceived competence

differences, $F(1,125) = 7.47$, $p = .0072$. Self/other differences in evaluative ratings of performance were significant in grade 1, $F(1,48) = 28.27$, $p < .0005$, but not in grades 4 or 7. Furthermore, self/other differences were greater for children high in self-perceived competence than for those low in self-perceived competence. To summarize, evaluations given for wins were significantly greater than those given for losses in all grades, but evaluations for the self were significantly greater than evaluations given for the other in grade one only.

Task Selected to Repeat

All children were given the opportunity to repeat a task in order to see whether the child's level of self-perceived competence would be related to whether the child chose to try a task at which he or she had previously won or lost. It was hypothesized that children with a high level of self-perceived competence -- those who theoretically should be most likely to exhibit a self-serving bias -- would prefer the challenge of repeating a task on which they had previously lost. A 2 (Sex) x 3 (Grade) x 2 (Task chosen: unsuccessful/successful) ANOVA was conducted with self-perceived competence scores as the dependent variable. Results showed that almost twice as many children chose to repeat a task at which they had been successful than at which they had been unsuccessful; however, the self-perceived competence level of those subjects choosing to repeat a task at which they had been previously successful was not significantly different from that of subjects choosing to repeat a task at which they had been previously unsuccessful, $M = 2.90$, S.D. = .57, n = 77; $M = 2.73$, S.D. = .57, n = 39; $F(1,110) = 2.57$, $p = .1116$. There were no significant grade or sex differences evident in level of self-perceived competence in the two groups.

There also was no significant difference in degree of self-servingness (based on the previously described difference score) in the groups of children who chose to repeat a task at which they had been successful or unsuccessful. There also were no grade or sex differences. Correlations between the self-serving bias scores on each dimension and self-perceived competence were rather low, ranging from .13 between the self-serving bias score (Global) and competence to .29 between the self-serving bias score (Control) and competence.

CHAPTER IV

Discussion

There were four ways the self-serving bias was defined in this study. As in previous studies, there was a measure of self-serving bias based on the difference between ratings for wins and losses of the self. More importantly, this win/lose difference in ratings for the self was compared to the difference between ratings for wins and losses of the other. A third way was in terms of self-enhancing effects defined as the difference between ratings for self's wins and other's wins. Finally, there was the difference between ratings for self's and other's losses, the self-protective effect. Regardless of how the self-serving bias was defined, evidence for it was found in this study. Overall, the main predictions of this study were confirmed.

Outcome versus Cause

It had been proposed that self-serving attributions, in children especially, might best be understood if the questions they were asked referred to the outcome specifically and to the cause only indirectly, because conclusions from studies assessing causes are generally reported in terms of the association between self and the outcome, even though this association has not been directly assessed, only implied. In this study, children rated both the outcome and the cause.

Where differences between attributions for outcomes and causes were found, they were in the direction of stronger attributions being made for the outcome. Of course, since the questions were asked about the outcome first, this difference may have been due to

order effects, that is, the most emphatic responses may have been the first ones made. The general finding of few significant differences between ratings for outcomes and ratings for causes across dimensions, along with the finding that the ratings of the dimensions of causes depended on the outcome, supports the contention of Ickes(1988) and Weiner (1985) that causes are not more important than outcomes in determining how children view their performance. It appears that the attributional ratings given by children were outcome-dependent, rather than dependent on the causes children used to explain their performance.

Self-Serving Bias

Win self versus lose self.

The usual way of defining the self-serving bias in past studies has been in terms of the difference between ratings for wins and losses of the self. In this study, this difference was found to be significant on all five dimensions in all three grades and both levels of self-perceived competence. Similar to findings with adults, children viewed their association with outcomes favorably, such that more credit was taken for success than for failure.

Overall, the finding that self's wins were rated more positively than losses is consistent with the research conducted with adults (Snyder, 1976; Wolosin et al., 1973; Streufert & Streufert, 1969), and is consistent with the findings of Stipek and DeCotis (1988), who found that children in the same grades as the children in this study viewed successful outcomes, regardless of cause, as more internal and controllable than failure outcomes, and of McAuley and colleagues (1988), who reported that children who won rated the causes of winning as more stable and more controllable than did children who lost. In this study, the dimensions of stable, global and responsible were also rated

significantly higher for self's wins than for losses, regardless of the causes given for these outcomes.

The difference was significantly greater for younger children, who tended to make stronger denials of responsibility for their losses than did older children. They also felt their losses were more preventable than did older children. Contrary to prediction, the younger children did not make stronger assertions of responsibility for their wins. This is interesting for two reasons: firstly, it, indicates that the youngest children were not simply choosing more extreme statements independent of the outcome. It has been suggested by some researchers that grade differences observed in some studies may be the result of a response bias, because younger children may choose more extreme ends of the scale (Stipek & Gralinski, 1991). In this study, their responses were not more extreme for both wins and losses. Secondly, in recent research investigating the origins of the self-serving bias, it has been suggested that the tendency to engage in self-serving attributions is strongest following failure (e.g., Brown, 1991; Taylor & Brown, 1988, cited in Brown & Rogers, 1991). Brown and Rogers, for example, found that whereas arousal level following success was unrelated to self-serving attributions, arousal level following failure was positively correlated with subjects' denial that failure was due to low ability, and was positively correlated with subjects' attributing the failure to task difficulty. They concluded that their findings are consistent with the motiviational model which "makes its clearest predictions regarding the defense of self-worth under threat" (p. 505).

Evidence for the self-serving bias, defined as differential win/lose attributions for the self was found in both high and low levels of self-perceived competence. However, on the dimensions of Stable and Control, the magnitude of difference between ratings for wins and losses was greater for children in the high self-perceived competence group. The

findings on these two dimensions are similar to the findings of Marsh (1987) who found the size of the difference in ratings for causes of hypothetical successes and failures in the academic domain related significantly to the child's level of self-perceived competence, and moreso to domain-specfic levels of self-perceived competence. Interestingly, this relation was not found on the dimensions which explain subjects' performance (Responsible & Internal). In this sense, the findings are not consistent with those of Marsh. It also was not found in this study that the size of the difference ratings for self's wins and losses correlated highly with the domain-specific level of self-perceived competence. On the contrary, in some cases, the difference score was more highly correlated with the self-perceived competence level in the other domain.

The difference in findings regarding self-perceived competence on some dimensions is likely due to methodological differences between the Marsh study and the present one. Different measures of self-perceived competence were used. Marsh used his own measure, the Self Description Questionnaire (SDQ; Marsh, Cairns, Relich, Barnes, & Debus, 1984), a self-report measure that asks students to rate their ability, enjoyment, and interest in math, reading, and school subjects on a 24 item Academic scale. In addition, the difference scores were based on ratings of statements given to reflect specific causes. For example, the question may be: Suppose you did poorly on a math test. This is probably because:

a. you always do badly on a math test (ability)

b. you spent too little time studying (effort)

c. the test was hard for everyone (external) .

Each option is rated on a 5 point scale from true to false. The difference score is the ability rating for success at math minus the ability rating for failure at math, whereas the difference

scores in this study were based on differential ratings of dimensions for the outcomes and selected causes.

Despite the differences between the Marsh study and this study, the argument had been made in the proposal that one could expect self-perceived competence differences in the self-serving bias based on theory alone. According to theory (Harter, 1985; Marsh, 1984, 1986), if one feels competent in a domain, one is more likely to evaluate winning in that domain as due to the self than is someone who does not feel competent. In the former case, expectations have been met; in the latter, expectations have been violated. The same is true for the relation between losing and perceptions of competence. If one feels competent and loses, the expectation of success has been violated. Theoretically, if you intend to succeed and expect success, you will be more likely to assume responsibility for it when it occurs, and less likely to assume responsibility for failure that was not intended or expected. Furthermore, unexpected events should be considered less stable, that is, less likely to reoccur again (Weiner, 1985; Russell, 1987) -- unexpected events could include failure for the person who feels competent and success for the person who does not feel competent.

One shortcoming of this study with regard to testing this theory is that it did not include a measure of whether or not the performance of the subjects was 'much better or much worse' than they expected; this is the condition under which Weiner (1985) predicts the most unstable causal attributions will be made. In addition, the subjects made their stability and controllability ratings about future outcomes after experiencing a win or loss on the task in question; consequently, their 'expectation' of winning again may have depended more on their most recent performance on the task than on their general perception of competence in the domain. Stipek and Gralinski (1991), for example, found

evidence to suggest that expectations of performance assessed prior to a test may tap a "more generalized expectancy" (p. 369), whereas expectations assessed after the test appear to be based more on the performance feedback received.

In this study, it is, nonetheless, possible to examine whether level of self-perceived competence relates to differences in ratings of dimensions within winning and losing. Consistent with theoretical predictions, when subjects won, those high in self-perceived competence (i.e., subjects who most likely anticipated winning), rated their wins as more Internal (due to themselves) and more Stable (likely to reoccur over time) than did subjects low in self-perceived competence (i.e., subjects who were less likely to have anticipated winning). Similarly, when subjects lost, those who reported high competence rated their control over the 'cause' of losing as higher than did those who reported low competence; that is, those high in self-perceived competence felt the cause was more changeable than did the low competence group. This suggests children's interpretation of whatever caused them to win and lose depended, in part, on their level of self-perceived competence.

It has been argued that the difference between win/lose attributions of children high and low in self-perceived competence does not reflect a bias in perception (e.g., Marsh, 1986), but rather accurate information processing. Children high and low in self-perceived competence may be describing their wins and losses in a manner that accurately reflects their prior experience with successes and failures, and consequently, may be voicing valid expectations about future performance. In this study, subjects low in self-perceived competence rated their wins as less stable than did those high in self-perceived competence; however, they did not rate their losses as more stable than their wins. If subjects low in self-perceived competence expected losses, theory indicates they would view losses as more stable than wins. Again, there are several shortcomings of this study that limit its use

as a test of the theory regarding 'expectations'. Aside from the limitations noted above, there is the question of whether children in the low self-perceived competence group could be described as expressing negative views regarding their competence. The children were placed into high and low self-perceived competence groups on the basis of a median split; however, scores on this measure of self-perceived competence tend to be rather high. Consequently, it is questionnable whether the children in this study 'should have' expected to win or lose on these tasks.

In my opinion, what makes the differential win/lose attributions of high and low self-perceived competence children appear self-serving is the difference between self and other within win and lose, that is, the self-enhancing and self-protective effects found in the different levels of self-perceived competence. The subjects had no prior experience with the other in this study and, consequently, no basis for viewing the other's performance less favourably than their own. Nonetheless, the self's performance was generally viewed more favourably than the other's -- this effect was stronger in the high self-perceived competence group than in the low group.

Self versus other (win - lose).

A main way of defining self-serving bias in this study was to compare the win/lose ratings given for the self with those given for another. The question was whether or not this difference between ratings for wins and losses of the self would be greater than the same difference in ratings given for another. Recall that for some researchers the crucial test of whether differential attributions for wins and losses are self-serving is evidence of self/other differences. Consistent with prediction, the win/lose difference in ratings for the self was greater than this same difference for the other on every dimension. This interaction

was found in all three grades and in both levels of self-perceived competence; however, the support for it tended to decrease with grade and was stronger for those high in self-perceived competence.

The most self-serving group was the first graders -- differential win/lose attributions for the self were significantly greater than for the other on all dimensions in grade one. The subjects in this grade were, in fact, the only ones who viewed the other's losses as more internal and global than his or her wins.

Significant differences between self and other were found on three dimensions in grade 4, and on two in grade 7. This decrease in support for self-other differences across the three grades may reflect real grade differences in use of the self-serving bias as defined by self/other differences; that is, younger children may be more self-serving than older children and believe greater differences exist between their own and other's performance. One reason for this may be the more sophisticated cognitive skills and greater experience of the older children. The greater likelihood that older children consider more types of information before making a judgment may lead them to actually be more objective in judging the other's responsibility for an outcome, especially if responsibility judgments relate to blame and credit. However, this does not seem to affect their judgments of another's future performance; that is, self/other differences in favor of the self are found on some dimensions. In addition, because the self-serving bias is considered to be 'well-established' in adults, it seems unlikely that this bias would decrease across the elementary school years. One difference between this study and some of the studies with adults is that responsibility for outcomes was not divided between the subject and the other; in this study, both the self and the other could be rated equally. More evidence of self-serving bias

might have been found if the subjects had been required to divide the responsibility between themselves and the other as is the case in many of the studies with adults.

Another explanation is that older children understand that being fair is valued in our society. Aspects of the method used in this study may have increased their awareness of whether or not they were behaving fairly (i.e., in accordance with normative standards). Consequently, the lack of significant self/other differences on some dimensions may have stemmed from making attributions for the self and the other consecutively, which may have made the older children more aware than the younger children of being consistent. However, this also doesn't explain why there would be differences on some dimensions and not others, unless attributions on different dimensions are constrained by different normative standards. For example, it is not only true that a normative standard exists against denying responsibility for failure on sports and academic tasks, it is also true that 'optimism' or believing one can perform well in the future (e.g., self-efficacy) is considered not only desirable but, in some domains (e.g., competitive sports), 'causal', in effecting a desired outcome. The dimensions on which differences were not observed were related to responsibility for outcome experienced, whereas, the dimensions on which differences were observed were related to control of future outcomes. Thus, in explaining outcomes, there was little evidence of self-other differences in the older children; however, in predicting future outcomes, there were significant self-other differences.

