SIBLING AND SELF APPRAISALS

by

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Abstract

In this study, sibling and self appraisals were examined to determine the patterns in their valence depending on time of observation, age of the children, target of the appraisal, and gender. Sibling and self appraisals were identified within naturalistic interactions of 39 sibling dyads at 2 time periods, when children were 2- and 4-years-old, and again when they were 4- and 6-years-old. Children's interactions were observed and recorded within the family home for a total of nine hours at each observation period. Appraisals were identified as any statement about the sibling or the self that in some way evaluated or judged the skillfulness, morality, or general qualities of their siblings' or their own actions, creations, personality, etc. Overall, findings indicated that children generally tend to appraise themselves positively and their siblings negatively. For sibling appraisals, though, older siblings tended to appraise their siblings more often than did their younger counterparts, and male-male pairings tended to appraise one another negatively more than in any other pairing. Both types of appraisals often occurred following some kind of provocation by the sibling or the self. The content of sibling and self appraisals also differed such that sibling appraisals focused on moral elements, whereas self appraisals were centred around the ability domain. With respect to the target of appraisals, children tended to state both sibling and self appraisals directly to their siblings. However, self appraisals directed to siblings were more often positive than negative, while the valence of sibling appraisals did not differ depending on to whom the appraisal was directed. Patterns in children's responses demonstrated that children tended to disagree with negative sibling appraisals, but were unlikely to oppose occasions where siblings had appraised themselves negatively. Parent responses to both sibling and self appraisals tended to focus on addressing negative behaviours that had occurred rather than making attempts to ameliorate the self-concept of the child who had been appraised negatively.

The relation between sibling appraisals and self appraisals is largely contemporaneous, but showed some consistency with both the Looking Glass Self (Cooley, 1902/1964) and Compensation models (e.g., Baumeister, 1982; Baumeister & Jones, 1978; Steele, 1988; Wood, Giordano-Beech, & Ducharme, in press). Although predictions within time make it difficult to specify the direction of causation, correlation patterns suggest that the greater the frequency of negative sibling appraisals, the greater the frequency of positive self appraisals,

suggesting some consistency with the Compensation model. In addition, children's positive self appraisals also increased with the frequency of positive sibling appraisals. Findings for negative self appraisals were consistent with the Looking Glass Self model, such that negative self appraisals increased directly with increases in negative sibling appraisals. Notably, these findings were only evident in younger siblings' self appraisals. One other important limitation, though, is that the reality shared by the two children could not be controlled, and therefore, it may explain the correlations between children's appraisals. Other findings discussed within the thesis include reciprocation in children's appraisals, the context of sibling and self appraisals, and the responses of siblings and parents to appraisals.

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Dedication

To my parents, Allan and Cathy Moss,

for encouraging me to set goals,

and

to my husband, Steve Brown,

for helping me to achieve them.

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Sibling and self appraisals

General introduction

Does how siblings appraise one another have any short- or long-term associations with or influence on the way they talk about themselves? This question was the driving force behind the three studies that follow. More specifically, I wondered whether the evaluations siblings make of each other during normal interactions had any impact on the ways children would appraise themselves. In order to respond to this large question, it was necessary to gain as full an understanding as possible of the characteristics of both sibling and self appraisals within sibling interactions. As such, Studies 1 and 2, respectively, address these questions and consider the actions that precede and follow appraisals.

For the third study, theories suggest that people learn about the self through their interactions with others (Looking Glass Self model) or they use compensation to combat negative feedback (Compensation model). The Looking Glass Self model, described by Cooley (1902/1964), proposes that people learn about themselves only through their interactions with other people and the ways such individuals evaluate them. In contrast, the Compensation model (Baumeister, 1982, Wood, Giordano-Beech, & Ducharme, in press) implies that individuals, following negative evaluation, attempt to seek out experiences or activities that highlight their personal strengths as a way of compensating their sense of self. These theories have rarely, or never, been examined within populations of young children. Moreover, the influence of sibling appraisals on children's self appraisals via these theories has never been explored. Given the intensity of sibling interactions, the amount of time that siblings spend together in the preschool years, and the uniqueness of this relationship, it was expected that sibling appraisals would play some role in predicting children's self evaluations within and across time (Abramovitch, Pepler, & Corter, 1982; Dunn, 1988; Lamb, 1982; Stocker & Dunn, 1991). It was also predicted that this pattern would be especially strong in predicting younger children's self appraisals, as the influence of older siblings is typically thought to be stronger than that of their younger counterparts (e.g., Martin & Ross, 1995). Therefore, in the final study, the relationship between overt sibling and self appraisals, within everyday sibling interactions, is explored for evidence of patterns that would be consistent with either the Looking Glass Self or Compensation Model.

Before continuing, it would be helpful to provide some preview of the data used to answer these questions and to operationalize what is meant by an appraisal. These questions were examined within the context of interactions in two-parent families with two children age two and four years initially, and four and six years at the second observation period. Children's interactions were observed and recorded within the family home for a total of nine hours at each observation period. Appraisals were identified as any statement about the sibling or the self which in some way evaluated or judged the skillfulness (e.g., ability to do an activity), morality (i.e., moral quality), or general qualities (i.e., pleasant vs. unpleasant behaviour or characteristics) of their siblings' or their own actions, creations, personality, etc. Appraisals were positive or negative in their valence, and could be targeted to siblings or to parents in the context of sibling interaction.

Study 1: A Dynamic Assessment of the Nature and Prevalence of Sibling Appraisals

"I don't like her. She's not my sister any more."

"That's nice colouring."

Introduction

Sibling interactions and their relationships have been studied from many perspectives. In this study, I propose to gain further understanding of sibling interactions by learning more about how siblings talk to one another – more specifically, how they evaluate each other. Studies of sibling behaviour have examined both the negative and positive aspects of their interactions (e.g., Dunn & Munn, 1986; Vandell & Bailey, 1992), but what constitutes the positive and negative assessments of their behaviour? Some of this behaviour may be based in the positive and negative comments children make throughout their daily interactions. Although anyone listening to young siblings interact would likely hear these evaluations, little is known about the true prevalence or characteristics of sibling appraisals, or their significance within the sibling relationship.

Why would sibling appraisals be a source of influence on children's development? Before entering school, siblings spend much time interacting and the sibling relationship is seen as a powerful force in a child's development. The intensity and extent of young siblings' interactions provides ample opportunity for children to share their impressions of their sibling. It seems possible that the appraisals that children make of each other may have some impact on their relationship and perhaps on other aspects of their development because they represent a source of both positive and negative feedback that is given with less restraint than may be the case in early peer relationships. Moreover, although many studies have examined the global aspects of the sibling relationship, the specific interactional components have been examined less often and these behaviours may help elucidate particular ways that the sibling relationship has an impact on development.

To explore these possibilities, it was necessary to first determine children's ability to appraise one another from an early age and then to investigate the frequency with which they occur. In addition, to gain an even better understanding of appraisals, it was important to consider their characteristics, determinants, and context (i.e., what precedes and follows appraisals). Of main interest within this study was the patterns in the valence of children's

sibling appraisals as well as the ways in which children respond to both negative and positive evaluations from their siblings.

Capacity to appraise

To begin, it is important to understand when children begin to show the ability to evaluate others around them. Empirical evidence from tattling research sheds light on young children's capacity to offer negative information concerning their siblings. When tattling, appraisals may inadvertently be part of a child's report to the parent. In a study by den Bak and Ross (1996), using a portion of the data set used in the current study, siblings were observed in their homes for nine hours over a period of six days while they interacted and played. These interactions were transcribed and tattling behaviours were noted. Although it may not be clear from these data at exactly what age siblings begin to tattle, den Bak and Ross found frequent occurrences of this behaviour within sibling interactions even when the children were two and four years old. Furthermore, they reported that although younger siblings seemed to tattle largely to enlist support from parents, their older siblings seemed to tattle equally often to report on their siblings' bad behaviour (den Bak & Ross, 1996). In addition, in a follow-up study, Ross and den Bak-Lammers (1998) found that tattling tends to become explicit and evaluative over time. When older siblings were six years of age and younger ones were four, their tattling quite often included explicit appraisals of their sibling. For example, a child might report to a parent, "John just did something really bad," which provides the parent with an appraisal, albeit simplistic, of the other child's behaviour. Although not all incidents of tattling contain such evaluative statements, the occurrence of explicit appraisals indicates that children have the skills to evaluate others.

In the preschool years, children begin to develop a sense of standards for behaviour through observations of and interactions with their parents (Alessandri & Lewis, 1993; Harter, 1999). Bowlby (1979) suggested that, in the same way that children use parent appraisals to develop an early sense of self, they may also use appraisals to arrive at an understanding of parents' expectations for behaviour and conduct. In this way, children slowly begin to develop a model that incorporates standards for their behaviour and achievements by first coming to understand what constitutes acceptable or unacceptable behaviour in their parents' eyes. These standards provide a model for evaluations of their own and others' behaviour, and it seems that

children, from an early age, would have the potential to use this information to make such evaluative statements.

Given these abilities to tattle and to internalize parental standards of behaviour, it seemed likely that children would have the skills to evaluate both themselves and others, namely, their siblings. Hence, the main goals of the current study were to document the occurrence of sibling appraisals, to describe their characteristics, and to explore their possible determinants and context.

Characteristics and determinants of appraisals

Three potentially important characteristics of appraisals studied here include the attribute appraised, the appraisal valence, and the target of appraisals (i.e., who is addressed). In addition, the role that variables such as birth order, age, gender, and sibling behaviour play in predicting appraisal patterns was explored. Furthermore, the context of appraisals could also provide insight into possible reasons for siblings choosing to evaluate one another in a particular way.

Attributes appraised. For this study, appraisals were considered in terms of whether they reflected an evaluation of the level of skill displayed by, the moral attributes of, or the general qualities of the sibling. First, appraisals may assess the level of skill or ability demonstrated by the sibling; these appraisals fell in the ability category. Second, some evidence has indicated children's recognition or use of moral principles in tattling and in property disputes (den Bak & Ross, 1996; Ross, 1996, respectively). The content of children's tattling is mainly about violations of moral rules, according to the findings of den Bak and Ross (1996). When examining resolutions of sibling conflicts of preschool-aged children involving property disputes, Ross (1996) found that children were able to use and understand justifications based on property rules, particularly ownership. Moreover, Piotrowski (1997) found that preschool-aged siblings tended to refer to rules and moral conventions increasingly over time within their naturalistic interactions. Thus, children referred to basic rules in areas such as general conduct, aggression, and property. Finally, a "general qualities" category contained appraisals that evaluate sibling acts that are simply good or bad without any moral connotation (such as, "Thanks for passing the scissors" or "You're bugging me"). Finally, These broad descriptive categories were thought to capture the possible domains of children's appraisals.

Given that children's tattling is largely about moral transgressions committed by their sibling, it was thought that children's sibling appraisals of moral qualities would tend to be negative more often than positive. Overall, though, hypotheses with respect to these categories were considered exploratory and analyses focused on relations and differences amongst the other variables (such as valence). For example, children may have a tendency to focus their appraisals on one of these categories more than the others, and this bias may change as children develop. If children used social comparison to make evaluations and based appraisals on actual attributes of their siblings, it was likely that both children would perceive older siblings as being more skilled than younger siblings.

Valence. Since sibling relationships are highly conflictual, and yet intimate and affectionate (e.g., Dunn, Slomkowski, Donelan, & Herrera, 1995; Vandell & Bailey, 1992), it was likely that siblings would make positive and negative comments about one another. With respect to negative aspects of sibling behaviour, Ross and den Bak-Lammers (1998) compared the frequencies of children's positive and neutral comments made to parents about siblings and found that children generally made more negative than positive comments about their sibling. On the other hand, when considering positive behaviours within the sibling relationship, Dunn, Slomkowski, and Beardsall (1994) noted differences in warmth between older and younger siblings such that older children generally showed more warmth than younger siblings. These studies focused on the global aspects of sibling interactions, but the question remains, whether positive or negative evaluations prevail in an examination of young children's appraisals?

Although it was expected that children would appraise their sibling both positively and negatively, it was hypothesized that siblings would generally make more negative than positive appraisals of one another. However, since children show differences in positive behaviour, and since Ross and den Bak-Lammers (1998) found that, over time, older siblings made more positive and neutral comments about their younger siblings than vice versa, it seemed likely that birth order differences would be prevalent in sibling appraisals. Taken together with findings from Dunn et al. (1994), these findings suggest that in spite of the fact that siblings were generally expected to make more negative than positive appraisals of one another, older siblings would also positively appraise their younger siblings more frequently over time than would younger siblings.

Target. Although appraisals overlap with tattling, tattling and appraisals also differ in many ways. For instance, tattling tends to be implicit and focused on negative behaviour only. Appraisals, on the other hand, could be either negative or positive and are more explicitly evaluative than tattling. In addition, tattling, by definition, means that comments are directed to parents or other authorities (e.g., teachers). In this study, however, the target of the appraisal (i.e., to whom the appraisal was directed, either sibling or parents) was an important variable. Although this variable has never been considered in sibling research, it was expected that appraisals would more often be directed to siblings than to parents because appraisals are likely to arise out of their interactions and therefore, to be directed to their sibling. In addition, given that children wish to present themselves favourably to others (Ruble, Eisenberg, and Higgins, 1994) and that siblings tattled more often than they made positive or neutral comments (Ross, 1997), it was expected that children would focus on negative rather than positive aspects of their siblings particularly when directing appraisals to parents. That is, children would be more likely to share negative, than positive, evaluations of their sibling with their parents even more than would be the case for appraisals directed to siblings.

Gender. How might gender be associated with the way children appraise each other? In many studies, gender has been found to be associated with sibling behaviour and relationships. More specifically, Dunn et al. (1994) noted differences in sibling intimacy and warmth, based on interviews with each child in the dyad (when younger siblings were ten years old), that were related to gender. More warmth was expressed in sister-sister pairs than between older brother-younger sister pairs. With respect to accounts of sibling intimacy, sister-sister pairs and older sister-younger brother pairs reported more intimacy than did older brother-younger sister pairs. Evidence from Brody, Stoneman, and Mackinnon (1985) also indicated that female sibling pairs in middle childhood acted more positively toward one another than did other sibling pairings and that preschool-aged male sibling pairs behaved more negatively toward one another than other pairings. In addition, Martin (1997) examined different types of anger expressions in siblings in families in the present study and found that boys tended to insult their siblings more often than did girls.

These studies highlight some of the ways that gender influences global assessments of the sibling relationship, but would these effects also be evident in children's sibling appraisals? Putting these various findings together, it seemed likely that older female siblings would make

more positive appraisals of their sibling than male siblings regardless of whether their sibling was male or female. In contrast, it was predicted that older male siblings would negatively appraise their siblings more frequently than would female siblings, particularly when the younger sibling was female.

Age and birth order. Although the meaning associated with being an older or a younger sibling is not completely clear, there are some aspects of their roles that has been reflected in research findings (Sutton-Smith, 1982). Generally studies have found little support for predictive models based on birth order, but birth order has been found to have some impact on behaviours within the relationship. For instance, in naturalistic observations of sibling aggression in preschool children over a two-year period, Martin & Ross (1995) found that older siblings' aggression was more consistent over time, whereas younger siblings' aggression at four years of age was predicted only by their older siblings' aggression two years earlier. In contrast, Piotrowski (1997), in a study of the development of social rules within the family, noted that younger siblings' use of moral rules (at age four) over one year had a greater impact on the quality of their sibling relationship than did those of the older sibling. In essence, younger children seemed to gain some power in the relationship as their moral understanding developed. Given these differences noted between younger and older siblings, it was expected that age and birth order would also play a role in the frequency with which children made sibling appraisals.