According to Weiner, Figueroa-Munoz, and Kakihara (1991), the goal of excuses in the achievement domain is to change expectancy and stability attributions accomplish this best. In addition, denying responsibility violates expected norms in our society. In both the academic and sports domains the normative standard is to take responsibility for poor performance. Grove, Hanrahan, and McInman (1991) found differences in attributions for

wins and losses in the sports domain on the dimensions of control and stable, but not locus. They concluded that making internal attributions for losses allowed one to be viewed as a gracious winner and at the same time maintain a high expectancy for future success; consequently, "attributions that appear counterdefensive along one dimension (e.g., locus) may actually be defensive along other dimensions (e.g., stability, control)" (p. 96).

Consequently, increasing awareness of normative standards may prohibit the older children and adults from evidencing a self-serving bias on dimensions related to responsibility for losses. Interestingly, Grove and colleagues also found that when the game was close, subjects opted for the more traditionally self-serving pattern of externalizing responsibility for the loss (e.g., bad umpiring). This could, of course, be due either to the fact that when a loss isn't clearly due to internal factors (e.g., alot less ability or effort) an external cause is more plausible, or to the possibility that when the situation can support externalizing responsibility, one is less obliged to adhere to normative standards against denying responsibility, and is freer to make the kind of attribution one would in the absence of such standards.

It would be interesting to examine the kinds of situations and circumstances which seem to evoke (or permit) self-serving attributions on some dimensions and not others. In the social domain, for example, where the normative standard for assuming responsibility does not appear to apply to failed relationships, one could predict the self-serving bias would be found on dimensions related to locus and/or responsibility. In addition, other factors likely influence the extent to which individuals are willing to assume or deny responsibility for failures. As stated in the introduction, competitive situations seem to evoke more self-serving attributions. And, Brown and Rogers (1991) found higher levels

of physiological arousal following failure led to more self-serving attributions (i.e., more external attributions). Timing, for example, may also be a factor. Blaming poor exam performance on the instructor or difficulty of the exam has been found to be more likely immediately following the exam; this may initially feel better but clearly doesn't make one look better unless social comparison shows everyone who took the test performed poorly. This may explain why attributions assessed at a later date tended to change to more internal, albeit, controllable attributions, which are the more self-enhancing attributions when others performed well on the exam.

It is also possible that the older children understand better that winning and losing to a 'worthy' opponent is more self-enhancing than winning and losing to someone who is not competent. Although consistent efforts to record children's comments were not made, it was noted that some of the older children made comments indicating they felt the other was especially good, or that both they and their opponents had performed well, even though they expected to beat the opponent on future trials. In the early studies with adults (Feather & Simon, 1971; Wortman, Constanzo, & Witt, 1973) subjects who anticipated continuing a task made more positive attributions about the other and more conservative attributions about the self than did those subjects who thought the procedure was completed. These researchers concluded that this attributional pattern allowed subjects to avoid unexpected failure and ensure unexpected success. The former has been found to be more disturbing and the latter more rewarding (Feather, 1969; cited in Grove et al , 1991). Consequently, the subjects may construct esteem-maintaining strategies before even participating.

There also was a decrease in sample size across the grades, so although differences between self and other were observed, the failure to reach significance on some dimensions may have been due to the smaller sample size. In grade 7, the win/lose difference for the

self was greater than the win/lose difference for the other in more than 50 percent of cases with nonzero differences on four dimensions (75% S; 72% I; 58% G; 64% C).

This difference between self and other on ratings for wins and losses was significantly stronger for children high in self-perceived competence on all dimensions, except Global. On Global, children in both high and low self-perceived competence groups made stronger differential win/lose ratings for themselves than for others.The main difference between the children in the high and low groups appears to be in the tendency of the high children to report bigger differences between themselves and the others in their responsibility for, and control over, wins and losses than did the children low in self-perceived competence. In addition, when children rated how they felt about their performance, self/other differences in ratings for wins and losses were greater for children high in self-perceived competence. Overall, children higher in self-perceived competence appear to use the self-serving bias more.

The self-other differences in win/lose ratings appear to derive from both self-enhancing and self-protective effects. That is, children viewed their wins and losses more positively than the wins and losses of others.

Self versus other (win).

Self-enhancing effects were found on every dimension. Although the number of dimensions on which self-enhancing effects were found decreased with grade, children in all grades rated the Controllability (cause & outcome) and Stability of their wins higher than the wins of others. Consequently, in terms of future performance, all children made self-enhancing attributions. Similarly, children in both levels of self-perceived competence

showed self-enhancing effects; however, the number of dimensions on which self-enhancing effects were found was greater in the high group.

Grade differences in self-enhancing effects (ws vs. wo) were found to derive primarily from the tendency of young children to rate their own wins as more Stable and Controllable, and to rate others' wins lower on Global, Internal, and Responsible. The younger children tended to view their own wins more positively than the older children, and the wins of others more negatively. Consequently, with age, self-enhancement was less evident; however, even the oldest children evidenced self-enhancement in their ratings of the Stability of their own wins and their Control over winning and the causes of winning. Children in all grades responded with optimism regarding their own future wins as compared to the future wins of others.

Self-perceived competence differences in self-enhancing effects were found to derive from differences in ratings for both self's and other's wins on Internal and self's wins on Stable. In all cases, children high in self-perceived competence made higher ratings than did those low in self-perceived competence. Compared to children low in self-perceived competence, children in the high group rated their wins as more a result of something about them, and as more likely to happen again on the same task.

Self versus other (lose).

Self-protective effects were also found on every dimension, except Global. As with self-enhancing effects, the number of dimensions on which significant effects were found decreased with grade, and level of self-perceived competence.

Grade differences in self-protective effects (lo vs. ls) were found to derive primarily from differences in how self's losses were rated. There was only one grade difference found in how other's losses were rated -- younger children rated the other as more likely to lose again on the same task than did older children. On the other hand, there were grade differences on all but one dimension for ratings of self's losses. In general, younger children took less responsibility for their own losses, and felt their losses were less due to them (Internal) than did the older children. The younger children also rated their ability to prevent losing higher than did older children; however, they viewed losing as more likely to occur on other tasks (Global) than did the older children.

Self-perceived competence differences in self-protective effects were found on the Control (outcome & cause) dimension only. The effect was stronger for children high in self-perceived competence. These children rated the causes of their own losses as more controllable than did children low in self-perceived competence, and they rated the other's ability to prevent future losses lower than did the children in the low group.

Conclusion.

It is interesting that few grade differences were found for ratings for self's wins. Children in all three grades rated their wins similarly. Grade differences found when ratings for self's wins are compared to self's losses or to other's wins were not primarily due to differences in how children in the three grades rated their own wins. In contrast, ratings given for their losses differed significantly by grade. The younger children were more self-protective when rating their own losses. Similarly, the younger children engaged in more other-derogation when rating the other's wins. They tended to give less credit to

the other for winning than did the older children. Overall, this has resulted in stronger evidence of the self-serving bias, regardless of how defined, in the younger children.

The finding of self-other differences in this study is different from the findings of the one study I found in which children were asked to make judgments about their own as well as others' successes and failures (Whitehead, Anderson, & Mitchell, 1987). Whitehead and colleagues found that elementary school aged children did not make differential win/lose ratings for their own versus others' outcomes. Thus, the finding of self-other differences in this study is particularly interesting.

This study used a methodology similar to that used in studies with adults, employing a skill-oriented task procedure in which subjects' actual win/lose outcomes were reciprocally related to those of others; that is, subjects and the other experienced different outcomes, such that when the subject performed well, his or her opponent did poorly (e.g., Synder, 1976; Wolosin, Sherman, & Till, 1973; Streufert & Streufert, 1969). In contrast, in the Whitehead study, children made attributions for themselves and another on hypothetical tasks with the same outcome. A more important difference between the two studies is that, in the Whitehead study, the children rated causes (luck, ability, task difficulty, and effort), which were assigned to dimensions by the researcher, whereas in this study, children rated the dimensions of causes. The hypothesis proposed in this study -- that children may view the dimensions of the same cause differently for themselves versus others -- was supported. It was found that not only did ratings of causes, in terms of the underlying dimensions, depend on whether the outcome was winning or losing, they also depended on whether the person experiencing the outcome was the self or the other.

Ratings of Individual Causes

If one looks at the type of cause chosen to explain the self's wins and losses, one would conclude what other reseachers who have looked at specific causes and assigned them to dimensional categories have concluded: a self-serving bias does not appear to operate in children, or if it does, it is 'weak' (Harter, 1985). In general, the majority of studies have found that children, in fact, prefer internal over external attributions for both successes and failures (e.g., Nicholls & Miller, 1985; Connell, 1985; Harter, 1985). Consistent with the findings of these studies, children in this study selected causes traditionally considered to be internal (e.g., effort & ability) most often for both own and others' successes and failures. However, they rated these causes differently in terms of underlying dimensions, depending on whether they won or lost. Inasmuch as the underlying dimensions determine the self-servingness of an attribution, the assessment of dimensions in this study leads to a conclusion different from that of the studies reviewed. That is, whereas it is true that children primarily chose internal causes (effort & ability) for both successes and failures, it is not true that they viewed these causes as equally internal for each outcome. Effort, for example, was viewed as more internal when children won than when they lost, and both effort and ability were rated differently on the other dimensions (i.e., responsible, control, stable, & global), depending on whether wins or losses of the self or others were being explained.

There also were no grade differences found when ratings for wins and losses were compared for either effort or ability; in all grades, children rated effort and ability for winning higher than they rated these causes for losing. This is consistent with the studies of Whitley and Frieze (1985), Marsh (1987), and Varma and Krishnan (1986), who found no grade differences in differential win/lose ratings for these causes.

Somewhat surprisingly, few grade differences were found on the ratings of the dimensions of causes within the 8 conditions (Outcome x Person x Domain); where found, ratings were higher for the first graders. I had thought that causes such as luck might be rated as more internal by grade one children than by grade 7 children; however, the condition (win self, lose self, win other, or lose other) seemed to be the more powerful indicator of how causes would be rated in terms of underlying dimensions, regardless of grade. This is not to suggest that every cause (effort, ability, luck etc.) was rated the same in terms of how controllable or responsible one was for it; however, children did not, for example, consistently rate luck as less controllable than effort or ability across conditions.

Children had been asked to give a cause for winning and losing. Their choice of causes differed somewhat by grade in terms of how often a cause was given within a condition (e.g., choosing 'luck' to explain self's academic loss versus self's academic win). It is also interesting that the pattern of use, for example, powerful others used as a cause predominantly to explain self's losses and other's wins, is suggestive of the operation of a self-serving bias. However, the ratings of dimensions of a cause did not consistently differ by grade.

Choice of Task

It is interesting that in this study there were no self-perceived competence differences in whether children chose to repeat a task at which they had been previously successful or unsuccessful. The majority of children preferred to repeat a task at which they had been previously successful. This may have been due to the competitive nature of the tasks in which the children engaged. The children were unaware that the final task was not

being counted as part of some overall score, and they may have been primarily concerned with obtaining the highest overall score they felt possible in order to beat the fictitious other.

Conclusion

At the beginning of this study, I listed several things that were unknown about the self-serving bias in children. This study has found that children across the elementary school years view themselves as more responsible for their successful performance than for their unsuccessful performance, and they also view their own successful outcomes as more internal, stable, global, and controllable than their unsuccessful outcomes, when dimensions are looked at rather than causes.

This study investigated five dimensions, which is more than have been looked at previously in a single study with children.There were some effects which indicated that the self-serving bias was stronger on some dimensions than on others. For example, ratings on the Internal and Stable dimensions tended to be higher than on the other dimensions. And, whereas ratings of Internal were higher than ratings of Stable in grade 1, this pattern reversed such that ratings of Stable were greater than ratings of Internal in grades 4 and 7.

I had suggested in the introduction that the assessment of outcomes on the two dimensions of Responsible and Control, which roughly correspond to locus (due to you, produced by you), are the most consistent with definitions of the self-serving bias. Although these were the most highly correlated dimensions within each of the four conditions (win self, win other, lose other, lose self), self-serving attributions on Internal and Stable were the strongest. There also were grade differences indicating that the self-

serving bias may be found on different dimensions for children of different ages. Recall the earlier discussion regarding normative standards against denying responsibility, and the use of stability attributions to promote expectations of future success; this pattern was clearly more evident as grade increased. The greater perspective-taking ability of the older children may have resulted in an increased awareness of the social/situational demands in generating explanations for performance.

In recent research, Anderson (1991) found that adults may think spontaneously in terms of only a few of the standard dimensions used by researchers. The strongest evidence was that when adults spontaneously generate both the causes of hypothetical successes and failures of others in the social domain, and the dimensions to which the causes are assigned, the dimensions generated appear to reflect a major concern with personal control (can anything be done about it), and a concern with locus (whose fault is it). According to Anderson, this kind of thinking, necessary in determining reward or blame and for adaptation to future situations, is accessed through consideration of the locus and controllability of causes of outcomes. The concern with locus seems inconsistent with my suggestion that, for the older children in my study and perhaps adults, explanation (whose fault it is) may not be a primary concern. There are, however, several differences in the focus and methods of these two studies. Firstly, the domains studied differ, and the concerns related to dimensions may be domain-specific. Whereas the primary concern in the academic and sports domains may be future performance, concerns in the social domain may relate more to explanation (e.g., blame and credit). To my knowledge, normative standards against denying responsibility for failures in the social domain do not exist. I feel certain that divorce lawyers will attest to the absence of a normative standard for assuming personal responsibility for the breakdown of the marital relationship. Secondly, findings of the Anderson study, where subjects were asked to categorize causes and define

dimensions of these categories in the absence of generating those causes to explain an outcome they had experienced, may indicate only the kinds of dimensional distinctions adults typically make when not personally involved in explaining their own performance. The self-serving bias predicts that dimensions of causes will be viewed differently when the outcomes being explained are those of the self.

Because the dimensions underlying causal thinking are considered to be an important determinant of everyday thought, emotion, and behavior, it seems necessary for understanding their influence to consider more closely not only our assumptions about causes and the dimensions that underly them, but also how causes and dimensions might vary across domains, situations, and individuals. For example, clinicians and researchers engaged in attribution therapies aimed at getting people to think less depressively, be more popular, be less shy, less lonely, or less aggressive, persist after failure at tasks et cetera need to be informed as to whether the subject is viewing causes and the dimensions underlying them in the same manner as is assumed by the therapist or researcher. Teaching new attributional styles, especially to children, requires understanding how the causes are understood, and which situations and circumstances elicit different definitions of the same cause.

In addition to consideration of the circumstances under which the conceptualization of causes may vary, there is also the question of the relation of dimensions and causes to outcomes. This study gathered information about <u>both</u> causes and outcomes. This information indicated that emphasizing causes, rather than outcomes, may not be necessary when looking at differences in how children view their own and other's performance; indeed, the dimensional ratings of causes were found to depend, in large part, on the outcome.

This study also extended the examination of self-serving bias in children to include self-other differences, finding evidence that self-other differences in attributions for wins and losses exist to varying degrees across the elementary shool years, and across high and low levels of self-perceived competence. Prior to this study, it was also unknown whether children, like adults, exhibit self-enhancing (self win > other win) and self-protective (self lose < other lose) effects. In addition, evidence on which dimensions these effects were found in three grade levels, and in two levels of self-perceived competence, has been provided.

Overall, this study has achieved the goal of providing a more comprehensive look at whether or not a self-serving bias operates in children. In the review of the literature (Appendix A), the point was made that different theoretical perspectives have led to different conclusions regarding the likelihood that children will assume control or responsibility for outcomes. Research in the social-learning area led to predictions that children would attribute most outcomes to powerful others; that is, they would accurately perceive that most events were controlled by parents or teachers, and only with increasing age would they perceive their own effect on events. This perception was expected to lead to higher internal locus of control scores with age. On the other hand, cognitive-developmental research findings suggested that children do not accurately judge the contingency of outcomes, and generally overestimate the contingency between outcomes and behavior. The research by Weisz, for example, indicated noncontingency was not well understood by young children. If young children are egocentered in the sense of implicating themselves in causal explanations, attributions to internal causes should decrease as children began to perceive that events are beyond their own and others' control. Prior to this study, evidence seemed to support the cognitive-developmental predictions --

children were found to take responsibility for most outcomes, negative or positive. The findings of past studies which have examined causal attributions indicate high use of internal causes (effort & ability) by children across successes and failures and across all grades.

The evidence from this study indicates that children may not operate much differently from adults with regard to their assumption of control and responsibility for events; the important qualifying factor for both seems to be the outcome, that is, whether they won or lost.

APPENDIX A

Historical Review of the Literature

Control theory is concerned with the beliefs of individuals about the causes of important outcomes in their lives. Under the rubric of control theory constructs such as locus of control, learned helplessness, attributional style, self-efficacy, and egocentric biases have been studied. Perceived control, the perception of a causal relation between one's behavior and important events in one's environment, is believed to predict important aspects of motivational, emotional, and cognitive functioning (see for example, Seligman, 1975; Abramson, Seligman, & Teasdale, 1978; Weiner, 1985; Weisz, 1980; Lerner, 1977; Janoff-Bulman, 1979). Four major areas in control research will be reviewed: locus of control, learned helplessness, attributional dimensions related to control, and self-serving biases. Control has been conceptualized somewhat differently by various theorists and this has led to some seemingly contradictory findings. For example, some researchers have reported that depressives' feel they lack control over events in their lives, whereas others report that depressives blame themselves for events in their lives. Furthermore, some theorists predict that perceptions of control in children will increase, whereas others predict these perceptions will decrease with age. These issues may be resolved once the differences in focus of the various researchers are considered.

One well-researched area related to control theories, at least with adult populations, is that of biases in the perception of control. These appear to operate extensively in normal individuals' apprehension of their relation to events; however, whether and how they operate in children has not been determined. Certain predictions regarding childrens' perceptions of control drawn from social and learning theories contradict those from

developmental theories. One purpose of this review is to consider how control has been conceptualized and operationalized within the adult-based studies; another purpose is to present the evidence against the veridicality of adults' perceptions of control; yet another is to consider whether the predictions drawn from the findings with adults can be meaningfully applied to children, especially as they relate to the self-serving bias.

Locus of Control

The construct of locus of control developed within a social-learning framework (e.g., James, 1957; Phares, 1957, cited in Rotter, 1966) involves the effect of reinforcement on learning and behavior. In the mid-60's when Rotter (1966) noted that the effect of reinforcement depended on whether or not the individual perceived a causal relation between his or her own behavior and the reward, it seemed clear that believing such outcomes were contingent upon one's own behavior (a belief in internal control) would have important positive consequences for an individual. Theoretically, people who view reinforcements as contingent on their own behavior or attributes would be better adjusted than those who see such outcomes as determined by external causes such as fate, chance, or powerful others. Obtaining rewards would be more predictable if controlled by some behavior or relatively permanent attribute of oneself. This belief in control over rewards was termed internal locus of control. The belief that rewards were controlled by others would mean that they were less predictable; one would be less sure of how to obtain rewards. This belief was termed external locus of control. Previous experiences of behavior-reward contingency would lead to general expectations about one's ability to control rewards, imparting a sense that one's world is ordered and predictable.

In constructing his measure of locus of control, Rotter assumed that there existed a general predisposition to make internal or external attributions regardless of whether the outcome was positive or negative. Although he originally based his theory on individual's notions of causality about rewarding events, his measure did not make a distinction about the valence of the outcome. Additionally, differential predictions were not made for types of external beliefs. Individuals who believed that either luck, fate, or powerful others controlled important events in their lives were all thought to experience similar negative feelings. Typical questions on the Rotter measure to assess externality went something like:

> When I get what I want, it's usually because I'm lucky.
> Often there is no chance of protecting my personal interests from bad luck happenings.

Internality was measured as endorsement of statements like:

> I am usually able to protect my personal interests.
> I can pretty much determine what will happen in my life.

Support for the connection between locus of control and mental adjustment has been reviewed by Levenson (1973), who concluded that findings are mixed. Whereas some researchers reported that externality was related to psychiatric problems (e.g., Shybut, 1968; Cromwell et al, 1961; cited in Levenson, 1973), others reported no differences (e.g., Harrow & Ferrante, 1969; Smith, 1970; Fontana & Gessner, 1969; cited in Levenson, 1973).

The hypothesized link between locus of control and mental health led to the expectation that therapeutic gains (clinical improvement) could be measured as an increase in internality if internality was taken to "signify mastery over the environment and competence" (Levenson, 1973, p. 397). In her review, Levenson reported that findings were mixed, with some researchers reporting decreases in externality with treatment (e.g., Smith, 1970; Dua, 1970; cited in Levenson, 1973) and others reporting no changes (e.g., Harrow & Ferrante, 1969, cited in Levenson, 1973).

Levenson speculated that the confusion in the literature might be due to Rotter's failure to differentiate between externals who believe control is in the hands of powerful others and externals who believe chance controls events in their lives. She modified Rotter's scale and developed a multidimensional locus of control scale that contained three control scales: internal, chance, and powerful others. She reasoned that believing the world was unordered (controlled by chance) would lead to different behaviors than believing the world was ordered, but controlled by powerful others. In the former case, there would be nothing one could do to influence one's fate, whereas in the latter case, one could do what powerful others demanded. Typical items on this scale were:

When I get what I want, it's usually because I'm lucky.
My life is chiefly controlled by powerful others.
I can pretty much determine what will happen in my life

Levenson found that psychiatric groups could be differentiated on the basis of their externality scores. Paranoids and schizophrenic groups were higher in externality than neurotic or normal groups. Interestingly, there were no differences between the groups on internality. Although paranoids scored the highest on control by powerful others, they also

scored highest on internality. This latter finding seemed counterintuitive because paranoids seemed to be endorsing contradictory statements. Levenson reasoned this may have been because the internality dimension was reflecting one's sense of personal competence; therefore, paranoids might feel as competent as others, but may not feel they control the opportunities to express or utilize such competence. For example, paranoid individuals might endorse external and internal statements in this way: Whether I can be a leader depends mostly on my ability (internal), but If I don't suck up to powerful others I am not likely to be made one (external). Similarly, one could endorse the following two items from seemingly incompatible scales: I can get most of my plans to work (internal), and I do this by ensuring that they fit with the desires of powerful others (external). So, the internal scale may get at a person's sense of competence but not at whether the individual feels she/he has personal control over the event.

This distinction between competence and control is similar to the distinction made by Skinner, Chapman & Baltes (1988) who pointed out that control beliefs involve means-ends beliefs (there are causes that produce outcomes) and also agency beliefs (the means are available to me). A third belief was about the extent to which one can obtain outcomes regardless of cause. So, a paranoid subject may be saying something like: There are causes for success, and those causes are available to me; however, others stand in the way of my obtaining a successful outcome. Contingency is acknowledged, agency is believed, but personal control is not felt to be there.

A similar problem exists in some of the measures of general locus of control used with children; different aspects of control beliefs have not been assessed. For example, based on Rotter's (1966) definition of locus of control, Nowicki and Strickland (1973)

developed a measure of general locus of control orientation. Situations included were affiliation, achievement, and dependency. Typical items included:

Are you often blamed for things that aren't your fault?

Do you believe wishing can make good things happen?

Do you believe kids are just born good at sports?

If a child answers no to all of the above questions he or she is making internal responses.

Nowicki and Strickland found several correlates of internality and externality in children. For males, internality was related to academic competence, social maturity, and "independent, striving, self-motivated behavior" (p. 154). Internality was also found to increase with age, a finding considered important to the construct. As children age, it seems logical to assume that an increased sense of competence and a decreasing control of rewards by powerful others would result in an increasing belief in an internal locus of control (Lefcourt, 1976; Wiesz & Stipek, 1982). It was not clear, however, what aspects of control beliefs should increase, decrease, or which ones were responsible for the relations with competence and achievement.

Skinner and colleagues (1988), as mentioned above, pointed out that perceptions of control included contingency beliefs and beliefs about personal competence and personal control. They designed a measure of children's perceptions of control that assessed each of the three sets of beliefs separately. They found that the relation between internal locus of control and achievement was due primarily to agency beliefs (Skinner et al., 1988); however, it did not appear to be only agency for causes typically considered internal (e.g., ability, effort) but also for causes typically considered external such as, luck. Subjects in

this study reported having many internal and external causes available to them. The aspect of control beliefs that correlated most positively with locus of control measures such as the Nowicki and Strickland was means-ends beliefs. Means that they included in their measure were: powerful others, effort, attributes, luck, and unknown means. They found that beliefs about the effectiveness of causes in general decreased developmentally; however, the differences between the causes in terms of their effectiveness increased with age. It may be, then, that the increase in internality with age found on the Nowicki and Strickland measure is due to an increased understanding of the relation between means and ends.

The relations between different dimensions of control beliefs were also investigated by Weisz, Weiss, Wasserman and Rintoul (1987) who made a similar distinction between contingency, competence, and control. In their study, beliefs about contingency were measured separately from beliefs about one's competence to perform outcome-relevant behavior; a third belief measured was perceived control, defined as the belief that that one can cause the desired outcome. In their study of clinic-referred children aged 8 - 17 years, they found that self-reported depression was negatively related to personal competence. The children did not believe in personal efficacy, indicating the belief that outcomes, even if contingent on behaviors, were not attainable by them. Depression was not found to relate to perceived noncontingency; however, it was related to uncertainty of contingency (unknown causes for success and failure). Whereas beliefs in noncontingency refer to sources of control that are external to oneself, beliefs in unknown causes refer to uncertainty about whether the causes are internal or external to oneself.