With respect to age, developmental researchers have shown that, under normal circumstances, older siblings are expected to be developmentally ahead of their younger siblings in a number of areas (e.g., Corter, Pepler, Abramovitch, 1982; Ruffman, Perner, Naito, Parkin, & Clements, 1998). Thus, because of a developmental advantage with respect to language, older siblings were predicted to appraise their sibling more frequently, within and across time periods, than their younger counterparts. Younger siblings, though, should make more sibling appraisals over time, as their own language fluency develops.

With respect to birth order, Corter and his colleagues (1982) completed home observations of young sibling dyads (younger sibling 1 ½ - 2 years old, and older sibling 2 – 5 years old), and found that older children tended to initiate more behaviours, both positive and negative, within their interactions relative to their younger sibling. Thus, older siblings were expected to make more appraisals than their younger counterparts simply because they are

older and tend to initiate more interactions with their sibling. However, the differences associated with birth order were expected to decrease over time. In a longitudinal study spanning seven years (with younger siblings age three- to ten-years-old), Dunn et al. (1994) observed sibling interactions in the preschool years and interviewed mothers about the sibling relationship on three different occasions. Older siblings showed significant positive correlations (ranging between .46 to .72) in the amounts of positive and negative behaviour directed to their siblings over this seven-year period, whereas younger siblings' behaviour seemed less stable. The researchers suggested that this difference may be related to birth order and developmental level: Older siblings may have a stronger influence over their younger sibling because they necessarily reach a level of greater stability in their own development before the younger sibling (see also Barnes & Austin, 1995). Consequently, younger siblings may be subject to more influential forces while they are developing as compared to their older siblings (e.g., Dunn, Slomkowski, Beardsall, & Rende, 1994). As such, birth order may then have a greater influence on children's appraisal behaviour than their chronological age. Thus, along with differences associated with language fluency, it was hypothesized that older siblings would make more sibling appraisals than their younger sibling because of their position within the family, suggesting that more than the developmental advantage with respect to language is involved in differences in sibling appraisals. Moreover, it was hypothesized that younger siblings at Time 2 would appraise their siblings more frequently than did older siblings at Time 1, when they were the same age, because of the model of appraisals that older siblings provide.

Context of appraisals. What tends to precede appraisals? It is likely that most appraisals are not offered totally out of context, but are responsive to the prior actions of the sibling. By considering the quality of the sibling's actions or behaviours that preceded appraisals, it was possible to determine whether appraisals had some basis in reality. In essence, it was expected that positive and negative appraisals would be preceded by positive or negative actions by the sibling, respectively, rather than being mismatched (e.g., negative appraisal of a positive action). If an appraisal was perceived as inaccurate in some way, then a child may disregard it more readily than if it has some basis in reality.

For this study, the valence of any actions of the sibling that preceded an appraisal were considered in the examination of the context. Examining children's prior actions (i.e., any actions that were close in time or were related to the content of the appraisal) allowed an

analysis of the circumstances that provoke sibling appraisals. The context was categorized by focusing on the valence of the preceding action, which could be described as positive, negative, or neutral.

In many situations, a positive or negative interactional move made by the sibling may precede a sibling appraisal that is consistent with the content and valence of sibling actions. For instance, positive accomplishments by one child could prompt positive sibling appraisals of the sibling's abilities. On the other hand, the occurrence of criticism in the face of a sibling's accomplishments or encouraging praise despite failure might be particularly significant indicators of the quality of sibling relationships. Although it seemed intuitively plausible that the context would be associated with the characteristics of appraisals in a meaningful way, these analyses were considered exploratory. Would there be evidence of such patterns, and what would their nature be?

Responses to Appraisals

Making predictions about the characteristics of appraisals was an important part of the exploration of sibling appraisals, but focusing only on the qualities of appraisals provides a limited view of the transactions inherent in communication. Thus, it was also essential to consider the responses of parents as well as those of appraised siblings to gain a better understanding of how appraisals were received.

Parents. Parent behaviour has consistently shown associations with different aspects of the sibling relationship and interactional patterns and is, therefore, an important consideration for the study of appraisals (e.g., Boer, Goedhart, & Treffers, 1992; Dunn & McGuire, 1992; Vandell & Bailey, 1992). Parent responses to appraisals were also expected to influence the likelihood of children maintaining or adopting views consistent with evaluations made by the sibling. In many cases, parents' authority may play a role in mitigating the effects of a particular appraisal, either negative or positive, such that the evaluation becomes either more or less believable to the sibling and consequently more or less likely to be internalized. Again, due to the paucity of specific literature in this area, we draw upon other studies of parenting behaviour and its associations with sibling conflict as a way of examining the role of parental input in the sibling appraisal process. One aspect of this study was to learn how often mothers and fathers are or become involved in these interactions, and how they respond, to determine their possible potency in mitigating siblings' internalization of information gleaned from

appraisals. Thus, parent responses were examined to determine patterns in their support or opposition of appraisals and whether support differed depending on the child's age or type of appraisal.

Within sibling conflicts, parents' responses have shown some distinctive patterns. Ross, Filyer, Lollis, Perlman, and Martin (1994) noted that parents tended to support the victims of conflict, regardless of whether they were the older or younger sibling. These analyses employed the same data set to be used in the current study, but focused on the observations from the first time period. In other research, Brody, Stoneman, McCoy, and Forehand (1992) found that when parents were included in discussions of sibling problems, they tended to favour the younger sibling. Therefore, it was expected that parents would demonstrate their support of their children by agreeing with positive and disagreeing with negative sibling appraisals; but it was unclear whether this support would be dependent on the age or birth order of the sibling. Other aspects of parent response patterns, such as when parents would become involved in the appraisal process and to whom they would direct their responses, were considered exploratory.

Responses of appraisees. Siblings' immediate responses (e.g., walk away, respond in kind, etc.) to appraisals were examined to determine the extent to which siblings disputed, accepted, reciprocated, or ignored evaluative statements their siblings made. It was also possible that siblings would respond by changing the activity or topic or by showing some emotion (e.g., cry or laugh). Like parent responses, sibling responses could be examined at two levels. First, it was qualitatively interesting to describe how often children responded to appraisals in meaningful ways (e.g., reciprocating appraisals or defending themselves) or did not respond at all. Second, when children did respond meaningfully, it was possible to examine their responses using similar categories as were used for parent responses and determine whether their support or opposition of appraisals was related to appraisal valence. For example, do children reciprocate praise or dispute negative appraisals? Particularly in the early years, children may look to their sibling as a way of learning about themselves, following the "Looking Glass Self" model (Cooley, 1902/1964). Children's apparent acceptance (or support) of an appraisal may mean that they have in some way incorporated that piece of information into their sense of who they are, whereas an apparent rejection (or opposition) may mean that it has not been incorporated into their feelings about themselves. Thus, by capturing

immediate responses, it may be possible to illuminate the dynamics of this particular aspect of sibling interactions and in future work, to determine how children incorporate this information into their beliefs about themselves. Examining the associations between appraisal valence and children's support, opposition, or neutral responses was a first step in this process. It seemed plausible that children would tend to defend themselves particularly in the face of negative sibling appraisals; however, given that these types of analyses have never been undertaken within the sibling or appraisal literatures, the analyses were exploratory.

Summary

The main goal of this study was to examine sibling appraisals with an eye to understanding their prevalence, nature, determinants, and contexts, as well as responses to appraisals by parents and siblings. The specific hypotheses addressed in this study included:

- Children would appraise one another. It was expected that language development, birth order, age, gender, and the target of the appraisal would be associated with the valence and prevalence of appraisals delivered by siblings.
- It was predicted that children would evaluate sibling behaviour, ability, and moral quality, but it was uncertain which attribute would be most often appraised.
- The valence of the context of appraisals was expected to be meaningfully related to the valence of siblings' appraisals.
- Sibling and parent responses were hypothesized to be associated with the appraisals that precede them. It was predicted that parents would tend to support the appraised child, particularly in the face of negative appraisals. That is, parents were expected to favour positive sibling appraisals and countervail negative appraisals. The strongest association for sibling responses was predicted to be between negative sibling appraisals and children's opposition.

Although I have proposed many predictions within this study, my primary focus is on the pattern in the valence of children's sibling appraisals as well as the different ways that children respond to feedback from their siblings.

Method

Participants

Forty Caucasian, English-speaking families, in the Waterloo region, were recruited from birth announcements to participate in a larger project on parent intervention in sibling conflict. Families, consisting of two parents and two children, were observed in their homes at two different time periods about two years apart. There was approximately 2 years difference in the ages of the siblings (ranging from 1.4 to 2.5 years). At the first observation period, the older children were between 3.6 and 4.9 years of age ($\underline{M}$ = 4.4 years) and their younger siblings were between 1.9 and 2.6 years of age ($\underline{M}$ = 2.5 years). At Time 2, the older siblings were between 5.4 and 7.0 years of age ($\underline{M}$ = 6.3 years) and their younger siblings were between 3.8 and 4.8 years of age ($\underline{M}$ = 4.4 years). Each gender combination within the sibling pairs (i.e., two males, two females, older male-younger female, and older female-younger male) was represented equally in the sample. With respect to parents' highest level of education attained, 29% of parents had completed a university or college degree, 41% of parents had completed a high school diploma but not university, and 15% of parents had not finished their high school diploma.

By the second observation period some substantial changes had occurred in some of the families. Ten families had had a third child; however, even though this child was present during the observation sessions, his/her explicit contributions to family interactions were not considered in these analyses. In addition, parents were either in the process of separating or had divorced in four of the families. Finally, one family was not observed at time 2 because they had moved to another country. Analyses were thus conducted on 39 families who were observed at both time periods.

The data used in this research came from a larger project that was funded by a grant to Hildy Ross, from the Social Sciences and Humanities Research Council. These data were collected from 1987 to 1991. Following the data collection, I was a part of the research team and contributed to the transcription and coding of the recorded data.

Procedure

At each time period, six observation sessions, each lasting about ninety minutes, were completed within approximately one month. Mothers were present for half of the sessions (Mother sessions; 4.5 hours at each time period) and both parents present for the remainder

(Family sessions; 4.5 hours at each time period). In two of the families in which divorce had occurred, all six sessions at Time 2 were recorded with the mother being the only parent present. In families in the process of separating, one or two sessions were recorded with the father present and remaining sessions were recorded with the mother only. In three other families, up to three sessions were missing, and in these cases their data were prorated to be equivalent to nine hours. Due to some other unsystematic circumstances, some sessions had to be shortened, but the time was later made up. Thus, for each family, a total of eighteen hours of data was analyzed over the two time periods.

Two observers were assigned to each family as a way of establishing familiarity and maintaining stability throughout this process; however, only one observer was present for each session to reduce the intrusiveness of these procedures. On two tracks of an audiotape, the observer recorded the actual interactions of the children and described the verbal and nonverbal behaviour of the family members. Children were required to be in the same room and parents needed to be nearby so that they would be aware of their children's activities. No one else was present during these times. Major distractions, such as television or video games, were prohibited during sessions. At any time when the children or parents were not in the same or adjacent rooms, respectively, or if major distractions were present, the observer stopped recording and waited until these requirements were met or rescheduled the observation. Audiotapes were transcribed into coded transcripts including all verbal and nonverbal interactions of the family members. Given that the original focus of the study for which this data collection occurred related to sibling interactions and conflict, only those interactions that involved both children, children and parents together, or one child with a parent discussing their sibling were transcribed and coded.

Coding Sibling Appraisals

Transcripts were examined to identify and code all sibling appraisals and sibling or parent responses. An appraisal was coded when statements in some way evaluated or judged the skillfulness (e.g., ability to do an activity), morality (i.e., moral quality), or general qualities of their sibling, including behaviour, personality, and physical qualities. For example, instances of appraisals included statements such as name-calling (e.g., "Johnathan is a twerp-head"), insults (e.g., "You're a jerk"), praise (e.g., "That's good, you're trying. Go show mom"), and some instances of tattling (e.g., "He's not being good"; "Mom, she hit me."). To

further capture the characteristics of each appraisal, they were coded on a number of dimensions: valence, attribute appraised, and target.

Valence. Appraisals were classified as having either a positive or negative valence. For example, an appraisal receiving a positive coding was, "You're doing good" or, "They look good" (describing some fish that the sibling had drawn). In contrast, a statement that constituted an appraisal with a negative valence was, "No I don't want him to because he's being stupid." or "Don't be a pig," (in response to the younger sibling grabbing for extra snacks).

Attribute appraised. Each appraisal was categorized as to whether it addressed (1) ability, (2) moral quality, or (3) general qualities. These categories were mutually exclusive such that any one appraisal would fall under one classification. Table 1 contains examples of positive and negative appraisals made by older and younger children that fell within each category. First, appraisals that reflected an evaluation of skills or abilities of the sibling, focusing on the child's skill or lack of skill in a certain area, were coded within the ability category. Name-calling that focused on perceptions of lack of ability, such as "You're dumb." were included in this category.

Second, the moral attributes category encompassed those appraisals that referred to a rule being upheld or broken or focused on any other act which is moral or immoral. An appraisal with moral content reflected an evaluation of attributes which "[arise] from a sense of duty and right conduct" (Funk & Wagnalls, 1989, p. 880).

Finally, appraisals could fall into a general qualities category. Such appraisals noted behaviour or attributes that were pleasing or unpleasant but that did not fall into the prior categories of ability or morality. The general qualities category, thus, referred to actions that did not have a moral tone and could refer to positive or negative acts or qualities of the sibling. This category also included times where children thanked each other for something they had done. In contrast, appraisals of the other as unpleasant or annoying were those which evaluated the sibling negatively. Some name-calling behaviour, such as calling the sibling a brat, also fell under this heading.

Table 1

Some examples of children's sibling appraisals in each of the categories

	Ability	Moral behaviour	General qualities
Positive	**O1:** It's nice with all different colour flowers (referring to picture Y was colouring) **O2:** I said you were doing your best pouring the ketchup (repeating what said to M). **Y1:** (O places a piece of a puzzle) That's right! **Y2:** That's nice colouring.	**O1:** Thank you (after Y gave O a plastic egg that O has asked Y to share) **O2:** (to M) He shared his toys with me all morning. **Y1:** Thank you (O was withholding the glue Y needed, and finally gave it up). **Y2:** We're sharing the markers.	**O1:** Thanks, I really appreciated that. I was trying to look all over for him (after Y passed O a figure). **O2:** That was nice of you to put that away. **Y1:** Thank you (after O gave Y a cup for a drink). **Y2:** (O making silly noises) You're funny.
Negative	**O1:** But you don't know how to straighten it out (after Y requested to help with a blanket). **O2:** Well I'm not the one who doesn't know how to play 'cause [she] was the one who didn't know how to play. **Y1:** No this many you stupid, you're a dummy (after O holds up fingers to show O's age). **Y2:** That doesn't look like a Y, it looks like a T (describing O's printing).	**O1:** You don't ever share. **O2:** (Y hit O on the back) That hurts, that really does, that really hurts. **Y1:** [She] hurt me (to mom after O hit Y in the face). **Y2:** Don't you're hurting me with it (O was throwing play dough at Y)	**O1:** (to M) He keeps bugging me. I don't like him. **O2:** (Y imitating O) Don't do everything I do. I hate it. **Y1:** You rat face. **Y2:** [She] won't play with me.

Note. O = Older child; Y = Younger child; M = Mother.

Target. Given the structure of the observation sessions, appraisals could be directed either toward the sibling or one or both of the parents.

Appraiser. The birth order of the appraiser (i.e., older or younger) was also recorded.

Context of appraisals. The context of appraisals was the sibling's actions immediately or closely preceding the appraisals. The context was coded with respect to valence of the action: positive, negative, or neutral. A positive precipitating act was something like playing a game well or being helpful; a negative act was hitting a sibling or missing a shot in a game; and a neutral act was the child playing alone or alongside one their sibling.