Overall, locus of control research focuses on internality and its relation to expectations of control. Internality as measured in many of the scales of generalized locus of control may include at least three sets of beliefs discussed above. The early finding that

internality relates positively to comptetence could be due, for example, to the belief that there are means available to obtain ends, and/or the belief that means are available to the individual. Regardless of whether the means are considered internal or external by the investigator, individuals with an internal locus of control believe that they can obtain desired goals. Furthermore, measures which assess beliefs about causation are likely to find that individuals who attribute positive events to internal causes will also expect future success, although this expectation may not be directly measured.

Learned Helplessness

Whereas locus of control research was investigating the individual's perception of control over rewarding events, learned helplessness literature within a learning framework was concerned with the individual's perception of control over aversive events. Overmeir and Seligman (1967) examined behavior in response to aversive, uncontrollable events. They found that once dogs had been exposed to uncontrollable shocks, the dogs evidenced three deficits. Firstly, a motivational deficit was observed -- the dogs failed to initiate as many escape attempts as animals not pretreated. Secondly, a cognitive deficit was noted -- the dogs failed to learn to terminate the shock even when an occasionally successful escape was made. Thirdly, an emotional deficit was observed -- the dogs were less emotionally expressive (less whimpering was observed during shocking). The animals appeared to have learned that their behaviors were unrelated to termination of the shocks. Furthermore, in future situations, when the event was controllable, they tended to behave in a helpless manner. The animals had apparently learned that aversive events could not be avoided (i.e., were not contingent on their behavior).

This model, extended to humans by Seligman (1975), was offered as a parallel to human depression. It was hypothesized that depressives behaved as if they had learned that events were not controllable by them. In the lab, Seligman and his colleagues simulated antecedents of depression by exposing human subjects to inescapable noise. This pretreatment led to more 'failures to escape' when noise was escapable (Hiroto & Seligman, 1975). When depressives were compared to nondepressed subjects, they behaved in a manner similar to subjects who had learned to be helpless through exposure to helplessness-inducing experimental stimuli (Klein & Seligman, 1976). In general, the evidence supported the hypothesis that experiences with uncontrollable outcomes caused subsequent behavioral deficits similar to those found in depression. And as a model of depression, the theory predicted that depressed individuals had experienced previous events as uncontrollable, and consequently, had expectations that aversive events (even those that are controllable) were not controllable. The interesting thing about this theory was that it demonstrated how helplessness could originate in individuals and how individuals could then view future controllable events as beyond their control.

A problem with this model, when it was applied to humans, was that expectations of noncontingency were not found to be consistently related to negative affect or lowered self-esteem. And the model could not account for the finding that depressives seemed to assume response-outcome contingency for negative outcomes (Beck, 1967; Rizley, 1978). The model was reformulated by Abramson, Seligman and Teasdale (1978) and predicted that experiences of uncontrollability would lead to the expectation that one was helpless, but that causal attributions would determine the generality of the induced deficits and the effect on self-esteem. Negative mood would result only when outcomes were both desirable and unattainable or both aversive and unavoidable. The central idea was that experiencing a lack of control would not necessarily lead to depressive affect, the kinds of

causal attributions one made for the lack of control were important and could vary along three dimensions: internality/externality; stability/unstability; and globality/specificity. According to this reformulation, attributing lack of control to internal factors would lead to lowered self-esteem; attributing lack of control to stable factors would lead to feeling helpless across time; and attributing lack of control to global factors would lead to generalizing helplessness across situations. All three together were characteristic of the attributional style of depressives. This style is characterized by attributing negative outcomes to internal, stable, and global factors, and attributing positive outcomes to external, unstable, and specific factors. The attributional style of normal populations was the reverse of the depressive style.

Similar findings were obtained with children. Dweck and her colleagues found that children, made helpless by experience with prior unsolvable problems or uncontrollable noise, showed similar deficits to those observed in animals and adults (Dweck & Reppucci, 1973; Dweck, 1975). The children either failed to solve or were slower at solving problems or escaping from escapable noise. Generally, the findings supported the hypothesis that subjects' beliefs included the "expectation that future bad events will be uncontrollable" (Seligman & Peterson, cited in Rutter, Izard, & Read, 1986, p. 233). These findings also clarified the role of attributions in helpless and mastery oriented behaviors. In a series of studies, Dweck and her colleagues found two clear patterns of child behaviors. They studied children aged 8 - 13 years and found that "two children may receive exactly the same number and sequence of success and failure trials yet react quite differently as a function of whether they interpret the failure to mean that the situation is beyond or within their control" (Dweck, 1975, p. 675). Dweck used the terms 'learned helpless' and 'mastery oriented' to describe the different patterns of behavior observed in children. Learned helpless children typically underestimated their successes and didn't view success

as indicative of ability. Even after experiencing success, they did not predict success in future endeavors. Helpless children tended to view others as more capable, and effort as futile. Mastery oriented children did not give up in the face of failure. Some of these children even increased their effort and their use of effective strategies on achievement tasks.

A particularly interesting finding of Dweck and her colleagues was that only helpless children found failure to be a negative affective experience; mastery-oriented children were not negatively affected by failure. In terms of cognitive impairment, helpless children did not remember the actual number of their successes, they did not view their present successes as predictive of future success, and they ascribed success to external factors and failure to internal factors. The researchers concluded that success is a less successful experience for helpless children. Dweck (1975) found that attributions for performance in academic settings varied among the children; helpless children were more likely to make internal, stable attributions for their failure (e.g., I'm just no good at doing problems).

The question of how children learned these different orientations prompted research into the attributional styles of children and their parents. Seligman, Peterson, Kaslow, Tanenbaum, Alloy, and Abramson, (1984) developed a child version of the adult Attributional Style Questionnaire called the Children's Attributional Style Questionnaire (CASQ). This measure presented 48 items in which 2 of the attributional dimensions were held constant while the 3rd varied. So, for example, typical items are:

1. A good friend tells you s/he hates you.
Following the question two options are given:

My friend was in a bad mood that day (unstable, specific, external)

I wasn't nice to my friend that day (unstable, specific, internal)

2. You get all the toys you want for your birthday.

People always guess what toys I want. (stable, specific, external)

This birthday they guessed what I want. (unstable, specific, external)

3 You get an A on a test.

I am smart. (internal, stable, global)

I am good in that subject. (internal, stable, specific)

An attributional style for children aged 9 - 13 years was identified that correlated with children's self-reported depression. This style mirrored that of adults. They also found that children's attributions were lopsided; nondepressed children, like nondepressed adults, made internal, stable, global attributions for positive events and external, unstable, specific attributions for negative events. They referred to this as 'optimistic distortion'. Compared to nondepressed children, depressed children were more evenhanded in explaining good and bad events (Peterson & Seligman, 1984).

Children's attributional styles assessed on the CASQ, also appeared related to parents' style as measured by the ASQ, suggesting that children may acquire these styles directly from their parents (Peterson & Seligman, 1984). This conclusion was similar to Dweck's (1975) suggestion that children may not acquire their attributions on the basis of previous experience with helplessness-inducing events, but rather through adoption of attributions provided by teachers.

Brown and Siegal (1988) proposed a different explanation for the finding of a stronger relation between attributional style and depression in children than in adults. They proposed that the strength of the relation may be due to the likelihood that children encounter more events that are beyond their control. Not only do young children encounter more events that are beyond their control, but they are more likely, according to Newcombe and colleagues (1986, cited in Brown & Siegal, 1988) to view stressors as less controllable than older children or adults. If such events are typical in childhood, and if stressors are more likely to be perceived as uncontrollable, then one would expect that helplessness would be hard not to learn during childhood.

The failure to take the presence of stressors and perceptions of control into account means that many of the studies that have measured attributional style and tried to predict depression from it have not really given the learned helplessness formulation a fair test (see Abramson, Metalsky, & Alloy, 1988). In fact, although perception of controllability was a key part of the formula in this model, it was gradually replaced by outcome-valence (see Brown & Siegal, 1988). This means that research findings regarding the role of causal attributions in depression may be inconsistent because perceived controllability was disregarded. Currently, this model is being referred to as the hopelessness theory (Abramson et al., 1988) and the initial step in the causal chain leading to depression is the occurrence of a negative life event or nonoccurrence of a positive life event. Unlike the former helplessness theory, which began the causal chain with the occurrence of an uncontrollable event, the new hopelessness theory begins with a negative life event that is not necessarily uncontrollable. The consequence of disregarding controllability is yet to be determined; however, on the basis of Brown and Siegal's findings, this may prove problematic to the new version of helplessness. On the other hand, although the new hoplessness version does not demand that events be both negative and uncontrollable,

negative events are expected to be attributed to stable and global factors. If stable events are those that are least likely to be modified, then they are also less controllable. Consequently, although the events may not be objectively uncontrollable, a negative event attributed to a stable cause is likely to be perceived as uncontrollable.

Perceptions of Control

All of the above theoretical perspectives have or had perceptions of control as a central element, and it has been recognized that neglecting it resulted in inconsistent, if not paradoxical, findings. Several people (e.g., Gregory, 1978, Ickes & Layden, 1978, cited in Brewin & Shapiro, 1984), pointed out that one problem with the generalized measures of locus of control was the meaning of control. Control over reinforcements seemed understandable; if one intended positive events to happen it seemed logical to assume responsibility for them when they did. On the other hand, assuming control over negative events was confusing; what did it mean to control a negative event. It could mean "I caused the event" or "I can avoid or master similar events in future". In effect, explanation and expectation were entangled. When people say, "I caused that event, I'm responsible for it" they are explaining why a past event has happened. This explanation is independent of an appraisal of whether individuals feel they can avoid or master the situation in future. In the same way, one can say, "I'm not responsible for the outcome, someone else screwed up", and feel that the way to control this in future is to do it oneself next time. So internal and external dimensions may explain past events and manage self-esteem, whereas controllability (or possibly stability) judgments may provide expectations about future events and manage feelings of mastery or competence.

Brewin and Shapiro (1984) set out to determine what Rotter's scale was measuring. They felt that Rotter might not be measuring a generalized perception of control over positive and negative events, but rather primarily control over positive events. They correlated scales measuring attributions of causality for positive and negative outcomes with the Rotter scale. They found a significant relation between responsibility for positive outcomes and Rotter's scale, indicating that although the Rotter scale was supposed to be measuring a general predisposition to make internal or external attributions for events, the valence of the event was not independent of the attributions made. The locus of control research had been studying different outcomes than the followers of Beck's model (1967). Whereas Rotter's scale was measuring primarily internality for positive events, followers of Beck were measuring internality for negative events. The paradox was seemingly resolved by the finding that locus of control for positive outcomes should be regarded as distinct from locus of control for negative outcomes (Brewin & Shapiro, 1984). Although Rotter's widely used locus of control scale detects the tendency of depressives to attribute positive outcomes to external causes, it does not detect their tendency to attribute negative causes to internal causes (Seligman, Abramson, Semmel & von Bayer, 1979).

The measures of generalized locus of control also had been criticized as not elaborate enough to describe the richness of causal explanations (e.g., Weiner, 1985). There was growing understanding that internal attributions were not equal to controllability judgments. When Rotter (1966) first introduced the idea of perceived locus of control, he related this dimension of causality to expectancy change. Prior experiences of obtaining rewards as a consequence of one's own behavior were hypothesized to lead to general expectations about one's ability to control rewarding events. In fact, having an internal locus of control for rewarding events was thought to reflect one's sense of competence or efficacy (Levenson, 1973).

Social learning theorists contended that expectancy change following success or failure was influenced by the perceived locus of control of the outcome. Internal beliefs about causality would produce expectations that future performance would be consistent with past performance on the same or similar tasks. External perceptions of causality would lead to atypical shifts in expectancy. For example, one would expect future performances to be less predictable.

Weiner, Frieze, Kukla, Reed, Rest, and Rosenbaum (1971), in developing a scheme of attributions in achievement contexts, criticized Rotter for confounding the dimensions of locus and stability. Weiner (1985) felt that observed expectancy could be attributed either to locus of causality or to the stability of causality. Ability, for example, was not only internal, it was also relatively stable. And attributions to luck were not only external, they were relatively unstable. Therefore, the different expectancies following skill or chance tasks could be due to the stability differences of these causes. Furthermore, internal and external causes could vary in stability. If people attribute failure to low effort (an internal cause) they might predict future success because effort is not stable and can be changed. Similarly, they might view luck (an external cause) as relatively stable for themselves and so predict future success on a chance task. Weiner felt that whereas stability attributions were related to expectancies about future performance, locus attributions were related to emotional reactions to outcomes. If success or failure is perceived to be due to internal causes (e.g., personality, ability, effort) self-esteem will be raised or lowered, respectively. On the other hand, external attributions should not influence self-esteem.

Self-esteem was also related to internality/externality attributions in the reformulated helplessness model. When negative outcomes were attributed to internal factors, lowered

self-esteem was predicted, whereas attributing negative outcomes to external factors was expected to maintain self-esteem. Furthermore, self-blame was hypothesized to follow from the attribution of failure to internal and controllable factors. This was consistent with Beck's (1967) model of depression in which depressives' notions of causality were characterized by internality and low self-esteem. It was not, however, consistent with findings of Janoff-Bulman (1979) who studyied the relation between blame attributions and coping among victims of violent crimes, freak accidents, and terminal illnesses. In these kinds of situations, self-blame was indicative of good coping, and was conceptualized as a "positive psychological mechanism [derived] primarily from the implications of this attribution for a belief in personal control over outcomes" (p. 1798).

This positive link between self-blame and controllability was mediated by the perceived modifiability of the cause. If the cause of a very negative event is one's responsibility, and if one can modify the behavior that caused it, one can presumeably prevent future occurrences of such an outcome. It is, therefore, preferable to assume responsibility for a negative outcome if it furthers one's sense of control or efficacy. Janoff-Bulman (1979) introduced two types of self-blame. Behavioral self-blame, associated with good coping, focuses on one's behavior and the future avoidability of the event. Characterological self-blame, associated with maladaptive, depressive-like coping, focuses on one's character and past deservingness for the bad outcome. The key distinction between these two types of self-blame has to do with the perceived controllability of the cause. This is essentially the same as Weiner's distinction between stable and unstable attributions in achievement contexts discussed earlier.

The similarity between the conclusions of Weiner and Janoff-Bulman is in their focus on future expectations of controllability -- the difference is in what that entails. In the

achievement context, controllability was related to future mastery of the task. Janoff-Bulman investigated traumatic events in which controllability was conceptualized as future avoidance of the event. In both cases, making internal attributions, blaming the self, was viewed as a positive sign of good coping, providing the attributions were also modifiable. Controllability of internal factors usually means that behaviors are targeted rather than dispositions or traits that are relatively stable. This control-oriented view of self-blame was different from the popular conception of self-blame as indicative of maladaptive, depressive-like, functioning. Internality was tied back up with controllabiltiy in the positive manner in which Rotter (1966) first conceptualized it: as a positive, psychologically healthy sign of feeling mastery and competence; however it now extended beyond positive, rewarding events to negative events as well. Making internal attributions for negative events could be positive if the internal causes were also viewed as modifiable, that is, under the control of the individual. So, outcome valence was not the only determinant of normal attributional dimensions; future expectations of control could mean that attributional styles might change with aspects of the situation.

Abramson and colleagues (1978) also proposed a stability dimension; if events were attributed to stable factors (factors that persist over time), helplessness would be nontransient. Judgments about the stability of causes would presumeably reflect expectations about future performance, and would explain the generalization of helplessness to future similar situations. Although this definition of stability appears essentially the same as Weiner's (1985) stability dimension and Janoff-Bulman's (1979) controllability dimension, Abramson and colleagues have stated that the dimension of controllability is "logically independent" of internal, stable, global attributions (1978, p. 62). It is not clear to me how stability could vary and not be related to judgments of

controllability. If the cause of an outcome is expected to persist over time, can any other outcome than that produced by the cause be expected in the future?

Weiner (1985) introduced a controllability dimension in addition to a stability dimension. He gives the following examples of how these two dimensions could be independent. Stable, internal causes such as laziness, slovenliness, and tolerance are controllable. Although they are enduring and resistant to change, they are not completely non-modifiable. Internal, stable causes such as math or artistic aptitude or physical coordination are not modifiable and are therefore uncontrollable. Controllability as a separate dimension is presumed to affect "social emotions; controllable causes of personal failure promote feelings of guilt, whereas uncontrollable causes generate shame" (p. 566). This distinction between stability and controllability seems unclear to me; attributions like slovenliness and laziness refer to causes that are controllable because they are modifiable and therefore unstable. Weiner seems to be assuming that whereas stability can vary in degree, controllability can not. However, Brown and Siegal (1988) studied 346 grade 7 - 11 girls' attributions for naturally occurring negative life events, and found that perceptions of controllability varied in degree; 56% of subjects reported feeling at least some control over stressful life events. They also found that the most upsetting events were rated as the most uncontrollable and the most stable. When events were attributed to uncontrollable causes, internal, stable and global attributions were associated with increases in self-reported depression, but when events were attributed to controllable causes, internal and global (but not stable) attributions were associated with decreases in depression. This study also suggests that although Abramson and his colleagues believed that judgments of controllability were independent of attributions of an internal, stable, global type in determining the nature of deficits, the relation between depression and attributional style may, in fact, depend on it.

In reviewing the literature on attributional dimensions related to control, it seems that one cause of much of the confusion is the disregard for the extent of individual variability that exists in peoples' attributions. It has become increasingly clear that researchers have made a fundamental attribution error themselves in thinking that they could determine the attributional dimensions of peoples' causal explanations.

Russell (1982) has pointed out that in the traditional attributional paradigm, the researcher assumes that s/he can accurately interpret the meaning of subjects' causal attributions; the attributions are usually translated by the researcher into causal dimensions. Earlier Wiener (1979) criticized measures for confounding the dimensions of internality/externality and controllability. Aside from this distinction, causes can be construed differently within a dimension; for example, luck may be viewed as external by some and as internal by others (e.g., I'm a lucky person). Furthermore, Russell found that the same cause could vary on other dimensions as well. For example, ability in response to success may be considered stable, whereas ability in response to failure may be seen as unstable. Additionally, the domain investigated may influence the dimensions of causality. For example, the academic domain may give rise to different attributional dimensions than the athletic domain, so that ability in academics might be considered more stable than ability in athletics.

Consequently, although attributional styles may influence how situations are perceived, it seems clear now that situational variables also influence how causes are perceived. Most importantly, individual differences in the dimensions of causal attributions must be taken into account.

Adults' Perceptions of Control

Despite the earliest predictions of locus of control and helplessness research, a general predisposition to make internal causal attributions does not relate, unequivocally, to psychologically-healthy functioning. Various factors influence whether internal or external attributions are likely to be made. The outcome valence is important; internal attributions are most likely to relate to mental well-being if the outcome being explained or predicted is positive. Such an attribution may lead to feeling good about one's past and optimistic about one's future. Conversely, making external attributions for positive events relates to poor psychological functioning, depression specifically; one may feel good about past successes but one is unlikely to feel optimistic about future outcomes. A psychologically-healthy individual is also more likely to make external attributions for negative events; one does not have to feel bad for causing negative outcomes and one can maintain a sense of optimism about future outcomes. In general, attributing negative outcomes to internal factors will leave one feeling not only responsible for past failures but also pessimistic about future performance. There are, however, situations in which making internal attributions for negative events may foster self-esteem and an expectation of future success. For example, attributing exam failure to lack of effort is adaptive because, in addition to being internal, this factor is also viewed as modifiable. So, events in relatively mild situations such as success and failure in achievement settings (Weiner, 1985), and more severe events such as Janoff-Bulman's findings with victims of violence may lead one to make internal attributions. However, in order to be adaptive, the attributions must also be perceived as modifiable. This account also presumes that if future performance is not an issue -- that is, if the negative outcome is not expected to reoccur or be indicative of future performance -- an external attribution will better serve the individual.

In general, attributing positive events to internal factors and attributing negative events to either external or internal and modifiable factors is typical of normal, psychologically-healthy individuals. Such attributions function to maintain self-esteem (Lewinsohn, Mishel, Chaplin & Barton, 1980), to foster optimism and motivation for mastery (Harter, 1978), to promote perseverance, which may enhance performance (Weiner, 1979; Diener & Dweck, 1978), and to promote positive expectations regarding one's ability to produce positive events and avoid negative ones (Janoff-Bulman, 1979; Weiner, 1985).

One particularly salient feature of the attributional tendencies of normal individuals is that they are not especially accurate. The biases observed in normal individuals' causal attributions have been termed ego-defensive, egocentric, egotistic, self-serving, and beneffectance (see Greenwald, 1980 for a discussion). These biases (hereafter called self-serving) refer to a tendency for individuals to take credit for success (even when events are uncontrollable), and to deny responsibility for failure (even when events are controllable). A great deal of evidence for this bias has been found; indeed, it is considered to be one of the most well-established phenomena in social psychology (see Bradley, 1978; Miller & Porter, 1988 for a review).

The tendency to attribute success to internal causes does not appear to generalize to others; in fact, when others' successes are considered, an external explanation is more likely. Similarly, attributions for others' failures differ from attributions for one's own. For example, subjects in one study competed with a fictious other and were given bogus feedback about winning or losing. Winners and losers then assigned responsibility for their own and the fictional others' wins and losses. Losers attributed their losses more to external factors and the others' losses more to internal factors, whereas winners attributed

their successes more to internal factors and others' successes more to external factors (Snyder, Stephan, & Rosenfield, 1976, cited in Greenwald, 1980). Further, when conditions were arranged so that the individuals perceived a task to be personally important (ego-involvement is increased), the self-serving bias is enhanced (Miller, 1976). Consequently, there is growing support for the idea that the bias originates in some need or motive to protect one's ego, rather than some limitation in human cognitive apparatus (see Miller & Porter, 1988 for a discussion).

Several adaptive advantages have been proposed to explain why normal individuals' perceptions may be biased in favour of the self. Studies with depressed individuals suggest that such a bias may protect individuals from feeling helpless, and may then promote optimism, perseverance, and improved performance (Lewinsohn et al, 1980; Alloy & Abramson, 1979; in Greenwald, 1980; see also Dweck, 1975). Weiner (1985) has hypothesized that a self-serving bias may simply lead to feeling good and feeling good may lead to the above mentioned positive behavioral consequences; this attributional bias has also been termed the "high self-esteem attributional style" (Ickes, 1988, p. 89). Others feel that the main benefit is the sense of control such an attribution process promotes (e.g., Kelly, 1972; Wortman, 1976; Lerner, 1970). Miller and Norman (1975), for example, felt that a control motive may be facilitated by self-esteem oriented attributions. Individuals may be most willing to make dispositional attributions for their behavior when outcomes are positive, and this may be seen as related to some need to perceive the self as experiencing effective control.

In Lerner's (1970) view, the belief that one can control positive outcomes and avoid negative outcomes serves to reinforce confidence in the world as a just place and hence the deservingess of good and bad outcomes. However, belief in a just world would mean

people deserved whatever they received, good or bad; this seems at odds with the adaptive advantages previously discussed regarding the self-serving bias. The self-serving bias would predict that this deservingness would vary with the valence of one's own good or bad outcomes such that good outcomes would be perceived as deserved and negative outcomes would be perceived as undeserved. However, if perceived control is also an issue, the deservingness of bad outcomes may not be inconsistent with predictions based on the operation of a self-serving bias. According to predictions from control literature, one would assume responsibility for negative outcomes only if modification of one's behavior could lead to future mastery or avoidability of a similar negative outcome. If the event is one's responsibility, and if one can control the behaviors that resulted in the bad outcome, one can prevent future occurrences of such an event; by this account the tendency to take blame (or assign it to others) is still adaptive.

Janoff-Bulman (1979) has suggested that this kind of reasoning may help individuals regain a sense of control over the good and bad events that occur to them. In this way, the sense of being a vulnerable victim dissipates and meaning and order (and hence predictability) are restored. Individuals may also feel that in future they will be able to prevent some of the consequences of the negative event or the event itself. When the event is more clearly uncontrollable, for example, one is a victim of a natural disaster, assuming responsibility for the event seems unimaginable, despite the likelihood that one's sense of control would need to be restored. For example, earthquake victims may wonder why they happened to be driving over the bridge at precisely the time the earthquake struck; however, it seems unlikely that they would blame themselves for the quake. Still, they may engage in a search for modifiable behaviors that would have led to a better outcome for them. In fact, it's the controllability of behavioral factors that may lead to the search for what one could have done differently.

A focus on control may lead individuals to believe they could have prevented personal misfortune (e.g., deciding to take the bridge route; deciding not to add earthquake insurance to one's home policy); however, individuals are likely to focus on modifiable and hence controllable aspects of their behavior rather than the event itself. Believing one can avoid future disaster through these behavioral changes may enhance the feeling of control, and depending on the behaviors targeted for change and their real relation to the personal disaster, the perception of increased control may be real rather than illusory. For example, deciding never to use bridges again is not likely to guarantee personal safety, whereas purchasing earthquake insurance may realistically prevent financial loss.

The operation of a self-serving bias means that one will tend to take responsibility for positive outcomes, which may enhance self-esteem or may arise out of some human need for control. The self-serving bias may contribute to a biased sense of control that leads one to feel able to produce good outcomes and to avoid or master negative outcomes. Such perceptions of control serve to protect one from negative feelings associated with believing oneself to be helpless, vulnerable or victimized. Biased perceptions are only likely to be adaptive if such perceptions are modified in ways that serve the self. This may involve internal attributions for success and external attributions for failure as predicted by the self-serving bias, or it may involve making internal, albeit modifiable, attributions for failure.