Coding Responses to Sibling Appraisals

The responses of the siblings and parents were also of interest in these analyses. In reality, it is possible for responses to appraisals to occur at any time (e.g., from immediately following the appraisal to later that week). Although later responses were possible, these analyses focused on immediate responses (i.e., within close temporal proximity to appraisals). Considering more remote responses to appraisals would have been impossible because the transcripts contained a limited sample of the siblings' interactions, and it would have been difficult to reliably connect later responses to earlier appraisals unless explicit comments were made to indicate such links. Since this research area has been relatively unexplored, looking for evidence in immediate responses to sibling appraisals was a logical place to begin before venturing further afield in the interactions. The only exceptions were those more remote responses that explicitly addressed the appraisal, typically within the same sequence of interaction; however, such instances were very rare.

Parent responses. Since parents were not always directly involved in their children's interactions, parent responses to sibling appraisals were coded only in those circumstances when it was determined that the parents were explicitly involved. Parental involvement was decided based on evidence from the transcribed interactions immediately preceding or following the appraisal, such as a comment by the observer that the parent was watching but not talking or the parent being directly involved in the interaction prior to the appraisal. If parents were involved, a response was coded and, if not, nothing was coded. A parent response was also recorded in those cases where a child directed a sibling appraisal to their parent. Whether the response was directed to the older or younger child or to both children was recorded based on information from the transcripts.

Responses were also coded as to whether the parent supported or disputed appraisal statements, or responded neutrally. Responses were coded as supporting the appraisal if the parent seemed to agree or made a statement that suggested that they agreed with the appraisal (e.g., addressing the appraisee and saying to stop, agreeing with comment made, etc.). On the other hand, responses that opposed appraisals were classified as disputing the appraisal. Such responses included occurrences where the parent reprimanded the child for making the statement, directly disagreed, or made a counter-appraisal (e.g., "Ben is smart not stupid"). Other occasions where parents responded but did not address the appraisal were coded as Neutral Responses (i.e., neither supporting nor opposing the appraisal). The neutral response category also included those events where parents were present before the appraisal occurred, but did not respond following the appraisal despite being involved.

Sibling responses. Responses could support or dispute the appraisal, or they could be neutral. A response that supported the appraisal would somehow indicate agreement with the evaluation that was stated. Responses that disputed an appraisal would attempt to disagree with the evaluation made by simply disagreeing or providing some defensive statements in support of the appraisee. Neutral responses were comprised of all other responses which did not directly support or oppose the stated appraisal. This category included a wide variety of behaviours such as physical aggression, verbal aggression (that did not directly counter the appraisal), continuing or changing activities, and emotional responses (such as smiling, laughing, or crying).

Reliability

Reliability estimates were calculated in three phases: for observation and transcription, for identifying appraisals and responses, and for coding appraisals and responses. Before the data collection for the families, 27 additional 20-minute sessions (17 sessions at Time 1 and 10 sessions at Time 2) were completed. Comparison of two observers' records and transcriptions of the interactions of the family members indicated 92% agreement for Time 1, and 86% agreement at Time 2.

Reliability was also estimated for the identification and classification of appraisals, of the context of appraisals, and of sibling and parent responses in twenty 90-minute transcripts. The appraisals were identified by two coders: the author and another coder. Cohen's Kappa for the identification of appraisals within the transcripts of 20 families was .78.

Following identification of appraisals, the same two coders classified the context, the appraisal attributes, and the responses of parents and siblings. When disagreements occurred in the reliability process, the coders discussed them and made a decision regarding the appropriate category. For the valence of context of sibling appraisals, the kappa value was.76. For the coding of the actual appraisals, much of the information used to describe appraisals was within the coded transcripts and therefore calculating kappa values was unnecessary as reliability was illustrated through the identification of the appraisals. However, kappa values for the Attribute Appraised category was .86. For sibling responses of support, dispute, or neither support or dispute, the kappa value was .76. Finally, for parent responses, kappas were .62 for determining whether parents supported the appraisal, and .67 for which child the parent supported.

Results

Prevalence and nature of sibling appraisals

Frequency of sibling appraisals

In most families, children appraised their siblings during the observation sessions, and the mean frequencies of appraisals increased from Time 1 to Time 2. At Time 1, both siblings together appraised each other, on average, 28.7 times over the 9 hours of observation (s.d. = 15.7, range 10 – 74), while at Time 2, the mean frequency increased to 56.5 (s.d. = 26.0, range 14 – 119). Within the first time period, all but three of the younger siblings appraised their sibling; the older siblings made sibling appraisals in all cases, and all siblings appraised one another within the second time period.

Older siblings were relatively consistent in their rate of sibling appraisals over the two time periods, r (38) = .54, $p < .001$, whereas younger siblings' rate of sibling appraisals was not significantly consistent across time, r (38) = .05, $p > .05$. At the second time period, children generally matched the frequency of appraisals of their siblings, Time 2, r (38) = .54, $p < .01$; however, this consistency across children was not observed for sibling appraisals at Time 1, r (38) = .21, $p > .05$.

Nature of sibling appraisals

The valence of appraisals, or whether evaluations were positive or negative, was the main qualitative factor throughout the analyses of sibling appraisals. On average, both siblings in a family made 23.6 negative (s.d. = 14.5, range 6 – 69) and 5.1 positive (s.d. = 3.5, range 0 – 15) sibling appraisals in the first time period. By the second time period, when the frequency of children's appraisals increased, they made an average of 43.3 negative (s.d. = 21.3, range 12 – 99) and 13.1 positive (s.d. = 10.3, range 0 – 48) sibling appraisals.

Given that children were appraising one another, it was important to consider whether the valence of appraisals was related to other factors such as Child (older or younger sibling) and Time period. A three-way 2 (Child) X 2 (Valence) X 2 (Time) repeated-measures Analysis of Variance (ANOVA) was conducted on the frequencies of children's sibling appraisals (Table 2).

Table 2

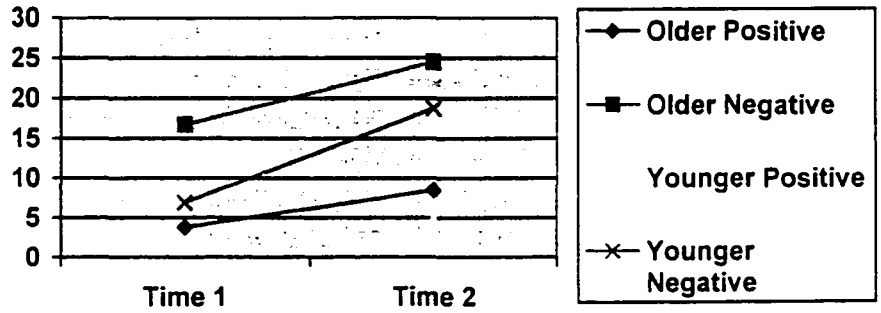
Mean frequencies of sibling appraisals over time

	Time 1		Time 2	
	Positive	Negative	Positive	Negative
	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)
Older	3.8 (3.0)	16.7 (11.4)	8.5 (7.3)	24.5 (13.9)
Younger	1.3 (1.4)	6.9 (6.8)	4.6 (4.3)	18.8 (10.6)

Note. Standard deviations are included in brackets.

Figure 1

Mean frequencies of positive and negative sibling appraisals for each child, over time



Each of the main effects was significant (Table 3). Older children made significantly more appraisals than their younger counterparts; more negative than positive appraisals were made; and more appraisals were observed at Time 2 than at Time 1. The effects of Child and of Time, though, were each moderated by a two-way interaction with Valence. Further exploration of the Child X Valence interaction, using t-test comparisons of positive and negative appraisals for each child, revealed that both children made more negative than positive sibling appraisals (Table 4). In relation to the Valence X Time interaction, children made more negative than positive appraisals at both time periods (Table 4). The dramatic increase in negative appraisals from Time 1 to 2, relative to the increase in positive appraisals, seemed to cause the interaction.

Table 3

Statistical effects for Child, Valence, and Time

		$F(1, 38) =$	$p <$
Main effects	Child	33.68	.001
	Valence	97.35	.001
	Time	49.36	.001
Two-way interactions	Child X Valence	8.69	.01
	Child X Time	1.45	n.s.
	Valence X Time	15.70	.001
Three-way interaction	Child X Valence X Time	5.06	.05

A significant three-way interaction of Child X Valence X Time moderated the above results. It appeared that children's use of sibling appraisals varied significantly depending on both valence as well as the time of the appraisal. The significant interaction effect was examined separately for older and younger children using two separate 2 (Valence) X 2 (Time) repeated measures ANOVAs. For older siblings, differences between their use of positive and negative appraisals remained relatively constant and significant over time, $F(1, 38) = 2.29$; $p > .05$ (Table 4). The interaction was not significant because of the large main effect of valence present in older children's appraisals. That is, at both Time periods older children appraised their younger sibling negatively more often than positively (Figure 1), but the difference between the frequencies of negative and positive appraisals did not change (Table 4). Therefore, an interaction with time was unlikely to occur. In contrast, for younger children, the pattern of their positive and negative appraisals varied with the time of the observation, $F(1, 38) = 23.65$; $p < .001$. More specifically, as younger siblings' appraisals increased in frequency over time, the increase was larger for negative appraisals than for positive appraisals such that the difference between the frequency of negative and positive appraisals was greater at Time 2 (Figure 1) (Table 4). Nonetheless, even at 2 years of age, younger siblings made significantly more negative than positive appraisals of their brothers and sisters.

Table 4

Comparisons of positive and negative sibling appraisals across siblings[1]

		Degrees of freedom	t-value	p <
Child X Valence	ONG – OP	38	8.25	.001
	YNG – YP	38	9.19	.001
Valence X Time	NG1 – P1	38	8.16	.001
	NG2 – P2	38	8.86	.001
Child X Valence X Time	YNG1 – YP1	38	5.26	.001
	YNG2 – YP2	38	8.59	.001
	ONG1 – OP1	38	7.39	.001
	ONG2 – OP2	38	7.04	.001

Note. O = Older, Y = Younger, NG = Negative, P = Positive, 1 = Time 1, 2 = Time 2

In summary, the frequency of children's sibling appraisals increased over time and older children generally made more appraisals than their younger siblings. When these factors were considered in conjunction with the valence of children's appraisals, it became apparent that the frequency of children's appraisals depended on valence and on the time of the observation. As the rate of children's appraisal increased over time, negative appraisals continued to predominate relative to positive appraisals. Older siblings tended to show more consistency in the ratio of positive to negative appraisals than did younger children, whereas younger children showed a slightly more dramatic increase in their negative appraisals relative to their older siblings.

Language

Do children's linguistic competence account for the above findings with respect to the rate of children's appraisals? It is possible that the differences between older and younger children, or between Time 1 and 2, may be attributable to the language abilities of the children, rather than reflecting differences in appraisal patterns per se. To determine whether language

[1] Given the number of comparisons made, alpha slippage could be a concern. That is, it is possible that a Type I error could occur. However, given that, in the majority of these comparisons, the significance level far exceeded the .05 level, it is unlikely that the current results are an artifact of alpha slippage. This explanation also applies to other comparisons completed in this study.

played an important role in the observed differences, the proportion of children's speech acts that consisted of sibling appraisals was examined. Basically, the sum of each child's sibling appraisals (collapsed across valence) was divided by the overall frequency of that child's speech acts, at each time period. Overall, children's appraisals made up a small proportion of their total number of speech acts (ranging from 0 to 5%) (Table 5). An analysis, using a 2 (Child) X 2 (Time) repeated-measures ANOVA, indicated that sibling appraisals depended on both the speaker and time of appraisal (Table 6). Older siblings generally made more sibling appraisals than younger siblings; however, the proportion of sibling appraisals relative to overall speech decreased over time (Table 6). This decline was more dramatic, and significant, for older than for younger children; the proportion of younger children's sibling appraisals, relative to their rate of speech, remained relatively constant across the two periods (Table 7). As a result, even though older children generally made significantly more sibling appraisals than younger children, this difference was less pronounced at Time 2 than Time 1 (Table 7).

Table 5

Mean proportions of sibling appraisals over time, proportionalized by speech acts

	Time 1	Time 2
	Mean (SD)	Mean (SD)
Older	3.75% (2.1%)	2.27% (1.1%)
Younger	2.06% (1.5%)	1.93 (0.9%)

Table 6

Statistical effects for the proportion of sibling appraisals by older and younger children across time periods

		$F(1, 38) =$	$p <$
Main effects	Child	14.36	.001
	Time	14.30	.001
Two-way interaction	Child X Time	6.28	.05

Table 7

Comparison of sibling appraisals between children and across time

	Degrees of freedom	t-value	p <
Younger vs. Older, Time 1	38	3.70	.001
Younger vs. Older, Time 2	38	2.17	.05
Younger Time 1 vs. Time 2	38	.45	n.s.
Older Time 1 vs. Time 2	38	4.68	001

In summary, differences in children's sibling appraisals, described earlier, cannot be attributed solely to differences in children's level of language development. It appears that some patterns in children's appraisal behaviour emerge despite developmental differences in language. Older siblings appraised more often than younger siblings even when differences in their verbal fluency were taken into account. However, over time, older siblings' rate of appraisals did not increase as fast as their rate of general speech, but rather decreased considerably over time. For younger siblings, their rate of appraisals paralleled increases in their rate of talk. Thus, overall, the rates of appraisals did not simply mirror the rate of talk by the children. For the remainder of the analyses, the raw appraisal frequencies were used. It was felt that the frequency could hold more meaning for young children than the proportional scores would because children likely do not have the cognitive sophistication to consider the frequency of their siblings' appraisals them relative to the rest of their siblings' speech.

Gender effects

Gender has been shown to play a significant role in global assessments of children's warmth and hostility within the sibling relationship. Therefore, it seemed likely that gender would also influence appraisal behaviour. To examine these effects, Seay and Kay's (1983) analyses, developed for the examination of dyadic interactions, were used. Essentially, these analyses allow for consideration of the gender of the appraiser (Actor effects), the gender of the child who is appraised (Partner effects), and the interaction between these factors. The results provide a more powerful examination of gender effects than is possible with a standard ANOVA design because each child is examined as both an actor and a partner, while the interdependency of the sibling pairs is taken into account. In the traditional ANOVA design, the gender of the two siblings can only be entered in the analyses as a between-subjects factor.

Conclusions are then restricted to the sibling pair (e.g., older male-younger male combination), rather than allowing consideration of, for instance, whether older male siblings behave differently from younger male siblings, taking into consideration the gender of their partner.

The procedures used to complete these analyses are described in detail in Martin (1997). For this study, equations were modified slightly to include Child, Time, and Valence, all within-subjects variables, as well as the between-subjects factors, Gender of Actor and Gender of Partner. Analyses were structured such that only one within-subjects factor was included in any interaction analysis because after dividing siblings by gender, there would be too few subjects within each cell to subdivide further across multiple within-subjects factors (i.e., comparing sibling appraisals using older male negative and positive appraisals at Time 1 and 2, older female negative and positive sibling appraisals at Time 1 and 2, etc.). Results obtained from such analyses could not be considered reliable findings. As a final note, the statistics that result from these analyses are distributed in a pattern similar to the **t-distribution** with $n_{oMyM} + n_{oMyF} + n_{oFyM} + n_{oFyF} - 4$ degrees of freedom. Therefore, even in the cases where interactions have been tested, a t-statistic is reported to show significance. Table 8 contains the means for positive and negative sibling appraisals for older and younger children over time and across each gender combination. Only those results in which Gender played a role are presented here.