Children's Perceptions of Control

Several predictions can be drawn from learning and social-learning theories regarding children's perceptions of control. Recall that when Nowicki and Strickland (1973) developed their locus of control scale for children, a necessary relation predicted in

validating the measure was the expectation that internality should increase with age. Even if one considers that this internality probably refers only to positive events, and hence, may best be described as measuring one's sense of competence or expectation for future positive performance, it can be argued that it should increase with age. As children develop, they should both perceive their effect on events and feel less under the influence of external others (Lefcourt, 1976; Stipek, 1982). This presumes that young children accurately perceive that many, if not most, events in their lives are under the control of powerful others. If so, one would expect that helplessness would be characteristic of children's perceptions, which may explain why the research linking attributional styles and depression has been strongest in research with children. If children are exposed to a greater number of events that are beyond their control than are adults, and if they accurately attribute control to powerful others, both externality and helplessness would be expected to decrease with age.

These predictions are contrary to predictions based on cognitive-developmental theories. Piagetian research on concepts of chance, causality, and moral reasoning have suggested that young children do not accurately judge the contingency of outcomes. According to Weisz (1982) several lines of Piagetian research indicate that children generally overestimate the contingency between outcomes and people's behavior; noncontingency is very difficult for children to detect. There are, in effect, no chance events in the experience of young children. Their limited cognitive ability results in a form of reasoning Piaget labelled intuitive. During the last part of the preoperational stage (approximately 4-7 years of age), children reason intuitively and infer contingency on the basis of contiguity. If events occur together they are presumed to be causally linked. The difficulty children have in understanding the relation between cause and effect and their limited understanding of the natural world results in a belief in illusory contingencies.

Illusory contingency in children is thought to decline throughout childhood and largely disappear with formal operational thought.

If one considers that children's beliefs about causality reveal a pervasive belief in illusory contingency (the belief that all events are controllable), and if one argued that children are typically egocentric (in the sense of implicating themselves in causal explanations), it seems logical to assume that children's locus of control would be high in internality, and that this internality, because it is presumed to be cognitively based, would be applied to all situations regardless of valence or severity. Given this theoretical perspective, one would predict that illusory contingencies would decrease with development, and that externality should increase as children become increasingly aware of a number of different potential causes.

Developmental changes in illusory contingency were investigated in a series of studies by Weisz and colleagues (1980; 1981; 1982). In these studies Weisz found that perceiving illusory contingencies was characteristic of children, and such perceptions decreased with development. In Weisz's studies, children drew cards blindly from a deck and won or lost in a seemingly arbitrary fashion. The children then estimated the number of wins other hypothetical players would make if they were older, younger, smarter, not so smart, trying, not trying, et cetera. As children increased in age, they increasingly attributed the outcomes on the chance game to luck; however, all of the youngest children and at least 45% of the 8th grade and college subjects felt that competence-related factors (e.g., intelligence) could affect chance outcomes, even when they had attributed them to luck. This research indicates that yet another problem with traditional attributional and locus of control research is that childrens' concepts of luck and skill may be undifferentiated.

Furthermore, even when children can, with age, more accurately attribute performance on chance tasks to luck, their judgments still reflect illusory contingencies.

With regard to developmental changes in locus of control, several studies with children have reported increases in internality with age, findings that are consistent with predictions from the adult literature. Research using several different measures of generalized locus of control (e.g., measures by Bialer, 1961; Battle & Rotter, 1963; Nowicki & Strickland, 1973) has found internality increases with children's age. Recall that one finding with adults was that internality on locus of control measures referred to positive events. Consistent with findings from the studies with adults, internality for success outcomes was positively related to mastery motivation, autonomy, and achievement.

In a survey of 33 studies that investigated developmental changes in perceived locus of control, Wiesz and Stipek (1982) found that half of the studies showed consistent developmental increases in internality and the other half showed either mixed results or no significant developmental differences.

Weisz and Stipek separated the 12 locus of control measures used in these studies into two categories, agree-disagree and choice-of-attribution scales. The six agree-disagree scales included the two most widely used children's locus of control measures, the Bialer (1961) and the Nowicki-Strickland (1979) scales. Rotter's (1966) measure (extensively used in adult research) was also included in this category. These scales reflect cross-situational, generalized expectancies for control and yield one internal-external score. Questions on these scales generally take the form of asking whether the child or kids in general cause something to happen. The attributes or actions of the child or extenal agent

that might have produced the outcome are not specified. Often the child or kids in general are contrasted with external agents such as teachers, parents, peers or luck. The Nowicki and Stickland (1979) asks many questions about children's concept of luck and may be assessing their susceptibility to illusory contingencies. Endorsement of items like "Have you ever had a good luck charm" or "Are some kids just born lucky" or "Can wishing make good things happen" are all scored as external. However, children may view luckiness as an internal attribute.

In their survey, Wiesz and Stipek found that almost all of the studies that used the Bialer or the Nowicki-Strickland measures reported developmental increases in perceived internality. Of the 5 out of 19 studies reporting no significant developmental differences, 1 used the Bialer, 1 used the Nowicki-Strickland, 2 used the Rotter scale for adults, and 1 used the Academic Achievement Questionnaire. All five used late elementary or junior high subjects and a relatively narrow developmental range.

The question of what accounts for the increase in perceived internality remains. Some possibilities offered by Weisz and Stipek follow. A response set may lead younger children to agree with many of the items that could result in higher external scores on both the Bialer and the Nowicki-Strickland. Both measures have been criticized for keying items in a direction such that response styles could affect scores. Because younger children tend toward a yea-saying response set and externality is more often keyed in that direction, increases in internality with age may result from the younger children's susceptibility to yea-say. Additionally, the younger children's difficulty in comprehending many of the rather lengthy items on the scale may increase their tendency to agree with items.

Weisz and Stipek have also proposed that younger children may be less able than older children to discern that internal responses are more socially approved than external responses and that increases in internality may be reflecting the older children's susceptibility to social desirability effects.

Overall, the generalized measures of locus of control appear to be measuring several components of control. Children's expectancies for themselves or for kids in general, their concepts of luck or chance, and their motivation for control or personal efficacy (e.g., should mommy and daddy decide what you should do? or Most of the time do you feel that getting good grades means a great deal to you?). It is not clear which of these may change developmentally; however, theoretically the argument for an increase in internality with age is based on the child's perception of increases in actual ability and supposed increases in perceived personal efficacy.

The choice-of-attribution scales included the Intellectual Achievement Responsibility (IAR; Crandall, Crandall, & Katkovsky, 1965), the most frequently used scale of this format. Other scales in this category were the Locus of Control Picture Test for Children (Educational Testing Service, 1968), the Tel Aviv LOC scale (Milgram & Milgram, 1975, cited in Weisz and Stipek, 1982), the Standford Preschool I-E scale (Mischel et al, 1974, cited in Weisz & Stipek, 1982), and the Gruen, Korte, Stephens I-E scale (Gruen et al, 1974, cited in Weisz & Stipek, 1982). These scales reflect more specific personal experiences than the agree-disagree scales. The IAR, for example, focuses exclusively on academic achievement situations. Items on this measure are lengthy, hypothetical, situations which are more or less familiar to some children, depending on their age and past experiences. Agents of external control are primarily peers and teachers, sometimes parents. A sample items follows: "Suppose you don't do as well as usual in a

subject at school. Would this probably happen (a) because you weren't as careful as usual, or (b) because somebody bothered you and kept you from working." Of the 14 studies using choice-of-attribution measures, 9 used the IAR. Of these 9 only 2 reported unequivocal developmental increases in internality. Two of the studies using the IAR had unusually large sample sizes (Crandall et al, 1965, n=923; Newhouse, 1974, n=800). In both of these studies significant developmental increases were found for internality for negative outcomes along with some evidence for a decrease in internal attributions for positive outcomes. According to Crandall, this may reflect children's growing awareness of the social desirability of modesty.

Overall, studies using the choice-of-attribution measures show that internality does not increase with development. Considering both types of locus of control measures, different findings from studies using them, and the alternative explanations for the increases in internality or absence of changes, it is still unknown how or if perceptions of control change with development. As stated earlier, the theory that holds internality should increase with development emphasizes the accurate perception that one's actual ability to effect outcomes increases with development. Competence or one's sense of efficacy should increase if one's accurately perceives one's increase in skills and abilities related to producing desired outcomes and avoiding undesirable outcomes.

The position that holds that internality should decrease with development emphasizes the growing accuracy children show in understanding the causal nature of events and outcomes. Piaget (1930; cited in Weisz, 1980) and others (e.g., Weisz, 1980; Weisz & Stipek, 1982) have shown that young children overestimate the contingency between their own behavior and outcomes. In this case, the decrease in internality is the

result of a decrease in illusory contingency and an increase in accuracy or knowledge about the causal nature of events.

One way to reconcile these two positions is to measure the constructs of competence and contingency separately. Individuals' perceptions of control include judgments about one's competence and judgments about the contingency of events. These two dimensions are confounded in the traditional locus of control scales. The same answer could reflect either a belief in low contingency or low personal competence or both. For example, if the question, "Can you ever make other people do things you want them to do?" is answered negatively, it could mean that one believes people just can't be changed (low contingency) or that one is personally unable to change others' behaviors (low competence).

More recently-developed measures of children's perceptions of control attempt to break the concept of control down into several components. Connell (1985) for example, developed a multidimensional measure of children's locus of control (MMCPC). This measure focuses on upper elementary and junior high children's understanding of the reasons for their successes and failures in school, with peers, in sports, and in general. Although this measure does ask whether the locus of control is within the self, others, or is unknown, it does not specify what attributes of the self or others are responsible or how these attributes vary on dimensions such as, stability, globality, or controllability. However, in addition to measuring internal, powerful others, and unknown perceptions of control separately, these sources of control are assessed in cognitive, social, and sports domains as well as generally. Success and failure outcomes are also assessed separately, and items are endorsed on a 4 point scale from not at all true to very true. Items from each domain are as follows:

If I want to do well in school it's up to me to do it (cognitive domain, internal control, success outcome).

Alot of times there doesn't seem to be any reason why somebody likes me (social domain, unknown control, success outcome).

When I lose at an outdoor game it's usually because the kid I played against was much better at the game to begin with (physical domain, powerful others control, failure outcome).

I can pretty much control what will happen in my life (general domain, internal control, success outcome).

Connell administered this measure to 1300 children aged 8 - 14 years, and found a linear decrease with age in unknown perceptions of control, powerful others control, and a linear decrease in internal control. Although Connell does not make this suggestion, it is possible that the more conservative response-set of older children may account for the general decrease in all sources of control with age (see Weisz, 1983 for a discussion of this response set). When one looks at the rank order of the sources of control, the pattern is fairly similar in children at every grade. Internal control has the highest mean ratings followed by powerful others and then unknown. So, in fact, children across domains and ages endorse internal items most frequently and unknown least frequently. Two exceptions are the social domain in which powerful others are seen as least effective in causing success and failure, and the general domain where powerful others is ranked first in grades 3, 4, 5, and 7, and internal is ranked first in grades 6 and 9, and the two sources tie in grade 8.

In terms of the contingency and competence distinction proposed by Weisz (1983), the MMCPC gets at perceived contingency, but not perceived competence. Connell claims that his measure assesses Weisz's (1983) dimension of perceived contingency in that children make judgments about whether they or powerful others cause events to happen; however, his measure was not designed to assess perceived competence, the child's judgment about his or her capacity to produce the cause. So, when a child says school

success is a result of the teacher liking him or her, we still don't know whether the child feels capable of getting the teacher to like him or her. Connell reports the findings of several validation studies that have investigated the relation of the MMCPC to measures of competence designed by Harter (1982). In the cognitive domain, the strongest negative predictor of perceived competence, mastery motivation, and autonomous judgment was perceptions of control as unknown. In the social domain, teachers' and children's perceptions of acceptance by their peers was predicted negatively by perceptions of control by powerful others. In the physical domain, children who saw effort (internal control) as influencing success or failures tended to view themselves as more competent and were rated by their teachers as more competent.

In terms of developmental findings, Connell reports that children, as they age, appear more certain of what causes them to fail and succeed, and that others are less likely to be viewed as controlling their failures and successes. Because unknown perceptions decrease, it is not clear what new causes are emerging or where their locus is thought to be. It seems, however, that a measure that specifies means and assesses them separately would allow the developmental trajectories to be better understood. A measure developed by Skinner and colleagues attempts to do this.

The Control, Agency, and Means-ends Interview (CAMI; Skinner, Chapman & Baltes, 1988) was developed to study three beliefs related to perceived control. One set of beliefs, means-ends, refers to beliefs about the relation between means and ends and assesses the child's expectancies about how effective potential causes are in producing outcomes. This is roughly related to Weisz's contingency judgment, the extent to which outcomes are contingent on people's behavior. It goes beyond Connell's (1985) focus on unspecified means and Weisz's behavioral means to include a variety of means some of

which are non-agent related. The means included are effort, personal attributes, powerful others, luck and unknown means. Unfortunately, the dimensions on which these means may vary such as internality, stability, or controllability are not assessed.

In a study focusing on means-ends beliefs, Skinner and Chapman (1987) proposed a resolution for the paradox regarding the expected and reported developmental changes in perceived internality. A problem with the traditional conceptionalization of the locus of control construct is that it is viewed as a bipolar internal-external dimension and internality is measured as relative to externality. Although this assumes that internality and externality are inversely related, it seems more likely that beliefs about causes, both internal and external causes, and about their internal or external nature change across ages (see for example Nicholls, 1978; 1984; and Weisz, 1982). If this is true, then some of the findings of increases in internality may be reflecting greater relative differences between internality and externality, and, in some cases internality could actually be decreasing while externality is decreasing more. Recall that in the earlier discussion of locus of control change and treatment, Levenson's (1973) finding of increases in internality with treatment were actually due to decreases in externality and greater relative differences rather than a change in internality. This could account for findings of no differences or decreases when internality is measured alone. On the two most-widely used children's scales; the Bialer (1961) and the Nowicki-Strickland (1973) internality and externality are measured separately; however, internality is a function of how many internal items one correctly endorsed and how many external items one failed to endorse. Internality can increase by endorsing the same number of internal items, while decreasing the number of external items endorsed. One's score could also stay the same despite a decrease in the number of internal items endorsed if external responses decreased.

Another aspect of these two scales is that several internal and external causes are included. Perhaps changes reflect different conceptualizations of some of these causes and not others. The IAR was the choice-of-attribution scale used most often and the findings with this scale were generally that internality did not increase with development (Weisz & Stipek, 1982); however, the only internal cause is effort and the external cause is powerful others. Lack of change may be due to the view that effort is important in academic situations across the ages, although it may be conceptualized differently in terms of internality or externality across the ages. Similarly, the influence of powerful others may be experienced as important in the experience of children, even though it may not reflect a sense of little control.

In addition to being able to obtain separate internal and external scales, the measurement of each of the means separately allows for the consideration of developmental trends in each of these causes. If the pattern of development proves to be one of differentiation of concepts related to such means as luck, skill, effort, et cetera as suggested by researchers like Nicholls (1978; 1984), Kun (1977), and Weisz (1980), separate measurement of how effective these causes are thought to be by children of different ages will allow for a more complete picture of children's understanding of the causes of events. Although the results can be compared to findings with other measures, the question of whether children become more or less internal with age is not really satisfactorily answered because the child's view of whether these causes are located within or outside of themselves is not assessed.

In the study, children rated the effectiveness of the 5 causes, effort and personal attributes (considered internal by the researchers) and powerful others, luck, and unknown (considered external by the researchers). One hundred eighty children, 8 - 12 years of age,

rated the effectiveness of the causes on a scale from 1 (never) to 4 (always). Representative items are:

> When kids have enough friends, is it because they try hard to make them?
> (effort)
>
> When kids get good grades in school, is the main reason because they are smart?
> (personal attributes)
>
> When kids do bad in school, is it because the teacher doesn't like them?
> (powerful others)
>
> Is having friends a matter of luck for kids?
> (luck)
>
> When kids do better than usual in a subject, is it hard to say why that happened?
> (unknown)

The domains included were the academic and social, and the outcomes were positive and negative. Children received four scores: 1. perceived internality; 2. perceived externality; 3. relative internality (internality minus externality); and 4. effort versus powerful others (effort score minus powerful others score). They found that consistent with Piagetian predictions, children's perceived internality (and perceived externality) declined over age 7 to 12. Consistent with predictions from locus of control theory, relative internality increased across the same age range. Furthermore, consistent with findings from the IAR, no developmental differences were found when relative internality was operationalized as effort versus powerful others.

The decline in perceived internality fits with Piagetian descriptions of the child's tendency to exaggerate their own and others' causal efficacy (Piaget, 1930, cited in Weisz, 1980), and could also be predicted from the work of Weisz (1980; 1981) on children's growing understanding of the uncontrollable nature of chance events. In the Skinner study, the youngest children rated luck as the most effective cause whereas the older children rated it as least effective. Across the ages, increasing differences were apparent in the perceived

effectiveness of causes indicating that changing concepts of causes was leading to increased differentiation of them.

As causes become differentiated from each other their applications become more specific to certain domains and outcomes. For example, effort is a major cause given in the achievement domain, especially when failure is encountered. Whether internality increases or decreases may depend, in part, on the domain under study and and the usefulness of the attributions. For example, Connell (1985) found that whereas externality, in general, decreased with age, internality also decreased in the social, physical, and general domain. In addition, accuracy may be increasing in some domains and decreasing in others. In the achievement domain two attributions predominate, effort and ability. These become increasingly differentiated and, thus, more accurately, or at least, more adaptively used. Causes for physical and social events may be more ambiguous, which may make them more susceptible to attributional biases.

Once the concepts of luck, ability and effort are distinquished from one another, the appropriateness with which they are used increases. For example, with age, children become less likely to attribute chance tasks to competence-related factors (Weisz, 1980; 1981; 1982); consequently, they, appropriately, expend less effort on chance tasks than on skill tasks (Nicholls & Miller, 1985). However, it takes a long time to disentagle these concepts and evidence exists to indicate that in some domains adults' concepts of these factors are not clearly distinguished (e.g., Weisz, 1982; Langer, 1975). In their developmental study, Nicholls and Miller (1985) found that most of the grade 8 subjects were clear about what it took to succeed on a skill and a chance task. However, the younger children (approximately 6 years of age) felt that trying hard was the same as having ability and luck; these children seemed to believe in a "near magical efficacy of

effort" (p. 81). So, with age one comes to know that effort is less well-spent on chance tasks, and that ability is limiting. Once luck is not viewed as the same as ability, failure attributed to luck can be experienced as more pleasureable than failure attributed to ability. Advantages derived from this distinction are firstly, that effort decreases when effort would be fruitless (as on a chance task); and secondly, that self-esteem is preserved when failure is due to ability but attributed to luck. A disadvantage is that effort may decrease on skill tasks (if attributed to luck) when increased effort would help.

So, for the young child who sees effort, luck, and ability as the same, failure would indicate an increase is needed in effort. Their belief is optimistic, promotes perseverance, and would presumeably protect them from experiencing helplessness. For the older child, once the concepts are differentiated, the implications of making such attributions becomes clearer and they become more selectively used. It would seem that at this point, biases in perception would be most likely to occur. Not only can one selectively apply these concepts, one can selectively attend to the factors which indicate their appropriateness. For example, Wiesz, found that even 8th grade and college students retained some notion of illusory contingency; competition, choice, and active participation were cues that he felt explained why these fairly sophisticated individuals still evidenced illusory contingencies. Although this may explain why skill-like chance games may be perceived as contingent, it doesn't explain why outcomes for self and other would be viewed as caused by different factors. Only a self-serving bias accounts for his finding that children who lost or won on the same task believed different factors were responsible.

APPENDIX B

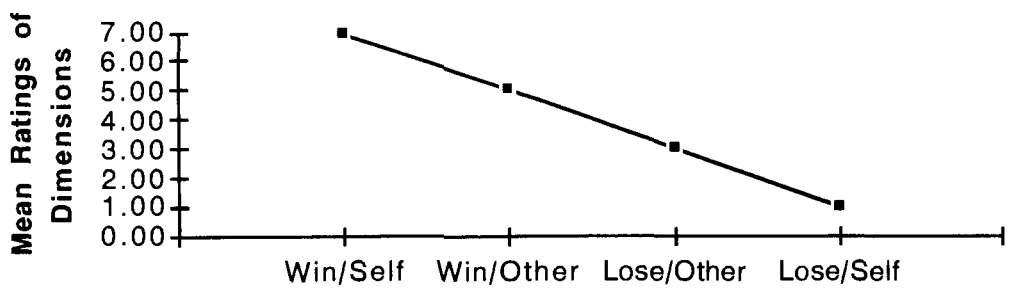
Summary of main predictions.

Outcome

1. How responsible were you for winning/losing?
2. How much is winning/losing due to you?
3. In the future, on this task, how often do you think you will win/lose again?
4. Do you usually win/lose at this just this kind of task, or do you usually win/lose at all other tasks too?
5. Can you make yourself win/stop yourself from losing next time?

Causes

1. How responsible are you for (the cause)?
2. How much is (the cause) due to you?
3. Will (cause) always be present or never be present?
4. Is (the cause) something that makes you win/lose at just this task, or does it make you win/lose at other tasks?
5. Is (the cause) something that can be changed or not be changed?



Note. Pattern for changeability (control cause) reverses.

AGE: same pattern, but stronger for younger children; for changeability, stronger differences for older children.
SEX: same pattern for males and females.
DOMAIN: same pattern for both domains.
SELF-CONCEPT: stronger pattern for high self-competence children, if low s/c are actually low, attributions may be equal or reverse.

Note. Low changeability for causes of wins and high changeability for causes of losses both indicate high control; similarly, high likelihood of repeating wins and low likelihood of repeating losses both indicate high control. Consequently, differences predicted between ratings for win and lose outcomes refer to changeability and likelihood of repeating outcomes.

APPENDIX C

WHAT AM I LIKE

Name _____ Age _____ Birthday _____

Boy or Girl (circle which)

SAMPLE SENTENCE

	Really True for me	Sort of True for me			Sort of True for me	Really True for me
(a)	__	__	Some kids would rather play outside in their spare time	BUT	Other kids would rather watch T.V.	__ __
1.	__	__	Some kids feel that they are very good at their school work to them	BUT	Other kids worry about whether they can do the school work assigned	__ __
2.	__	__	Some kids wish they could be alot better at sports	BUT	Other kids feel they are good enough at sports	__ __
3.	__	__	Some kids are pretty slow in finishing their school work	BUT	Other kids can do their school work quickly	__ __
4.	__	__	Some kids do very well at all kinds of sports sports	BUT	Other kids don't feel that they are very good when it comes to	__ __
5.	__	__	Some kids feel like they are just as smart as other kids their age	BUT	Other kids aren't so sure and wonder if they are as smart	__ __
6.	__	__	Some kids think they could do well at just about any new sports activity they haven't tried before	BUT	Other kids are afraid they might not do well at sports they haven't ever tried	__ __
7.	__	__	Some kids do very well at their classwork	BUT	Other kids don't do very well at their classwork	__ __
8.	__	__	In games and sports some kids usually watch instead of play	BUT	Other kids usually play rather than just watch	__ __
9.	__	__	Some kids have trouble figuring out the answers in school	BUT	Other kids almost always can figure out the answers	__ __
10.	__	__	Some kids feel that they are better than others their age at sports	BUT	Other kids don't feel they can play as well	__ __
11.	__	__	Some kids often forget what they learn	BUT	Other kids can remember things easily	__ __
12.	__	__	Some kids don't do well at new outdoor games	BUT	Other kids are good at new games right away	__ __

APPENDIX D

1. How do you feel you did?

1. lousy 2. not so good 3. pretty good 4. great

Questions on Outcomes
(same questions are asked for Other)

Responsibility

1. How responsible were you for winning/losing?

totally(7) quite a bit(5) a little(3) not at all(1)

Internal

1. Is winning/losing:

totally due to you(7) mostly due to you partly due to you not at all due to you(1)

Stability

1. In the future, if you played this, how often do you think you will win/lose again?

always(7) most times(5) not very often(3) never(1)

Controllability

1. How likely is it that you could make yourself win again/stop yourself from losing next time?

for sure(7) pretty sure(5) maybe(3) not at all(1)

Global

1. Do you usually win/lose at just this kind of task, or do you usually win/lose at all other tasks too?

just this(1) some things(3) most things(5) all tasks (7)

Questions on Causes

1. What is the main cause of winning/losing?_____
(or, What made you win/lose? or, Why did you win/lose?)

Responsibility

CDS: Control item

1. Is the cause(s) something for which:

No one is responsible.....Someone is reponsible

Internal Scale (Stipek & DeCotis, 1988)

1. Is outcome something:

Child is responsible for.....Child is not responsible for

Current Study

1. How responsible are you for (the cause)?

totally(7) mostly(5) partly(3) not at all(1)

Internal

ASQ

1. Is the cause of your unsuccessful job search due to something about you or something about other people or circumstances?