Table 8

Mean frequency of positive and negative sibling appraisals by gender pairing, over time

	Time 1				Time 2			
	Positive		Negative		Positive		Negative	
	O	Y	O	Y	O	Y	O	Y
OM-YM	3.7	.80	21.9	7.8	9.7	6.2	32.4	25.0
	(3.4)	(1.0)	(15.1)	(9.9)	(5.7)	(6.3)	(13.9)	(11.9)
OF-YF	3.8	2.8	13.1	6.3	9.3	3.8	15.8	13.9
	(3.0)	(1.6)	(11.7)	(3.8)	(11.0)	(4.0)	(12.0)	(4.0)
OM-YF	3.1	.70	14.0	9.1	7.0	4.7	26.3	20.2
	(2.9)	(.95)	(10.3)	(6.4)	(6.0)	(3.5)	(9.6)	(12.1)
OF-YM	3.8	.67	18.0	4.11	8.0	3.8	23.3	15.9
	(3.0)	(.71)	(4.9)	(5.4)	(5.7)	(2.1)	(16.2)	(10.3)

Note. Standard deviations are included in brackets.

Overall, gender of actor by itself did not influence the pattern of sibling appraisals, but gender of partner did. Significantly more sibling appraisals were directed to male than to female siblings (Table 9). However, this pattern interacted significantly with appraisal valence. The Partner X Valence interaction indicated that the pattern of appraisals being delivered more frequently to male partners was true only for negative appraisals (Table 9) (Figure 2). Thus, not only were boys appraised more frequently than girls, but their siblings appraised them negatively more often than girls were. In contrast, the occurrence of positive sibling appraisals seemed to be somewhat independent of gender combinations of the siblings. Overall, these findings indicate that gender plays a role in the pattern of appraisals, only when considering the gender of the partner within interactions and not the actor, as had been predicted.

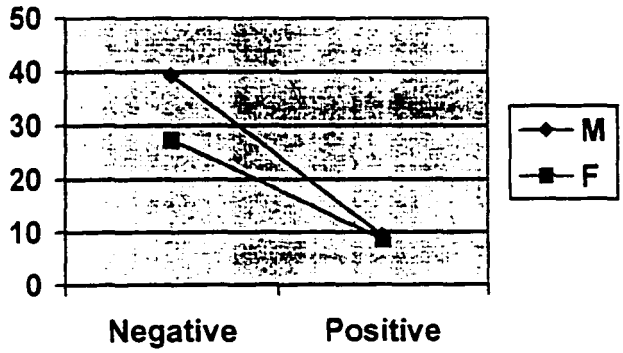
Table 9

Statistical effects for the effects of Gender, Child, Time, and Valence of sibling appraisals

		$t(35) =$	$p <$
Main effects	Actor	1.38	n.s.
	Partner	2.96	.05
Two-way effects	Actor X Partner	0.60	n.s.
	Actor X Valence	1.22	n.s.
	Actor X Child	1.00	n.s.
	Actor X Time	0.90	n.s.
	Partner X Valence	2.74	.05
	Partner X Child	0.33	n.s.
	Partner X Time	1.99	n.s.
Three-way effects	Actor X Partner X Valence	1.67	n.s.
	Actor X Partner X Child	0.28	n.s.
	Actor X Partner X Time	0.94	n.s.

Figure 2

Frequencies of positive and negative appraisals made of male and female partners



Note. The frequencies in this graph represent the average of the occurrence of positive and negative sibling appraisals for male and female partners.

Targets for sibling appraisals

Children's sibling appraisals were also classified as to whether they were said to a sibling or to parents. It was of interest to consider to whom children directed their appraisals and whether this behaviour interacted with the age, valence, or time of appraisal. Only clear instances of children speaking to either their parents or to their siblings were analyzed. On some occasions, children addressed appraisals to both their siblings and parents. These instances were very rare, occurring on average 2.0 times in nine hours for older children (range 0 – 11) and .84 times in nine hours for younger children (range 0 – 9). For clarity of interpretation, these instances were not considered in the analyses. Table 10 contains the mean frequencies of appraisals based on target, child, valence, and time of observation.

A four-way repeated measures ANOVA including 2 (Child) X 2 (Valence) X 2 (Time) X 2 (Target) was conducted. Since other factors have been discussed elsewhere, only the influence of the Target factor on its own and in combination with other factors is described here. The main effect of the Target factor was highly significant (Table 11). Children generally addressed their appraisals to their sibling more often than to their parents (Figure 3). The interaction of the Target factor with Child and Time each qualified this main effect. Further exploration of the Child X Target interaction, using t-tests to compare older and younger siblings' appraisals directed to siblings or to parents, revealed that older and younger children made significantly more appraisals directly to their sibling than to parents, but the effect was stronger for older siblings (Table 12). Thus, older siblings were particularly likely to direct their appraisals to their sibling rather than to their parents (Figure 3). With respect to the Time X Target interaction, comparisons of appraisals directed to siblings and to parents within each time period revealed that children delivered significantly more sibling appraisals to their sibling than to parents at both time periods (Figure 4). The interaction resulted from a greater difference between appraisals directed to siblings and to parents at Time 2; that is, as the frequency of children's appraisals increased over time, relatively more appraisals were directed toward the sibling than to parents. It is important to recall that the procedure for this study – the fact that observations focused on sibling interactions in the transcripts – does not explain this interaction because if children had stated a sibling appraisal to one of their parents, these interactions would have been coded and transcribed.

It is also important to note that children were equally likely to direct their positive or negative appraisals to their sibling or to parents. There were no interactions of Valence X Target. Therefore, it appears that children are not selectively sharing negative (or positive) appraisals with their parents (Table 11).

Table 10

Means for each child at each Time period according to the Target of sibling appraisals.

	Time 1				Time 2			
	Directed to sibling		Directed to parent		Directed to sibling		Directed to parent	
	+	-	+	-	+	-	+	-
Older	3.5	10.1	.18	6.6	7.6	14.3	.40	8.7
	(2.7)	(8.0)	(.56)	(5.2)	(6.8)	(9.0)	(.84)	(6.7)
Younger	1.2	4.1	.051	2.74	4.4	11.7	.077	6.5
	(1.4)	(4.4)	(.22)	(3.6)	(4.2)	(7.0)	(.27)	(5.8)

Note. 1. "+" = Positive sibling appraisal and "-" = Negative sibling appraisal.

2. Standard deviations are included in brackets.

Figure 3

Frequency of sibling appraisals directed to siblings and to parents for older and younger children

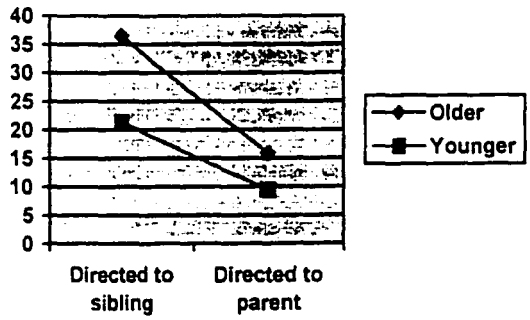


Figure 4

Frequency of sibling appraisals directed to siblings and to parents at each time period

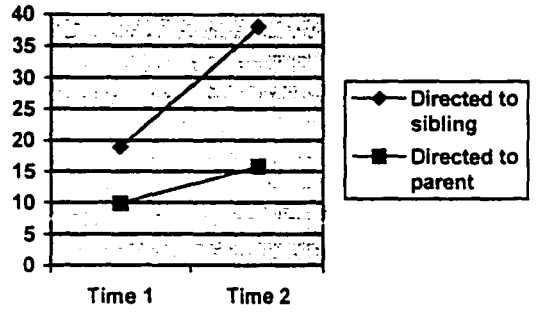


Table 11

Statistical effects for Child, Valence, Time, and Target for sibling appraisals

		$F(1, 38) =$	$p <$
Main effect	Target	67.22	.001
Two-way interactions	Child X Target	10.78	.01
	Time X Target	18.52	.001
	Valence X Target	.020	n.s.
Three-way interactions	Child X Valence X Target	1.09	n.s.
	Child X Time X Target	.39	n.s.
	Valence X Time X Target	.21	n.s.
Four-way interaction	Child X Valence X Time X Target	1.88	n.s.

Table 12

Comparisons of appraisals across Valence, Time, Child and Target for sibling appraisals

		Degrees of freedom	t-value	p <
Child X Target	OD – OI	38	7.44	.001
	YD – YI	38	6.47	.001
Time X Target	D1 – I1	38	3.95	.001
	D2 – I2	38	7.53	.001

Note. O = Older; Y = Younger; D = Directed to sibling; I = Directed to a parent; NG = Negative; P = Positive.

Attributes appraised

Appraisals were also categorized according to the attributes children appraised (i.e., ability, moral quality, or general qualities) to determine if children focused their appraisals on a given domain. Across the families, children generally made appraisals that assessed each of the categories at both time periods. Table 13 contains the overall means for the attributes appraised with respect to child, valence, and time. To determine whether the pattern of appraisals varied depending on the attribute appraised, a 2 (Child) X 2 (Valence) X 2 (Time) X 3 (Attribute Appraised) repeated-measures ANOVA was conducted. As in previous sections, only main and interaction effects of Attribute are discussed here.

The frequency of children's sibling appraisals varied significantly depending on the attribute being appraised (Table 14). Children appraised the moral quality of their sibling's behaviour more frequently than either their siblings' abilities or general qualities. This main effect, though, was qualified by interactions with Valence and with Time. For the Valence X Attribute interaction, even though children appraised one another negatively more often than positively, this difference was much larger for appraisals of moral behaviour than for appraisals of other attributes (Figures 5, 6, and 7). The difference was small for appraisals of abilities, showing that children made positive appraisals almost as often as negative ones.

Over time, the frequency of children's appraisals of the different attributes increased; however, this increase was most striking for ability appraisals (Figure 7). At Time 1, there was some variability in the attributes appraised, with ability being appraised least often and moral qualities most often. By Time 2, the frequency of appraisals in each category became relatively similar. A three-way interaction of Child, Attribute, and Time qualified this effect indicating that, over time, older siblings, and to a lesser extent, younger siblings, increased the frequencies of appraisals of their siblings' abilities. Indeed, by Time 2, ability appraisals were the most frequent domain of older siblings' appraisals. All other group comparisons were consistent in indicating that children appraised moral qualities most often and abilities least often.

Table 13

Attributes appraised, and valence over time

	Time 1						Time 2					
	Ability		Moral		General qualities		Ability		Moral		General qualities	
	+	-	+	-	+	-	+	-	+	-	+	-
Older	1.6	2.1	.13	9.4	2.1	5.2	5.4	7.7	0	9.4	3.1	7.4
	(1.7)	(2.6)	(.47)	(5.9)	(1.9)	(6.2)	(6.5)	(7.1)	(0)	(7.0)	(2.8)	(5.7)
Younger	.28	.33	.08	4.6	.90	2.0	2.5	3.8	.08	9.2	2.1	5.8
	(.76)	(.93)	(.35)	(4.3)	(1.1)	(3.1)	(3.3)	(4.3)	(.27)	(5.9)	(1.9)	(4.3)

Note. 1. "+" = Positive sibling appraisal and "-" = Negative sibling appraisal.

2. Standard deviations are included in brackets.

Each of these interaction effects, though, was moderated by a significant interaction of all four factors (Table 14). To explore these effects, t-test comparisons of the mean frequencies of siblings' positive and negative appraisals over time were conducted separately for each attribute (Table 15). With the ability domain, children showed no differences between their uses of positive and negative appraisals at either time period (Figure 5). The ratio of positive to negative ability appraisals was much more modest (i.e., small differences between the frequency of negative and positive appraisals) than that seen for moral and general qualities appraisals. In contrast, for moral behaviour, children showed the strongest differences between positive and negative appraisals. That is, they appraised their sibling negatively significantly more often than positively (Figure 6); this difference was magnified for younger children at Time 2 relative to Time 1. Similar effects were noted for general qualities; however, they were not as strong as those for moral behaviour (Figure 7). These differences were apparent for both children, but especially for younger children at Time 2 than at Time 1 (Table 15).

Table 14

Statistical effects for Child, Valence, Time, and Attribute Appraised for sibling appraisals

		F (2, 76) =	p <
Main effect	Attribute	5.72	.01
Two-way interactions	Child X Attribute	2.82	n.s.
	Time X Attribute	8.52	.001
	Valence X Attribute	66.10	.001
Three-way interactions	Child X Valence X Attribute	1.43	n.s.
	Child X Time X Attribute	15.73	.001
	Valence X Time X Attribute	.21	n.s.
Four-way interaction	Child X Valence X Time X Attribute	4.85	.01

Table 15

Comparisons of appraisals across Valence, Time, Child and Attribute for sibling appraisals

		Degrees of freedom	t-value	p <
Child X Valence X Time X Attribute				
Ability	ONG1 – OP1	38	1.10	n.s.
	YNG1 – YP1	38	.27	n.s.
	ONG2 – OP2	38	1.67	n.s.
	YNG2 – YP2	38	1.76	n.s.
Moral	ONG1 – OP1	38	9.84	.001
	YNG1 – YP1	38	6.81	.001
	ONG2 – OP2	38	8.35	.001
	YNG2 – YP2	38	9.63	001
General qualities	ONG1 – OP1	38	3.17	.01
	YNG1 – YP1	38	2.06	.05
	ONG2 – OP2	38	4.43	.001
	YNG2 – YP2	38	5.13	.001

Note. O = Older; Y = Younger; NG = Negative; P = Positive; 1 = Time 1; 2 = Time 2.

Figure 5

Positive and negative appraisals of ability for each child at each time period

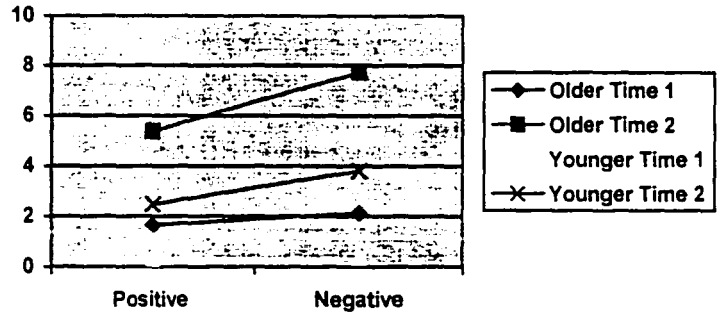


Figure 6

Frequency of positive and negative moral appraisals for each child at each time period

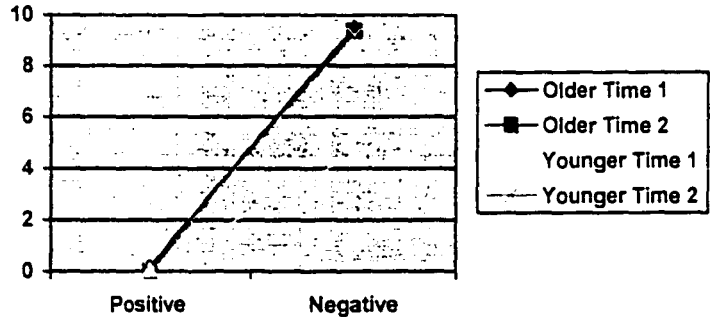
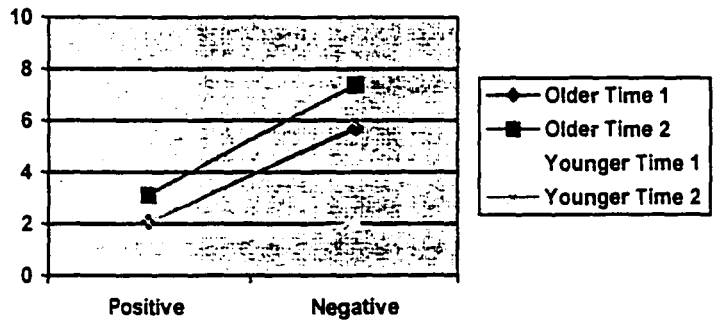


Figure 7

Frequency of positive and negative general qualities appraisals for each child at each time period



In summary, children's appraisals varied depending on the attribute they appraised. They were likely to appraise ability positively nearly as often as negatively. Their appraisals

of general and moral quality showed much different patterns where negative appraisals occurred significantly more frequently than positive appraisals for both children. These differences were more striking for both children at Time 2, particularly for appraisals of general qualities.

Context and appraisals

Do appraisals depend upon some aspects of the sibling's behaviour or do they occur without apparent provocation? A series of log-linear analyses was conducted on the events that preceded appraisals (the context) and the appraisals themselves. In order to have sufficient data in each cell, appraisals, matched with the prior event, were collapsed across families thus making appraisals the unit of analysis. For example, for each appraisal event, it was noted whether the valence matched or was different. Frequency counts were taken for each cell without regard for the associated family. That is, no differentiation was made between families. As a result, the conclusions drawn here are made at a group level and are not generalizable to families outside of this study (Bakeman & Gottman, 1986). Despite this limitation, these analyses provided insight into the dynamics of sibling appraisals.

This analysis considered whether a relationship existed between the valence of the events that preceded appraisals and the valence of the appraisals themselves. More specifically, analyses answered the question – is the valence of the context meaningfully related to the valence of appraisals? Patterns in the valence were also compared across the two time periods and between siblings (i.e., by including Time and Child as factors in the analyses). These associations were tested using the Likelihood ratio χ^2 which tests the fit of a specified model. That is, the null hypothesis is one of independence which means that, if true, the observed expectancies do not differ significantly from the expected frequencies. When examining the χ^2 statistic for testing a model, a significant finding (i.e., $p < .05$) indicates that the observed expectancies differ significantly from those expected under the null hypothesis of independence. Whenever the null hypothesis was rejected, significant departures from expected values between variables were noted using the standardized residuals for each individual cell. Standardized residuals are z-scores so that any value larger than an absolute value of 1.96 (at the .05-level) was considered a significant departure from the value that would be expected given the model being tested (i.e., the null hypothesis model of observed frequencies matching expected frequencies).

In some cases, no prior act could be identified within the transcripts typically because the appraisal was the first turn in a sequence after the children had been playing independently or because the preceding act occurred before the observation session began. These appraisals represent only a small proportion of all appraisals in the sample (approximately 10% of occurrences) and, therefore, were not considered within the analyses.

The valence of the context and of sibling appraisals were considered over time and across children through a log-linear analysis. A significant relation was found between the two variables indicating that the valence of the appraisal depended on that of the context, $\chi^2 (2) = 849.49$, $p < .001$. The pattern of significant residuals indicated that negative and positive sibling appraisals were likely to be preceded by negative or positive contexts, respectively. In addition, negative and positive sibling appraisals were less likely to be preceded by an action of opposing valence (Table 16). In addition to this relationship, it was also interesting to consider the frequencies of positive and negative appraisals in the different contexts in and of themselves. Most notably, children made negative appraisals outside of negative contexts almost 24.3% of the time (e.g., positive or neutral contexts). In contrast, children rarely made positive appraisals within negative or neutral contexts. Despite this relationship, negative appraisals appeared more frequently than positive appraisals in neutral contexts and equally often in positive contexts. This pattern indicates a considerable number of "out of context" or "spontaneous" negative sibling appraisals and few positive ones.

When Time was considered along with the valence of the preceding act and the valence of the appraisal it was found that the associations between the valence of the context and of appraisals did not differ depending on the time of the observation, $\chi^2 (3) = 7.56$, $p > .05$. Thus, the effects of Time did not alter the relationship between the valences of context and appraisal. Similarly, no differences in the associations between context and appraisal valence were noted between the children. That is, when Child (i.e., the appraiser) was entered as a factor into the analyses, the relationship among the variables did not change significantly, $\chi^2 (3) = 1.65$, $p > .05$.

Table 16

Relations between the valence of prior acts and the valence of sibling appraisals

	Positive context	Neutral context	Negative context
Positive sibling appraisals	556 (19.80)	57 (-.99)	37 (-16.41)
Negative sibling appraisals	559 (-10.53)	238 (.53)	1503 (8.72)

Note. Standardized residuals appear in brackets for each cell.

Responses to sibling appraisals

Parent responses

Although parents were present during observation sessions, they were not necessarily involved with their children's play at all times. In some cases, parents interacted with and responded to the children while they played. At other times, parents may have been privy to the children's interactions, but were not directly involved. Children also occasionally addressed their parents directly. With respect to appraisals, parents responded about half of the time when appraisals were made (55.1% of the time). Parents were coded as being present or being involved in the event either if they had been interacting with children directly prior to the appraisal or if they became involved after the appraisal was made. In these cases, their response to the appraisal was then coded.

Since parents were not necessarily directly involved in the children's interactions, it was interesting to consider the frequency of their responses relative to the valence of appraisals. Examining the simple frequencies of parent responding revealed that parents tended to respond to negative sibling appraisals, whereas they were less likely to respond to positive sibling appraisals (Table 17). Overall, they responded to negative appraisals about 60% of the time and to positive appraisals about 31% of the time. In addition, children frequently made negative appraisals of their sibling when their parents were involved in their interactions.

Table 17

Frequencies of parents' response relative to the valence of sibling appraisals

Appraisal	Parent presence – Response	Parent absence – No Response
Positive	221	473
Negative	1584	999

Relations between appraisals and parents' support of appraisals. Based on research from sibling conflict, it was expected that parents would respond differently to positive and negative appraisals in terms of whether they would support or oppose these evaluations. More specifically, it was thought that parents would be likely to support positive appraisals and dispute negative sibling appraisals. An examination of the patterns of parents' support of positive and negative appraisals, using 2 (Valence of appraisal) X 3 (Parent support) log-linear analysis revealed that parents' support depended on the valence of sibling appraisals, $\chi^2(2) = 31.89$, $p < .001$ (Table 18). It was found that parents were less likely to dispute and more likely to respond neutrally to positive appraisals. For negative appraisals, there were no significant patterns. In examining the frequencies of parents' responses, it quickly becomes apparent that they more often respond to negative sibling appraisals. When they did respond, they supported the appraisal 31% of the time and opposed it only 22% of the time. These proportions, although not dramatically different, did run counter to predictions that parents would tend to oppose or dispute negative sibling appraisals as a way of supporting their children.

Table 18

Patterns in parents' support of positive and negative appraisals

	Support appraisal	Neither support or dispute appraisal	Dispute appraisal
Positive appraisals	41 (-.73)	84 (3.36)	10 (-3.73)
Negative appraisals	479 (.23)	576 (-1.05)	337 (1.16)

Note. Standardized residuals appear in brackets for each cell.

When the patterns for older and younger siblings were examined separately, using a 2 (Child) X 2 (Valence of appraisal) X 3 (Parent support) log-linear analysis, it was found that the patterns in parents' support of positive and negative appraisals did not differ from that predicted by the model being tested, $\chi^2(5) = 8.00$, $p > .05$. In other words, parents did not respond differently to older or younger siblings' appraisals. For instance, parents were no more likely to oppose a negative appraisal said by either the older or younger sibling nor were they likely to support a positive appraisal stated by either child. Similarly, patterns in parents' support of positive and negative appraisals did not vary depending on the time of the observation, $\chi^2(4) = 7.59$, $p > .05$.

Sibling responses

Overall, the frequency of children's responses to appraisals mirrored patterns described for the frequency of appraisals themselves, since a response was noted each time an appraisal was observed. Thus, the frequency of responses increased over time, particularly for younger children (were more often appraised than their older siblings). Qualitatively speaking, children responded in a variety of ways to sibling appraisals, such as agreeing, defending themselves, continuing or changing their activities, or, in many cases, not responding in any remarkable fashion. It was interesting to consider sibling responses to appraisals at two levels, as was described for parent responses. First, children's response and no response patterns were qualitatively examined relative to appraisal valence. Second, associations between children's support, opposition, or neutral responses and appraisal valence were investigated.

Sibling appraisal valence and siblings' responsiveness. Although most of children's responses appear to follow negative sibling appraisals, the response rate for positive and negative sibling appraisals was basically the same (Positive: 76.1%, and Negative: 74.4%) (Table 19). Thus, children generally tended to respond equally often (proportionally speaking) to both positive and negative sibling appraisals. This response rate is much higher than was found for parents and is likely due to the structure of the study. That is, siblings were in close proximity and were expected to interact throughout each observation period, so responses were easily recorded following each appraisal. In contrast, parents were not necessarily involved in the interactions and their responses consequently occurred much less frequently. It is also important to note that sibling appraisals were directed more often to siblings than to parents.

Table 19

Frequencies of sibling responses relative to sibling appraisal valence

Appraisal	Response	No Response
Positive	528	166
Negative	1915	668

Relations between sibling appraisals and siblings' support of appraisals. A 2 (Appraisal Valence) X 3 (Sibling support) log-linear analysis was conducted to determine whether the likelihood of children supporting, opposing, or responding in a neutral fashion was related to the valence of sibling appraisals. This analysis revealed that children's support or opposition of appraisals was dependent on sibling appraisal valence, $\chi^2(2) = 149.66$, $p < .001$. Although the frequencies in children's responses showed that they generally tended to respond in a neutral fashion (e.g., such as continuing to play), significant residuals highlighted some other interesting patterns in children's support of appraisals (Table 20). More specifically, for positive appraisals, children were less likely to support or oppose these appraisals, and more likely to respond neutrally. On the other hand, for negative appraisals, children were more likely to oppose the appraisal and less likely not to respond. The remaining residual was not significant.

Table 20

Patterns in siblings' support of positive and negative sibling appraisals

	Support appraisal	Neither support nor dispute appraisal	Dispute appraisal
Positive appraisals	36 (-2.95)	482 (4.62)	10 (-7.74)
Negative appraisals	235 (1.55)	1326 (-2.42)	354 (4.07)

Note. Standardized residuals appear in brackets for each cell.

Neither Time nor Actor was significantly associated with children's support of appraisals and appraisal valence, Time: $\chi^2(2) = 1.21$, $p > .05$, and Actor: $\chi^2(2) = 1.11$, $p > .05$. That is, the observed frequencies did not differ significantly from the expected frequencies under the null hypothesis with the addition of Time or Child, suggesting that the patterns described above were independent of the influences of both Time and Child.

Discussion

Prevalence and Nature of Sibling Appraisals

Siblings appraised each other positively and negatively even at two- and four-years-old, as predicted. Although a few two-year-old children did not make any appraisals in the first time period, the siblings of these children engaged in this behaviour, so all children were exposed to appraisals. Thus, even from a young age, children are generally evaluating their siblings. Older siblings were also consistent in their behaviour over the two observation periods, which is not surprising given that older siblings are often cited as behaving more consistently, such as in areas such as physical harm, than their younger siblings (Martin & Ross, 1995).

Not surprisingly, negative appraisals were resoundingly more common than positive appraisals, and older children more often delivered these appraisals than did younger siblings. Actually, the sheer frequency of negative sibling appraisals (two per hour of interaction) means that children really do hear a lot of criticism of the self from their siblings. Children's tendencies to make evaluative statements about negative aspects of their siblings more often than about positive aspects have also been noted in tattling analyses of this sample (Ross & den Bak-Lammers, 1998). Children's appraisals, though, as expected, did vary depending on the domain appraised. Again, as found in tattling research (den Bak & Ross, 1998; Ross, 1997), children seemed to be particularly interested in pointing out the negative moral actions and general qualities of their sibling. In fact, appraisals of negative moral behaviour were the most frequent type at both time periods, and it may be the way that appraisals begin at two years of age. These findings were quite robust across the children and over time. They provide some evidence that children begin to develop a sense of standards for behaviour early in the preschool years (Alessandri & Lewis, 1993; Bowlby, 1979), and more importantly, that they are able to apply these standards to others' behaviour. Indeed, in this study, siblings did object to children's transgressions of moral and general behavioural rules, whereas they were less likely to make positive comments on occasions when rules were not transgressed. In other words, siblings may take for granted that others will behave appropriately, and their comments about moral transgressions and bad behaviour are reactions to violations that have occurred. As an aside, it is possible that the categorization used for sibling appraisals does not represent

the categories that children would use to describe their appraisals. This issue presents a question for future research.

This pattern became increasingly prominent or exaggerated as time passed, such that, in spite of increases in siblings' use of positive appraisals, siblings' negative appraisals increased dramatically, especially for younger children. By the second time period, younger children seemed to close the gap between the frequency with which their older sibling evaluated them – in effect, keeping pace with the negative comments they received, and perhaps, representing a form of reciprocity in sibling appraisals.

It is important to note that, despite the strong presence of negative appraisals, children did still make positive appraisals, with older siblings appraising their sibling positively twice as often as younger siblings did, consistent with predictions. In contrast to the negative focus of appraisals of moral and general qualities, ability appraisals were as likely to be positive as negative. In this case, it was a combination of children making fewer negative comments, as well as making more positive statements about their siblings' abilities. By Time 2, older children showed the sharpest increase in positive ability appraisals, perhaps suggesting that they were trying to encourage their siblings' acquisition of new skills or enjoying their mastery of old ones. In fact, studies have found that older siblings, particularly females, take on a teaching or helping role with young siblings in their day-to-day interactions (e.g., Brody, et al., 1985; Dunn & Munn, 1986). However, it may be that, for both siblings, abilities are directly observable, relative to positive moral behaviour, and therefore, are more likely to be remarked upon. That is, when children display an ability, especially one that is unexpected, it may be more likely that their siblings will make a positive appraisal, than if children simply continued to share or to play appropriately.

Overall, although these findings were not surprising given the view of sibling relationships as consisting of strife and conflict as well as co-operation and emotional understanding (Abramovitch, Pepler, & Corter, 1982; Dunn, 1988), they do broaden perceptions of sibling behaviour. The inclusion of positive and negative evaluations in this study provided a more complete view of sibling interactions, rather than focusing only on conflict behaviour and types of transgressions, as has been the case in many sibling studies. Three findings, however, deserve exploration to further our understanding of children's sibling appraisal patterns: (1) Why do older siblings make more appraisals than their younger

counterparts? (2) Do sibling appraisals mirror reality? and (3) Why do siblings appraise each other negatively more often than positively? These three questions are addressed in the forthcoming sections.

Why do older siblings make more appraisals than younger siblings do?

Although children's language fluency over the two-year period could potentially explain the differences between the rates of appraisals for the two children, this hypothesis was unsubstantiated. For younger children, the change in the frequency of their appraisals could be explained by changes in language fluency. However, differences between the frequencies of children's appraisals over the two time periods were not influenced solely by increases in verbal capacities. Even when appraisal frequencies were controlled for language productivity, differences between children were still evident – older children were still more likely to appraise than younger siblings were. Over and above the facility with language associated with older children, older siblings have greater general expertise and authority relative to younger siblings. Thus, through their appraisals, older children may set standards for the relationship and perform a mentoring role for their younger siblings. As described earlier, the role of teacher and helper is often assigned (directly or indirectly) to older siblings (e.g., Brody, et al., 1985; Dunn & Munn, 1986). By Time 2, younger children began to close the gap between the frequencies of appraisals because they showed a dramatic increase in their use of negative sibling appraisals.

Overall, though, differences in linguistic capacities were not a sufficient explanation for the differences noted in children's appraisal patterns. Alternatively, children's appraisals do not increase at the same rate as the dramatic expansion in children's overall speech, generally noticed around age five (Brown, 1973; Carey, 1977). Older children may also have more sophisticated and diverse forms of discourse than their younger counterparts, so appraisals become less prominent in their speech even though older children are more often the appraisers.