Totally due to other people or circumstances.....Totally due to me

CDS

1. Is the cause(s) something that:

Reflects an aspect of yourself.....Reflects an aspect of the situation

2. Is the cause(s):

Something about you.....Something about others

3. Is the cause(s) something that is:

Outside of you.....Inside of you

Current Study

1. Is (the cause) something:

totally due to you(7) mostly due to you partly due to you not at all due to you(1)

Stability

ASQ

1. In the future when looking for a job, will this cause again be present?

Will never again be present.....Will always be present

CDS

1. Is the cause(s) something that is:

Permanent..... Temporary

2. Is the cause(s) something that is:

Variable over time..... Stable over time

3. Is the cause(s) something that is:

Changeable..... Unchanging

Current Study

1. In the future, if you played this, will (the cause) always be there to make you win/lose again or will it never be there again to make you win/lose?

always be there(7) most times(5) not very often(3) never be there(1)

CDS

1. Is the cause(s):

Controllable by you or other people.....uncontrollable by you or other people

2 . Is the cause(s) something:

Intended by you or other people.....Unintended by you or other people

3. Is the cause(s) something for which:

No one is responsible..... Someone is responsible

Current Study

1. How much is (the cause) something that can be changed or something that can't be changed?

easy to change(7) quite easy(5) hard to change(3) can't be change(1)

Global

ASQ

1. Is this cause something that just influences (looking for a job), or does it also influence other areas of your life?

just this particular situation.....vs.....all situations in my life

Current Study

1. Is (the cause) something that makes you win/lose at just this kind of task, or does it make you win/lose at all other tasks too?

all tasks(7) most(5) some(3) just this(1)

APPENDIX E

Table E-1

Analysis of Variance Results on the Outcome(Win/Lose) and Person(Self/Other) variables for the Pictorial and Written Self-Percieved Competence Measures.

Outcome x Person Interaction

Dimension	DF	MS	F	P
Pictorial Version:				
Responsible	1, 29	142.38	28.13	.00005
Internal	1, 27	273.95	64.01	.00005
Global	1, 24	40.31	14.43	.0009
Stable	1, 26	85.74	15.60	.0005
Controllable	1, 24	120.54	17.32	.0003
Written Version:				
Responsible	1, 44	151.10	30.90	.00005
Internal	1, 39	363.94	63.84	.00005
Global	1, 39	70.81	17.79	.0001
Stable	1, 41	131.66	20.81	.00005
Controllable	1, 39	162.51	26.04	.00005

Outcome x Person x Self-perceived Competence Interaction

Pictorial Version:				
Responsible	1, 29	16.35	3.23	.0827
Internal	1, 27	67.46	15.76	.0005
Global	1, 24	.09	.03	.8583
Stable	1, 26	30.86	5.62	.0255
Controllable	1, 24	16.41	2.36	.1377
Written Version:				
Responsible	1, 44	22.86	4.67	.0361
Internal	1, 39	32.43	63.84	.0005
Global	1, 39	1.64	.41	.5243
Stable	1, 41	19.16	3.03	.0893
Controllable	1, 39	13.63	2.18	.1475

APPENDIX F

Table F-1

Analysis of Variance results on the Outcome (Win/Lose) and Person(Self/Other) variables for the Sports and Academic measures of Self-Perceived Competence.

Outcome x Person x Self-competence

Dimension	DF	F	P
Sports Version			
R	1,123	3.25	.0738
I	1,117	2.07	.1532
G	1,110	.24	.6283
S	1,108	1.78	.1851
C	1,115	2.70	.1030
Academic Version			
R	1,124	2.13	.1465
I	1,117	.18	.6744
G	1,113	1.28	.2598
S	1,116	6.48	.0122
C	1,119	2.87	.0927

Outcome x Person x Grade x Self-competence

Sports Version			
R	2,123	1.89	.1551
I	2,117	1.40	.2502
G	2,110	.07	.9338
S	2,108	.27	.7627
C	2,115	1.05	.3531
Academic Version			
R	2,124	1.16	.3165
I	2,117	1.36	.2597
G	2,113	.18	.8393
S	2,116	.93	.3975
C	2,119	.37	.6944

APPENDIX G

Table G-1

Analysis of Variance Results on the Outcome x Person x Tasks within Domains for Sports and Academics.

Outcome x Person x Sport Tasks(Run, Ball)

Dimension	DF	MS	F	P
R	1, 124	.21	.06	.8100
I	1, 117	3.08	.89	.3475
G	1, 110	.78	.27	.6050
S	1, 108	5.41	1.53	.2189
C	1, 115	4.81	1.41	.2372

Outcome x Person x Academic Tasks(Arithmetic, Similarities)

Dimension	DF	MS	F	P
R	1, 123	.04	.01	.9196
I	1, 117	2.26	.99	.3220
G	1, 113	4.54	1.79	.1837
S	1, 116	5.85	1.90	.1712
C	1, 119	1.21	.30	.5829

APPENDIX H

Table H-1

Analysis of Variance Results on the Outcome(Win/Lose) x Person(Self/Other) x Target(Outcome/Cause) Interaction for each Dimension

Dimension	DF	MS	F	P
Responsible	1, 125	0.07	0.03	.8669
Internal	1, 125	8.28	6.32	.0116
Global	1, 125	0.08	0.03	.8682
Stable	1, 125	0.61	0.43	.5130
Controllable	1, 125	61.62	27.07	.00005

APPENDIX I

Table I-1

Analysis of Variance Results on the Outcome(Win/Lose) x Person(Self/Other) x Domain(Academic/Sports) Interaction for each Dimension.

Dimension	DF	MS	F	P
Responsible	1, 125	4.50	1.34	.2488
Internal	1, 125	2.26	1.25	.2668
Global	1, 125	0.80	0.04	.8421
Stable	1, 125	3.86	2.18	.1435
Controllable	1, 125	2.05	0.82	.3666

Table I-2

Analysis of Variance Results on the Outcome(Win/Lose) x Person(Self/Other) x Sex Interaction for each Dimension

Dimension	DF	MS	F	P
Responsible	1, 125	0.38	.09	.7653
Internal	1, 125	0.07	.02	.8938
Global	1, 125	0.01	.00	.9471
Stable	1, 125	2.48	.48	.4917
Controllable	1, 125	0.43	.09	.7664

APPENDIX J

Table J-1

Univariate Summary table for Dependent Variate Responsible

Source	DF	MS	F	P
Competence	1	6.97	0.13	.72
Grade	2	114.71	2.19	.12
CG	2	61.64	1.18	.31
Error	125	52.34		
Outcome(Win,Lose)	1	3010.49	229.14	.00
OC	1	1.04	0.08	.78
OG	2	38.76	2.95	.06
OCG	2	27.40	2.09	.13
Error	125	13.14		
Person(Self,Other)	1	4.40	0.30	.59
PC	1	1.00	0.07	.79
PG	2	8.22	0.56	.58
PCG	2	4.07	0.28	.76
Error	125	14.81		
Outcome x Person	1	233.10	14.58	.00
OPC	1	108.41	6.78	.01
OPG	2	137.77	8.62	.00
OPCG	2	5.10	0.32	.73
Error	125	15.99		

Table J-2

Univariate Summary table for Dependent Variate Internal

Source	DF	MS	F	P
Competence	1	1.43	0.09	.76
Grade	2	11.24	0.73	.48
CG	2	57.29	3.74	.03
Error	125	15.31		
Outcome(Win,Lose)	1	1606.74	202.57	.00
OC	1	1.18	0.15	.70
OG	2	43.27	5.45	.01
OCG	2	41.13	5.19	.01
Error	125	7.93		
Person(Self,Other)	1	55.09	9.38	.00
PC	1	43.61	7.42	.01
PG	2	28.48	4.85	.01
PCG	2	1.35	0.23	.80
Error	125	5.87		
Outcome x Person	1	555.84	47.29	.00
OPC	1	71.51	6.08	.01
OPG	2	175.57	14.94	.00
OPCG	2	24.88	2.12	.12
Error	125	11.75		

Table J-3

Univariate Summary table for Dependent Variate Global

Source	DF	MS	F	P
Competence	1	3.74	0.16	.69
Grade	2	225.86	9.83	.00
CG	2	2.76	0.12	.89
Error	125	22.97		
Outcome(Win,Lose)	1	423.48	35.59	.00
OC	1	0.86	0.07	.79
OG	2	13.20	1.11	.33
OCG	2	11.18	0.94	.39
Error	125	11.90		
Person(Self,Other)	1	243.12	21.43	.00
PC	1	13.05	1.15	.29
PG	2	14.35	1.26	.29
PCG	2	10.09	0.89	.41
Error	125	11.35		
Outcome x Person	1	193.26	16.45	.00
OPC	1	7.21	0.61	.43
OPG	2	55.00	4.68	.01
OPCG	2	3.95	0.34	.72
Error	125	11.75		

Table J-4

Univariate Summary table for Dependent Variate Stable

Source	DF	MS	F	P
Competence	1	9.82	0.48	.49
Grade	2	168.72	8.26	.00
CG	2	10.29	0.50	.61
Error	125	20.41		
Outcome(Win,Lose)	1	1588.26	141.27	.00
OC	1	40.08	3.56	.06
OG	2	21.07	1.87	.16
OCG	2	1.95	0.17	.84
Error	125	11.24		
Person(Self,Other)	1	89.87	11.90	.00
PC	1	10.34	1.37	.24
PG	2	3.72	0.49	.61
PCG	2	2.84	0.38	.69
Error	125	7.55		
Outcome x Person	1	798.41	44.76	.00
OPC	1	96.71	5.42	.02
OPG	2	31.81	1.78	.17
OPCG	2	3.97	0.22	.80
Error	125	17.84		

Table J-5

Univariate Summary table for Dependent Variate Control(Cause)

Source	DF	MS	F	P
Competence	1	8.64	0.18	.67
Grade	2	70.17	1.45	.24
CG	2	116.34	2.41	.09
Error	125	48.25		
Outcome(Win,Lose)	1	194.25	115.39	.00
OC	1	0.27	0.16	.69
OG	2	2.57	1.53	.22
OCG	2	1.59	0.95	.39
Error	125	1.68		
Person(Self,Other)	1	0.33	0.37	.55
PC	1	0.25	0.27	.60
PG	2	0.16	0.18	.84
PCG	2	0.41	0.45	.64
Error	125	0.90		
Outcome x Person	1	36.30	24.40	.00
OPC	1	10.24	6.88	.01
OPG	2	5.66	3.80	.03
OPCG	2	2.26	1.52	.22
Error	125	1.49		

Table J-6

Univariate Summary table for Dependent Variate Control(Outcome)

Source	DF	MS	F	P
Competence	1	2.01	0.55	.46
Grade	2	4.97	1.35	.26
CG	2	7.51	2.05	.13
Error	125	3.65		
Outcome(Win,Lose)	1	166.27	141.64	.00
OC	1	0.00	0.00	.99
OG	2	0.54	0.46	.63
OCG	2	0.93	0.79	.45
Error	125	0.69		
Person(Self,Other)	1	0.46	0.51	.48
PC	1	2.35	2.57	.11
PG	2	2.49	2.72	.07
PCG	2	1.02	1.12	.33
Error	125	0.91		
Outcome x Person	1	25.77	14.94	.00
OPC	1	9.18	5.32	.02
OPG	2	3.50	2.03	.14
OPCG	2	0.21	0.12	.89
Error	125	1.73		

APPENDIX K

Table K-1

Percentage of Grade 1 Subjects choosing the 5 causes in each of the four Outcome x Person conditions in the Sports and Academic domains.

Condition:	Win/Self		Win/Other		Lose/Other		Lose/Self	
Domain:	Sport	Acad	Sport	Acad	Sport	Acad	Sport	Acad
Cause								
Effort	36	52	50	40	36	34	28	32
Ability	54	22	20	36	30	30	26	26
Luck	0	10	22	12	24	20	28	16
Task Difficulty	10	16	4	2	10	16	12	24
Powerful Others	0	0	4	10	0	0	6	2

Note. n = 50. Values have been rounded to the nearest whole number, therefore column totals may or may not be 100.

Table K-2

Percentage of Grade 4 Subjects choosing the 5 causes in each of the four Outcome x Person conditions in the Sports and Academic domains.

Condition:	Win/Self		Win/Other		Lose/Other		Lose/Self	
Domain:	Sport	Acad	Sport	Acad	Sport	Acad	Sport	Acad
Cause								
Effort	40	49	42	53	22	44	33	31
Ability	49	38	44	36	60	42	31	33
Luck	7	7	9	4	11	13	24	13
Task Difficulty	4	7	4	2	4	0	7	20
Powerful Others	0	0	0	4	2	0	4	2

Note. n = 45. Values have been rounded to the nearest whole number, therefore column totals may or may not be 100.

Table K-3

Percentage of Grade 7 Subjects choosing the 5 causes in each of the four Outcome x Person conditions in the Sports and Academic domains.

Condition:	Win/Self		Win/Other		Lose/Other		Lose/Self	
Domain:	Sport	Acad	Sport	Acad	Sport	Acad	Sport	Acad
Cause								
Effort	44	42	47	47	25	44	33	31
Ability	47	53	47	50	64	42	47	39
Luck	8	3	6	3	8	8	14	19
Task Difficulty	0	3	0	0	3	6	6	6
Powerful Others	0	0	0	0	0	0	0	6

Note. n = 36. Values have been rounded to the nearest whole number, therefore column totals may or may not be 100.

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