Do sibling appraisals mirror reality?

The difference between negative and positive appraisals may also be explained by the possibility that children commented on the actions of their siblings that tend to be negative more often than positive (Abramovitch et al., 1982; Martin & Ross, 1995). Thus, it was expected that appraisals would be meaningfully related to acts that preceded them. Results of

the examination of the acts preceding sibling appraisals conformed to expectations that the valence of acts and appraisals would be meaningfully related. However, since these analyses were completed using appraisals as the unit of interest (rather than children or families), only group level interpretations and conclusions can be drawn. Examining the frequencies for each family, though, did reveal that, except in one case, the frequency patterns were generally similar to those found for the group. As such, it is possible to speculate somewhat about the possibility of appraisals reflecting the children's reality to some degree.

These observations lend credence to the idea that even young children's actions, at a group level, make sense, and they further support that appraisals tend to be reactions to the actions of their siblings. Moreover, sibling appraisals in this sample were based in the reality of the actions of the child being appraised, rather than being spontaneous or unprovoked evaluations. There were some occasions where children made negative appraisals "out of context" (i.e., not preceded by a negative act), whereas few positive appraisals occurred "out of context". These conclusions must be tempered with the fact that not all of children's actions were considered within these analyses, only those that preceded appraisals.

However, some observations found in other studies of this sample of children provide some interesting insight. In spite of tending to transgress more frequently in this sample (Martin & Ross, 1995) as well as in others (Abramovitch et al., 1982), older siblings were particularly willing to offer evaluations of their sibling, even when language fluency was controlled in the analyses. Therefore, a paradox arises such that, even though younger children tended to behave less negatively than their older siblings, they were more likely to be appraised negatively by their older sibling in this sample of children.

Over and above the statistical patterns, it is also interesting to consider that in positive contexts, children made positive and negative sibling appraisals at about the same rate. However, in negative contexts, the frequencies of children's appraisals show, overwhelmingly, that children made negative appraisals. In essence, it was rare that children offered encouragement to their sibling in a negative context, but, in positive situations, children denigrated their siblings' accomplishments or behaviour as frequently as they were supportive.

Therefore, children's appraisals did mirror reality as shown through the association between the valence of the events that preceded appraisals and the valence of the appraisals themselves. At this point, though, it is unclear whether the ratio of positive to negative

appraisals actually reflects the ratio of positive to negative actions that occur within the relationship. In addition, whether appraisals being based in reality actually makes them carry more weight, with respect to self-concept development or the quality of the sibling relationship, than if siblings commented randomly on their siblings' behaviour and skills remains unanswered.

Why do siblings appraise each other negatively more than positively?

Three potential explanations are offered for understanding the discrepancy between siblings' use of positive and negative appraisals. This pattern may represent (1) children's desires to present themselves favourably, (2) their desires to negotiate their relationship and interactions with their siblings, or (3) the reality with which children are faced in their interactions with their siblings.

Although it had been thought that children might use appraisals as a way of raising their status relative to their sibling, this pattern did not appear as clearly as was predicted. It had been hypothesized that children would try to present themselves favourably to parents by selectively directing negative sibling appraisals to parents. The fact that children appraised their sibling negatively more often than positively may imply that they are trying to improve their own status. However, children directed appraisals to each other twice as often as they directed them to parents. This finding suggests that siblings were direct and straightforward with their positive and negative evaluations, rather than trying to alter parents' opinions of their siblings by stating appraisals to parents. An interesting aspect of these results, although a null result and one which runs counter to predictions based on tattling research, was that children's choice of directing appraisals to siblings or to parents was not dependent on valence. In a study of tattling on this data set, siblings tended to tattle more often than they made positive or neutral comments about one another, indicating that siblings seem to focus more on the negative rather than positive aspects of behaviour (Ross & den Bak-Lammers, 1998). When considering all of siblings' evaluative comments, negative appraisals were not specifically aimed at parents with the goal of altering parents' perspectives of either child. Children seemed to have an open relationship with their siblings and tended to share their evaluative comments directly. Given that appraisals tended to be direct and negative, siblings seemed to denigrate each other rather than attempt to influence parents' perceptions. It may be that children's use of direct, negative appraisals is still part of a tendency for children to want to

present themselves favourably (e.g., Ruble, et al., 1994), but they often do so within interactions with their sibling. Although these findings are interesting, it is important to remember that the procedures of this study were focused on sibling interactions, and therefore, the amount of time that children spent interacting with their parents was not controlled. As such, children may have stated their appraisals directly to their siblings simply because their siblings were more often present. Further research is needed to disentangle this issue.

Alternatively, the high frequency of negative to positive appraisals may suggest that sibling appraisals play a role in helping children negotiate the bounds of their relationship and environment. In essence, when siblings act badly or appropriately, an appraisal may be one way for children to let their siblings know their feelings – both negative and positive. In this way, children may use appraisals in a way that helps to maximize their own satisfaction with the relationship. In addition, children appraised one another as a way of dealing with or directly encouraging behaviour and abilities. Rather than reporting appraisals to parents, children may appraise their sibling as a way of instigating change in their relationship. Older siblings were more likely than younger children to share their appraisals directly perhaps as a way of helping their sibling to develop or behave in ways that the older child deemed appropriate. Brody, Stoneman, MacKinnon, and MacKinnon (1985), in an observational study of sibling dyads (aged 2.6 – 6.5 years and 7 – 9 years), found that older siblings tend to take on a helping role, more often than younger siblings. Dunn and Munn (1986) have also reported, based on naturalistic observation of young sibling interactions, a greater likelihood of older siblings to show prosocial behaviours, such as helping, toward their younger siblings.

Thus, children directed their appraisals more frequently to each other than to parents, which indicates a normal, on-going evaluative process between the children rather than representing children's strategic attempts to undermine their sibling either in the eyes of their parents or in the siblings' own estimation. Older siblings may feel, because of their age and position in the family, that they implicitly have more say in this process and, therefore, they state more appraisals than younger siblings do. However, younger siblings do become more involved over time, as already stated. In future research, it will be important to consider whether appraisals are in any way related to children's perceptions of their sibling relationship.

The third possibility is that children's appraisals may simply reflect the reality with which they are faced. As already stated in the previous section, it may be the case that more

frequent negative than positive appraisals is the result of children commenting on the their siblings' negative behaviours which may occur more often than positive behaviours. Although interesting and receiving some support from other sibling literature, this interpretation requires further empirical exploration, and needs to be examined at the dyadic level for each sibling pair, rather than at the group level only.

Patterns of Appraisal and Gender Effects

As expected, gender did play a role in the patterns of appraisals, but, interestingly, it was the gender of the appraisee, rather than of the appraiser, that was influential. Specifically, male partners were appraised negatively more frequently than female partners. However, neither the time of observation nor the age of the siblings interacted with gender, a finding that ran contrary to predictions. It had been expected that older siblings, particularly males, would be more likely to appraise negatively than all other groups (e.g., older or younger female siblings or younger male siblings); instead, whether children were older or younger did not create any significant effects along with gender.

Two possible interpretations could explain these findings. It may be that male siblings provide more opportunities for negative appraisals. Martin (1997) found that male siblings tended to aggress, damage property, and insult their siblings more frequently than females, lending some credibility to such an interpretation. In addition, reports from an observational study of same-sex sibling pairs from Brody and his colleagues (1985) indicated that preschool-aged male siblings tended to exhibit higher levels of negative, agonistic behaviour than did female sibling pairings. Thus, boys may commit more transgressions which then increases the frequency with which they are likely to be negatively appraised (especially given that children's appraisals do occur within a meaningful context).

It also may be that it is more acceptable for boys, than for girls, to be the targets of negative appraisals. Perry, Perry, and Weiss (1989) have found gender differences in the targets of aggression. If negative sibling appraisals are considered a form of verbal aggression, evidence from their questionnaire study regarding children's outcome expectations for aggression suggests that school-age children did not anticipate that males would experience aggression against them as negatively as females would, implying that aggression directed toward males is more accepted or normative. Other studies have also shown that males tend to

be the targets of peer aggression more often than females (Maccoby & Jacklin, 1974; Parke & Slaby, 1983).

In summary, these results replicate findings in the sibling literature, but they also extend knowledge by examining appraisal patterns with respect to the gender of the actor and of the partner separately and considering the interaction of these factors. By examining gender as both a partner and actor effect, it became clear in this study that partner effects were stronger than were actor effects. Past studies have tended to consider gender combinations as between-subject factors (e.g., male-male, female-female, male-female, and female-male representing the four between-subjects groups typically used in sibling research). Although the findings reported here are generally similar to those found in the past, the different approach allowed for a greater understanding of some of the specific differences in appraisal patterns that are associated with gender of actors and partners within the sibling relationship. In other studies, these differences are not separated so any differences that are found are attributed to both partners in the dyad.

How are Parents Likely to Respond to Sibling Appraisals?

Parents showed a somewhat surprising pattern in their responses to their children's appraisals. Parents were more likely to involve themselves in interactions where negative appraisals occurred and less likely to get involved following positive appraisals. It is quite likely that parent involvement is not only contingent on the valence of the sibling appraisal, but on the context surrounding the appraisal. That is, when a negative appraisal occurs, it is likely to involve other contextual cues, such as crying or the use of force, that could also prompt parents to be more aware of their children's interactions and to respond in some way, as has been found in the sibling conflict literature (Perlman & Ross, 1997). On the other hand, it is also possible that parents may be aware of times when children appraised one another positively, but they choose not to become involved because the children are playing nicely on their own and do not need adult assistance. These speculations could be studied further through a direct examination of the motivations for parents' involvement with sibling appraisals.

It had been expected that parents would support positive and dispute negative sibling appraisals. In fact, parents in this sample tended to respond in a way that neither supported nor disputed the appraisal. In contrast, for negative appraisals, parents showed no distinctive

tendencies, when their responses were examined statistically. Interestingly, though, an examination of the frequencies of parents responses to negative sibling appraisals revealed that parents showed some tendency to support negative appraisals (based on the percentage of responses that showed support of negative sibling appraisals). This finding goes against previous findings that suggest parents tend to support the victims of transgressions (Ross et al., 1994). In either situation, parents were not supporting the victim directly, nor were they reprimanding appraisers for making negative comments about their sibling. Clearly, parents in this sample were not seeing negative sibling appraisals as a type of transgression that required intervention or opposition. In fact, they frequently responded in ways that supported these negative evaluations. Moreover, parents did not react positively to the positive appraisals children offered one another, but these appraisals did become more frequent over time. It is also true that parents did not react positively to the positive appraisals children offered one another, but these positive sibling appraisals did become more frequent over time. In addition, it is interesting to highlight that parents patterns of support or opposition for appraisals did not differ based on the child who stated the appraisal, which also runs counter to the finding that parents are more likely to support the victim of transgressions by supporting rules which had been contravened (e.g., Ross, et al., 1994; Vandell & Bailey, 1992).

Although on the surface it seemed that parents were supporting appraisals that might make their children feel badly about themselves, these actions need to be considered in context. It is possible that parents responded negatively in these situations, because they agreed that whatever behaviour or action was appraised was "bad" or inappropriate and, therefore, they stated their opinion of the behaviour up front. Like sibling responses, parents may use these opportunities to train their children or help them understand the differences between appropriate and inappropriate behaviour.

How are Sibling Responses Related to Appraisals?

Since older siblings tended to do more of the appraising, it was not surprising that the frequency of younger children's responding was higher. However, the more interesting question lay in whether children's responses in some way were associated with the appraisals made of them. In this study, the rates of children's responses to positive and negative sibling appraisals were similar, suggesting that, proportionally speaking, children did not direct their responses only to one type of appraisal, even though negative sibling appraisals occurred more

frequently than positive appraisals. When these analyses considered whether children were likely to respond in a way that supported, opposed, or neither supported or opposed the appraisals, children were generally less likely to respond in a meaningful way to positive sibling appraisals, but were less likely not to respond to and quite likely to oppose negative sibling appraisals. Even though the majority of children's responses were neutral, the pattern of associations suggested that the children in this study, when they did respond, did so with an eye toward defending their honour. It may be that the children felt compelled to defend themselves because, like most individuals, they wish to present themselves favourably (e.g., Ross & Fletcher, 1985). This situation may have been enhanced because of the presence of the observer during the interactions. Although study procedures allowed time for observers and families to become accustomed to one another, it is possible that in the face of negative sibling evaluations, children became "re-aware" of the observer, prompting an increased need to dispute the appraisals. Studies with adults have shown that following direct negative feedback about their characteristics, participants try to disconfirm the feedback through their actions (e.g., Steele, 1975, Baumeister, 1982). Thus, although children in this study were directly disagreeing with the information in the appraisal, the goal of their action was still the same as those of adults.

General conclusions

Considering the results together, several significant conclusions become apparent. First, children's interactions, even from early on, are coherent and meaningful. Generally, appraisals were embedded in a context which matched the appraisals made and appeared to reflect the activities that happened prior to the appraisal. Of course, appraisals did not occur following every positive or negative action of the siblings, but when appraisals did occur they tended to occur within a meaningful context.

Second, it is also important to note that the valence of children's appraisals depended on the domain being appraised. Children were aware of their sibling's actions and tended to focus their evaluations on times when their sibling behaved badly (either morally or generally) or on times when ability, skilled or unskilled, was demonstrated. Given this pattern, children seemed to evaluate those behaviours that stood out to them, such as moral transgressions and demonstrations of ability. They may have been more likely to comment on transgressions of

rules, because these instances likely violate their rights in some way, than to notice occasions where their sibling has behaved well, because these latter behaviours are taken for granted.

Finally, both children and parents tended to continue the tone of the interactions involving appraisals. Siblings, although frequently responding in ways that neither supported nor opposed the appraisal, tended to dispute negative sibling appraisals. It is possible that children in this sample were attempting to maintain a positive sense of self through their responses. With respect to parent responses, they tended to respond more frequently to negative sibling appraisals and frequently supported such appraisals when they occurred. This observation is surprising given the general belief that parents support their children in the face of negative information. However, parents may be reacting, like negative appraisers, to a behaviour that was unacceptable or inappropriate. These findings should not be taken as suggesting that these parents handled such situations inappropriately. In fact, they may have been providing useful feedback to the appraisee regarding behaviour or actions that would be unacceptable.

In conclusion, this study has provided some insight into the dynamics of sibling relationships. Although these findings on their own shed light on the processes involved in sibling interactions, it is important to consider sibling appraisals in relation to self appraisals within sibling relationships to determine their relative significance and to learn even more about the dynamics within these relationships. The next study addresses questions regarding the prevalence and nature of self appraisals within the sibling relationship over time.

Study 2: Self appraisals within the sibling relationship

"I'm making a better picture than you."

"Can you help with these, I made a mistake."

Introduction

Researchers have examined the development of children's abilities to self-evaluate in a variety of contexts (such as within the school environment, with peers, with parents, etc.). Such studies tend to employ questionnaires or interviews to obtain samples of children's self appraisals (e.g., Felson, 1989; Felson & Reed, 1986; Harter, 1999; Ilardi & Bridges, 1988) or place children in an experimental context different from their daily experience (e.g., Butler, 1990; Ruble, Feldman, & Boggiano, 1976). The use of questionnaires, interviews, and laboratory studies provides an understanding of children's self appraisals in response to specific experimenter-generated questions. However, this focus remains blind to the occurrence of self-evaluation in children's day-to-day experience. Yet such spontaneous self-evaluation may have implications for children as they develop because it is based in their own thoughts, feelings, and experiences. In those studies where children have been observed in a naturalistic setting, they have tended to be either school-age (Ruble, Eisenberg, & Higgins, 1994) or toddlers (Stipek, Recchia, & McClintic, 1992). Therefore, less is known about the development of spontaneous self appraisals between very early childhood and when children enter school. The only thing that is clear from these observations is that considerable change takes place over this time.

The current investigation differs from much of the self-evaluation literature in two ways. First, it takes a naturalistic approach to studying the development of overt self appraisals in young children. Only a few other studies have taken a similar approach, and they have not always followed up on the development of self appraisals over time. The naturalistic observation of children's self appraisals offers a unique opportunity to determine in which areas they spontaneously evaluate themselves. In studies where appraisals are prompted in some way, the research context could set in motion the self-evaluation process that is under study – leaving open the question of the extent to which self appraisals play a role in children's lives.

Second, this study is unique because it examines the occurrence of self appraisals within the sibling relationship. Children have shown the capacity to notice and comment on

differences between themselves and their sibling from as young as 30 months old (cf. Dunn, 1996), earlier than typically expected or observed (i.e., 5 to 7 years of age) in achievement-related contexts outside the family. For example, observations of children's early capacities to use social comparison, from Ruble and her colleagues (1976), and to evaluate the self in relation to the sibling have never been further explored. The sibling relationship may represent an important developmental context for self appraisals. Moreover, in Study 1, children made many appraisals of their sibling in a variety of domains (including ability, moral, and general qualities), showing that they were able to evaluate these qualities in others. Thus, to further understand self appraisals and their development, it was of interest to determine how siblings talk about themselves, particularly the pattern in the valence of children's self appraisals, in front of one another during the preschool and early school years.

In addition, after examining the prevalence and nature of sibling appraisals in Study 1, it seemed important to consider sibling appraisals in light of children's self appraisals as a step toward determining whether sibling and self appraisals are meaningfully related. Consequently, the main goal of this study was to examine the prevalence and nature of self appraisals within the sibling relationship during typical sibling interactions. In considering such a study, many questions emerge: How frequently do children self-evaluate when with their sibling? Do self appraisals, like appraisals of siblings, tend to be more often negative than positive, or are children more generous in evaluating themselves? Does the valence or prevalence of self appraisals depend on age or gender? In what contexts do self appraisals occur? Are parents involved in the process, and if so, how do they respond? These questions guided my explorations of young children's self appraisals within the sibling relationship.

Capacity to appraise and prevalence of self appraisals. Evidence from developmental research and theoretical writings suggests that children have the capacity, from a relatively early age, to evaluate themselves. Stipek and her colleagues have suggested that the ability to self-evaluate develops in the preschool years. Stipek, Gralinski, and Kopp (1990) had mothers of children 14 to 40 months old rate the presence of a broad variety of behaviours, on a three-point scale, to indicate if a behaviour definitely had not, had sort of, or definitely had occurred. The behaviours included on this questionnaire were culled from a variety of sources and were shown to be associated with self as object, with autonomy, and/or with children's self-evaluation. Thus, the extent to which a child demonstrated these different behaviours

consistently was believed to represent the extent to which his/her self had emerged. They found that children whose mothers rated them as having a clear idea of the self as an "entity" or object were also rated as able to describe and evaluate themselves.

More recently, Stipek, Recchia, and McClintic (1992) further described the beginnings of self-evaluation in young children as it relates to children's achievements. They observed children, ages 1 to 3 years old, while they played a goal-oriented activity (such as a bowling set or a shape-sorting box) to determine their responses to their success. They reported that children, by age two, began to look to others for approval of their behaviour and accomplishments. By age three, children began to internalize the standards that had emerged from earlier interactions with parents and caregivers. Interestingly, they also noted that children who clapped for (nonverbal appraisal) or praised themselves in some way were more likely to have a mother who frequently praised them. In this way, these children seem to have developed some sense of praiseworthy behaviour, with respect to achievements and abilities, in the eyes of their parents, which may eventually become a set of informal standards against which children begin to compare and evaluate themselves. Although this pair of studies tapped the beginning of the self-evaluation process, the development of overt appraisals beyond the age of 3 years was not examined. The current study examined overt self appraisals made by children at the ages of 2 and 4 years, and again at 4 and 6 years to examine their emergence and developmental trends.

Ruble and her colleagues have also been intrigued by the development of children's self-evaluation, particularly with respect to social comparison skills. For instance, Ruble et al. (1976) conducted an experiment with primary school children to examine whether children in Kindergarten and Grades One and Two engaged in social comparison when placed in situations with either high or low competitive demands. Children were made to feel that they were competing with a peer through a video monitor in their view. All children were made to "fail" by having the monitor play a videotape of a child performing the task more quickly than their own performance. Social comparison was operationalized as the frequency with which children looked at the video monitor. Their findings revealed a developmental trend in social comparison with a linear increase in the use of social comparison across the different age groups. Furthermore, children who described their looking at the monitor in terms of social comparison (e.g., "I was checking how the other person was doing") were also more likely to

look at the monitor more frequently than those children who gave an irrelevant reason. In further discussions of the development of achievement-related social comparison processes in young children, Ruble (1983) indicated that even though all children seem to possess the necessary skills for engaging in social comparisons from a very early age (i.e., at about age 5 when they enter school), their self-evaluations show no evidence of their use of social comparison until between 7 and 9 years of age. Relative to the work done by Stipek and her colleagues, described above, Ruble suggests a much later starting point for social comparison and self-evaluation.

Although some studies demonstrate the emergence of young children's appraisals, the focus of many studies has been on self appraisals and social comparison processes in school-aged children within achievement contexts. For instance, Pomerantz, Ruble, Frey, and Greulich (1995) completed a cross-sequential analysis of children's use and perceptions of social comparison from Kindergarten to Grade Five. Each year, for two years, children in Kindergarten, Grade One and Two were observed during independent work time in the classroom during the fall term with respect to their verbal interactions with peers and the focus of their visual attention (e.g., were they looking at their own or another's work). They were then interviewed about their use of social comparison in the spring term. Pomerantz et al. found that young children (close in age to those studied here) tended to engage in overt forms of social comparison, whereas as children grew, evidence of social comparison became subtle (e.g., looking at others work but not commenting on differences or asking others how they did on a task). Even more interesting were the changes in children's perceptions of social comparison; over time, children began to view overt social comparison negatively and to see subtle comparison behaviour as allowing them to obtain the information needed to make self-evaluations.

Given the evidence from these studies on the development of the self, self-evaluation, and social comparison, it appears that children, by approximately age 3 at least, are able to evaluate their own behaviour and particularly their achievements. However, these studies have focused on the reports of parents or observations of children's looking behaviour to show the early development of self-evaluation. They do not consider the development of overt self appraisals prior to children entering school, and once in school, the social comparison process, rather than overt appraisals, becomes the behaviour of interest. Moreover, in a chapter

described above, Dunn (1996) stated that siblings begin to use social comparison processes earlier than is typically expected based on social comparison studies (e.g., Ruble, 1983), suggesting that self appraisal processes need to be examined more closely within the sibling relationship. Given the dearth of research on the development of children's overt self appraisals, I was interested in determining when children begin self appraising with their sibling. Such an examination could potentially uncover whether the appearance of self appraisals within the sibling relationship replicates findings reported in the above studies.

As with sibling appraisals, it was thought that in the context of the sibling relationship, the frequency of such evaluations may vary depending on the age and birth order of the children such that older siblings would be more likely to make self appraisals than would younger siblings. Moreover, given that the younger children are two years old at the first time period, it was expected that their self appraisals would also be infrequent relative to the frequency of their appraisals at Time 2. These predicted differences were based on the possibility that limited language fluency (i.e., few verbalizations and linguistic abilities at an earlier developmental point than those of their siblings) might hamper younger, and facilitate older, children's abilities to self-evaluate.

Increases in younger siblings' language fluency as well as the presence of their older sibling acting as a model for self appraisals provided support for predictions that birth order would have an impact on appraisal frequency. Thus, the frequency of younger siblings' self-evaluations over time was predicted to begin to resemble or possibly surpass that of older siblings (i.e., the Time 2 appraisal frequency for younger children would be similar to or greater than the Time 1 appraisal frequency for their older sibling). Such a prediction arises out of the observation that younger siblings, although never having a developmental advantage over their older siblings, have the opportunity to use their older sibling as a model. As such, their rate of self appraisal may surpass their older siblings' by the second time period simply because they have been exposed to their older sibling's self appraisals, whereas their older sibling did not have this opportunity at the same age.

Characteristics and determinants of appraisals. As in Study 1, it was important to consider both the characteristics and the determinants of self appraisals. The same categories were of interest for self appraisals, namely the attributes children choose to evaluate in themselves, the valence of their appraisals, the target (or whom they addressed with the

appraisal), and their gender; however, some predictions differed. Birth order and age were considered in the examination of self appraisals as potential explanations for differences noted between the frequency of self appraisals for older and younger children, as described above, but hypotheses were not made with respect to the effects of birth order or age on the characteristics of appraisals made by older and younger children within the sibling relationship. That is, it was expected that birth order would only have an effect on the overall frequency of children's self appraisals, and would not likely influence the characteristic of their self-evaluations. Therefore, no development was expected in the qualities of self appraisals as children age. The context (i.e., the actions that precede self appraisals), though, was thought to play a role in determining the types of evaluations children would make.

Valence. In the study of sibling appraisals, it was found that children appraised their sibling negatively more often than positively. For self appraisals, it was expected that an opposite pattern in valence would emerge such that siblings would tend to make more positive than negative appraisals of themselves, stemming from a desire to present themselves in a favourable light. With respect to presenting well, it is difficult to ascertain whether children actually believe these comments, whether they simply make these comments to "present" well, or whether they are a part of the social discourse of siblings. This study endeavours to explore the pattern in children's appraisals and to determine whether such patterns are consistent with a pattern of favourable self-presentation and not to disentangle whether children truly believe their appraisals. In Study 1, the pattern of favourable self-presentation showed through in children's responses to negative sibling appraisals in which children were more likely to oppose or dispute such appraisals. Even though children's responses were not necessarily self appraisals, this pattern suggests children will defend themselves, which supports the idea that children may behave in ways that maintain their view of self in others' eyes. Felson & Reed (1986) have done some exploration of self appraisals in children in elementary and middle school by asking children to rate themselves, relative to others, in a variety of areas, including school performance, attractiveness, and athletic ability. They found that children's appraisals, in all domains, were more often positive and that they tended to present an ideal self especially when they were not aware of the true feelings of others around them.

Similarly, Ruble, Eisenberg, and Higgins (1994) performed a cross-sectional analysis of children's self- and other-evaluations (between the ages of five and ten) after they were

given either temporal or social comparison feedback about their performance on a variety of tasks. Children participated in a series of tasks on which their performance was video-taped. They were then asked to evaluate their own performance, affect, and ability relative to either their first or another child's performance. Notably, younger children (similar in age to those studied here) rated themselves more positively, overall, than older children, and they were less likely to make use of negative feedback when making their self-evaluations (which again increases the positive bias of their evaluations. Although children are not given explicit, scripted feedback in the current study, many opportunities for social comparisons and for feedback occurred spontaneously within the context of play. Taking these various findings together, it appears that children do tend to exhibit a defensive evaluative style. That is, children, like adults, attempt to present themselves as favourably as possible (e.g., Ross & Fletcher, 1985), whether they believe it or not, but would this tendency be evident (or possibly accentuated) in the sibling relationship? Given the context of the sibling relationship, it was expected that children's self appraisals would be more often positive than negative, regardless of age or time of observation.

Attributes appraised. With respect to the domains of children's appraisals, it was thought that children's self appraisals would fall into one of three categories: ability, moral quality, or general qualities. Most studies of children's self appraisals examine their achievement evaluations within classroom (e.g., Felson, 1985; Felson & Reed, 1986; Ilardi & Bridges, 1988) or in experimental situations associated with achievement and ability (e.g., Ruble, et al., 1976). Thus, it was important to include this category in the current study. Concerning the ability domain, it was expected that children would appraise this area more frequently than moral or general qualities because of the concrete, observable quality of these behaviours (e.g., Stipek, et al., 1990). Furthermore, ability appraisals may be an area where children become fluent in the self comparisons because of cultural expectations, such as the pattern of competition and comparison of individual performance that is emphasized within the North American culture. Butler (1989, 1990) examined children's appraisals (ages 5, 7 and 10 years), in high and low competition settings, to determine whether appraisals tended to focus on mastery or ability. In groups of three or four, children were told to replicate a drawing of a flower using stickers and either to make the best flower possible that would be rated, or to make a picture that would become part of someone's picture collection. It was expected that

children would look at their peers' work at some point in the task. She found that competition instructions increased the frequency of 7- and 10-year-old children's glancing. Children were later asked to explain their reasons for glancing at a peer's work. Younger children provided reasons referring to wanting to do well, without reference to others' performance, whereas older children stated wanting to be better than someone else as their motivation. These findings, taken together with descriptions of the sibling relationship as competitive (Dunn, 1988, 1996), suggest that children in this study would appraise their abilities as they interact with their sibling. Even though the children in this study were younger than those from Butler's work, it was interesting to consider whether the sibling context would provide a fertile ground for children to begin noticing and commenting on their abilities relative to those of their siblings or with respect to their own developments.

Although studies have generally considered children's evaluations within achievement-type contexts, other studies of children's moral development indicate that children may be able to evaluate the moral quality of their own behaviours (e.g., distinguishing right from wrong). In particular, Piotrowski (1997) examined the development of social rules within the sibling relationship over a 14-month period (from when younger siblings were 33 months until they were 47 months). She found that sibling discussions of moral issues increased significantly over time, relative to the frequency with which mothers discussed these rules, which did not significantly change over time. Interestingly, older siblings were not the sole contributors to these discussions. In fact, older and younger siblings did not differ in how often they referred to moral rules. Although these findings do not refer specifically to children's ability to appraise their own moral quality, they do provide evidence that even young children are able to recognize and discuss moral and social-conventional rules governing behaviour. It was interesting to expand these findings and consider the possibility that children might appraise their behaviour from a moral standpoint given that they are able to discuss such issues early on in the sibling relationship. Because of the developmental trend showing an increase in the frequency with which children have moral discussions, it was predicted that, over time, children would increasingly appraise the moral quality of their behaviour, but differences between older and younger siblings were not predicted. Moreover, children tended to malign the moral quality of their siblings in Study 1(i.e., negative sibling appraisals), so it was interesting to consider whether children's self appraisals would show a reactive pattern to such

accusations. That is, would moral appraisals of the self be predominantly positive, or would their evaluations show an acceptance of their siblings' general negative views of them? Alternatively, in Study 1, it was suggested that transgressions of moral rules (i.e., negative sibling appraisals in the moral domain) were more salient than adherence to moral rules (i.e., positive sibling appraisals in the moral domain). As such, it could be speculated that children would make frequent negative self appraisals in the moral domain. Finally, analyses regarding children's overt self appraisals of their general qualities (i.e., the pleasant or unpleasant behaviour or characteristics they show) were considered exploratory.

Target. The naturalistic framework of this study meant that children's self appraisals could be directed to their sibling or to one of their parents. Because of the above-described self-presentation bias in children's appraisals, it was thought that children's positive and negative self appraisals would vary depending on to whom they directed the appraisal. Although children were expected to present themselves favourably to both their sibling and parents, it was thought that children would make a particular effort to show their positive qualities to their parents, especially when these appraisals occurred within the context of the sibling relationship. Ross's research (Ross & den Bak-Lammers, 1998) on children's tattling in the data set used in the current study, showed that children tended to comment on the negative aspects of their siblings more often than they made positive or neutral comments about their siblings to parents. In contrast, findings in Study 1 did not provide evidence that children were especially likely to appraise their siblings negatively in remarks directed to parents rather than to siblings. Thus, they did not especially attempt to make their sibling look bad (and perhaps themselves look good in comparison) when addressing their parents. However, it is still not clear whether siblings made a special effort to present themselves favourably to their parents. Directly examining whether the valence of self appraisals varied depending on the target of the self appraisal would help to answer this question.

Moreover, Butler (1990) examined the self-evaluations of children aged 5, 7, and 10 years in competitive (i.e., do better than others in the group) and mastery conditions (i.e., do the best that you can). When five-year-old children were placed within a competitive condition (e.g., make the best copy of the picture – the best in your group), their self appraisals of their drawing ability tended to overestimate their skills compared to those appraisals of children in a non-competitive condition (e.g., try to make the best picture you can). This study

only considered the competition that children feel when working to "beat" a same-age peer. Given that children have a tendency to compete with their siblings in various ways (Dunn, 1988) and children's competitiveness with peers, it was expected that positive self appraisals would occur with their sibling, and it was speculated that positive self appraisals would occur even more frequently in the presence of parents than when children interacted with their sibling alone. No support within the sibling research literature was found for this last hypothesis regarding parents, although it did seem intuitively plausible.

Gender. Gender was also likely to play a role in the pattern of positive and negative self appraisals, particularly within the sibling relationship. Ruble et al. (1994) found evidence suggesting that, by age 10, boys more than girls tended to show a defensive style in their self-evaluations relative to their evaluations of others. That is, boys generally rated themselves more positively than others more often than girls did. More importantly, those boys who received failure feedback regarding their performance on a task still rated themselves more positively than boys who received success feedback. In contrast, girls showed a decrease in their positive self-evaluations from age 5 to age 10, even though they still showed a positive bias. Although male siblings were not given explicit feedback in this study, findings from Study 1 revealed that boys were more often negatively evaluated than were girls. Thus, like past studies, it was expected that boys, more often than girls, would tend to appraise themselves positively more than negatively. This study also offered the unique opportunity to assess whether the presence of a brother or sister altered the types of appraisals children make. Self appraisal studies have never considered the effect of the partner on one's own appraisals. Within the sibling relationship, where the identity of the partner and the history of interactions hold particular meaning, over and above feelings held for an experimental partner, it seemed critical to examine the influence of gender – by separating effects associated with the gender of the actor and those associated with the gender of the partner.

Context of self appraisals. As with sibling appraisals, it was expected that actions preceding self appraisals would be meaningfully connected with the appraisals themselves. Naturalistic sibling interactions provide a rich context for appraisals and allow children to highlight and evaluate those aspects of the interaction that are of interest to them. Although it was possible that children would be less likely to comment on their own, rather than their siblings' behaviour, and that prior actions would not be as obvious to observers, predictions

were still advanced regarding the context of appraisals. Moreover, studies of self appraisals have rarely considered appraisals within a context (i.e., what happened immediately prior to the appraisal being made). For this study, it was hypothesized that self appraisals would be based in the actual interactions of the siblings. That is, the valence of prior actions would be associated with the valence of appraisals (e.g., positive contexts would likely precede positive self appraisals). However, self appraisals may tend to be more positive regardless of the precipitating act; children may attempt to defend themselves or present themselves in a positive light (e.g., Ross & Fletcher, 1985; Ruble, et al., 1994). Although it seemed intuitively plausible that context would be associated with the characteristics of appraisals, these analyses were considered exploratory.

Responses to self appraisals

Examining the characteristics and determinants of appraisals provides a snapshot of this behaviour within the sibling relationship. As a way of turning the still photographs into more of a moving picture, the responses of siblings and of parents to appraisals were also investigated. Not only do such explorations put appraisals within a meaningful context, these responses may also play a mitigating role in children's internalization of appraisal information.

Parents. How do parents respond to self appraisals? Studies of self-evaluations do not often consider the reactions of parents to their children's appraisals, even though these responses may play an important role in whether children eventually incorporate such information into their view of themselves. Thus, it was important to consider whether parents' responses, in particular their support, would be contingent on the valence of children's self appraisals (i.e., would parents be more likely to support positive or negative appraisals). In general, though, if parents did respond, it was thought that they would tend to respond in a supportive fashion to both positive and negative self appraisals as a way of promoting children's positive thinking about themselves (e.g., Boer, Goedhart, & Treffers, 1992; Dunn & McGuire, 1992; Vandell & Bailey, 1992). However, in situations where negative self appraisals are an appropriate assessment of a situation (e.g., children saying they are bad for hitting their brother or sister), parents may highlight the child's responsibility for their behaviour as part of their response, as was found in parents' support of negative sibling appraisals in Study 1. Thus, parents' responses in these situations may support children's

negative self view. Beyond the above speculations, analyses of parent responses to self appraisals were exploratory.

Siblings. The pattern of responses may be less clear with self than it was for sibling appraisals. Given that children may have been less likely to respond in a meaningful way to self appraisals than to sibling appraisals, it was first interesting to qualitatively consider children's response or lack of response relative to the valence of the appraisals made. Sibling responses could show a supportive pattern similar to that described for parents because of siblings' capacity for warmth and support that has been described by Dunn, Slomkowski, and Beardsall (1994) and was found in Study 1, where siblings positively appraised one another increasingly over time. Thus, supportive sibling responses could follow either positive or negative appraisals. These findings could eventually lead to further examination of whether sibling reactions to self appraisal in any way mediate children's incorporation of such evaluations into their beliefs about themselves.

Summary

The main focus of this study was to investigate the prevalence and nature of self appraisals within the sibling relationship using a naturalistic approach which considered not only the appraisals but the context within which they occur. Two aspects of this study make it unique. First, self appraisals were examined within a naturalistic context. Second, they were considered within the interactions of a highly competitive and emotional relationship. The specific hypotheses in this study were:

- Despite the young age of the children being observed, it was expected that they would make self appraisals. It was expected that other factors, such as linguistic competence and birth order, would influence the frequency with which children overtly appraised themselves.
- Children's self appraisals would be predominantly positive rather than negative, and the gender, attributes appraised, and target of self appraisals would be associated with appraisal valence. As with the sibling appraisals study, hypotheses associated with the valence of self appraisals were of particular interest and represented a primary focus of this study.
- The valence of self appraisals would depend on the valence of the action that preceded it.
- Sibling and parents were expected to respond in a supportive fashion to self appraisals, regardless of appraisal valence.

Method

Participants

Participants for this study were the same as those described in the Study 1.

Procedure

The basic procedure for this study was the same as that used in Study 1. For self appraisals, though, it is important to note that these data were initially collected to examine the sibling relationship and some of the procedures may have limited the observation of some self appraisals. Specifically, although all interactions of the children and parents were observed and tape-recorded during the observation periods, only those interactions where siblings interacted together (with or without the participation of their parents), or when children were talking to their parent about their sibling were transcribed. As a result, some self appraisals may have been directed to parents that were outside of the interactions that were transcribed.

Coding Self Appraisals

Transcripts were then examined to identify and code all self appraisals and sibling and parent responses. This process was identical to the procedure used for identifying sibling appraisals. The only difference was that appraisals consisted of children's evaluations of their abilities, morality (i.e., moral quality), or general qualities (i.e., their behaviour or characteristics). To further capture the characteristics of each of the appraisals, they were coded on a number of dimensions: valence, attribute appraised, target, and age of appraiser. See Table 21 for examples of children's self appraisals that represent the different codes (descriptions of the codes are included in Study 1).

Table 21

Some examples of children's appraisals in each of the categories

	Ability	Moral behaviour	General qualities
Positive	O1: I'm way farther than you are. O2: I know how to put the bed together, to make the bed. Y1: I'm making a teddy. I know how to. Y2: I don't need any help. Y2: I always win.	O1: (O hit Y and when M enters) I didn't do anything, he went boom boom, he feel off that (pointing to a tricycle) Y1: (in responses to O's complaints about Y) I'm not colouring on yours.[2]	O1: (in response to M saying that Y helps O) I do things for him. O2: I helped him make it. Y2: I'm nice to you.
Negative	O1: I won't read it. I don't know this book. O2: I'm not good at colouring. Y1: I can't do this. Y2: Can you help with these, I made a mistake.	O: Sorry. (after hitting Y)[2]. Y: That was bad. (after taking O's toy)[3].	O: I'm not very happy you know[2]. Y: Sorry. (after bothering O's activity)[2].

Note. 1. O = Older child; Y = Younger child; M = Mother.

2. Although this statement is a negative, it is a positive self appraisal because it attempts to remove guilt from the younger child.
3. Examples are not given from each time period for negative moral and general qualities categories because they occurred very infrequently in the data set.

Reliability

As with sibling appraisals, the reliability of coding methods was assessed at three levels. At the level of the initial transcription and coding of behaviour, the values are obviously the same as those reported in Study 1. As a reminder, before the data collection for the families, 27 additional 20-minute sessions (17 sessions at Time 1 and 10 sessions at Time 2) were completed.

Comparison of two observers' records and transcriptions of the interactions of the family members indicated 92% agreement for Time 1, and 86% agreement at Time 2. The agreement for the identification of appraisals yielded a kappa value of .78.

Cohen's kappa was calculated for the remaining categories of self appraisals coding, including the context, the attributes appraised category, and the responses of parents and siblings. Two independent individuals coded complete transcripts from four families from each time period and compared their classification of each appraisal. When disagreements occurred in the reliability process, the coders discussed them and made a decision regarding the appropriate category. For the context of self appraisals, the kappa value for identifying the valence of the context was .74. As for sibling appraisals, much of the information used to describe appraisals was within the coded transcripts and, therefore, calculating kappa values was unnecessary as reliability was illustrated through the identification of the appraisals. However, kappa value for the Attribute Appraised category was .85. For sibling responses of support, dispute, or neither support or dispute, the kappa value was .81. Finally, for parent responses, kappas were .77 for determining whether parents supported the appraisal, and .77 for which child the parent supported.

Results

Prevalence and nature of sibling appraisals

Frequency of self appraisals

Most children appraised themselves at both time periods, and overall the frequency of self appraisals increased from Time 1 to Time 2. Self appraisals generally occurred less frequently than sibling appraisals (see Study 1: $\underline{X}_{\text{Time 1}} = 14.4$, and $\underline{X}_{\text{Time 2}} = 28.3$), with children appraising themselves on average 4.1 times across 9 hours of observation at Time 1 (s.d. = 3.8, range 0 – 18), and 15.2 times at Time 2 (s.d. = 9.6, range 4 – 38). In 15 families, either the younger or older sibling made no self appraisals during the first time period. Specifically, in two families, neither child made self appraisals; in one family, only the older child did not make appraisals; and in 12 families, only the younger child did not make self appraisals. Thus, except for two families at the first time period, children were exposed to self appraisals, even if they were not making them themselves.

Neither child's rate of self appraisal at Time 1 was related to their rate at Time 2 (Older: $\underline{r}\,(38) = .004$, $\underline{p} > .05$. Younger: $\underline{r}\,(38) = .12$, $\underline{p} > .05$. Within time periods, though, the frequency of children's self appraisals was positively correlated with that of their sibling, for Time 1, $\underline{r}\,(38) = .44$, $\underline{p} < .01$, and for Time 2, $\underline{r}\,(38) = .66$, $\underline{p} < .01$.

Nature of self appraisals

As with sibling appraisals, valence was the main factor used to examine self appraisals. At Time 1, children, on average, appraised themselves positively 2.3 times (s.d. = 2.8, range 0 – 15) and negatively 1.8 times (s.d. = 1.7, range 0 – 8). By Time 2, the mean frequency of self appraisals increased. Children made an average of 9.6 positive (s.d. = 7.0, range 1 – 29), and 5.6 negative (s.d. = 3.6, range 1 – 18) self appraisals (Table 22).

The statistical examination of children's self appraisals began with determining whether the frequency of self appraisals was dependent on the child making the appraisal (older or younger sibling), appraisal valence (positive or negative), or time of observation, using a 2 (Child) X 2 (Valence) X 2 (Time) repeated-measures ANOVA. Older children made more self appraisals than their younger counterparts, children appraised themselves positively more frequently than negatively, and more self appraisals were made at Time 2 than Time 1 (Table 23).

Table 22

Mean frequencies of self appraisals over time

	Time 1		Time 2	
	Positive	Negative	Positive	Negative
Older	3.5 (4.4)	2.4 (2.6)	11.0 (8.5)	6.5 (5.7)
Younger	1.1 (2.0)	1.2 (1.8)	9.1 (7.7)	5.0 (3.6)

Note. Standard deviations are included in brackets.

The main effects of Time and of Valence were moderated by a significant interaction between these factors. T-test comparisons were used to analyze differences between positive and negative appraisals within each time period. At Time 1, the frequency of positive and negative self appraisals was similar, t (38) = 1.20, $p > .05$ (Figure 8). Children's positive and negative appraisals both increased significantly from Time 1 to Time 2. Positive appraisals: t (38) = 6.46, $p < .001$; Negative appraisals: t (38) = 6.13, $p < .001$. However, the increase noted in appraisals over the two observation periods was somewhat more apparent in positive, than negative, self appraisals, such that positive appraisals occurred significantly more often than did negative self appraisals by Time 2, t (38) = 4.59, $p < .001$. Thus, children's self appraisals not only increased over time, but they became increasingly positive.

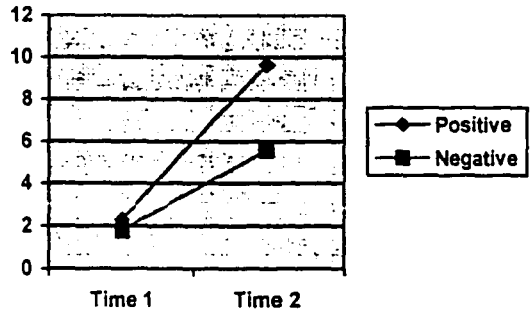
Table 23

Statistical effects for Child, Valence, and Time for self appraisals

		F (1, 38) =	$p <$
Main effects	Child	22.37	.001
	Valence	19.99	.001
	Time	50.21	.001
Two-way interactions	Child X Valence	1.30	n.s.
	Child X Time	.01	n.s.
	Valence X Time	14.58	.001
Three-way interaction	Child X Valence X Time	.25	n.s.

Figure 8

Mean frequencies of positive and negative self appraisals over time



Note. The frequencies in this graph represent the average of the occurrence of positive and negative self appraisals for older and younger siblings.

Language

Children's increasing linguistic capacities could provide an explanation for differences in appraisal patterns over time and particularly the increases in appraisal frequency. That is, the frequency of appraisals was considered relative to children's overall language fluency to gain an understanding of whether this ratio stays the same over time or whether the increases noted in appraisals over time go above and beyond what would be expected simply from language development. Additionally, differences between older and younger siblings could be related only to the fluency of their speech. To determine whether language fluency played an important role in the observed differences, the proportion of children's speech acts that consisted of self appraisals was examined. The sum of each child's appraisals of self (collapsed across valence) was divided by the overall frequency of that child's speech acts, at each time period.

Overall, children's appraisals made up a small proportion of their total number of speech acts (ranging from 0 to approximately 4%). Separate analyses, using a 2 (Child) X 2 (Time) repeated-measures ANOVA, were conducted on the proportions of self appraisals (Table 24 for means). Children made proportionally more self appraisals over time, and older siblings generally made more self appraisals than younger siblings (Table 25). Moreover, when language was taken into account, younger siblings' use of self appraisals increased more sharply over time relative to that of older siblings, to a point where their proportion of self

appraisals was comparable to that of older children (Table 25). Thus, in the second observation period, younger children's self appraisals were a greater proportion of their overall speech than they had been at Time 1. The significant difference between older and younger children's use of self appraisals at Time 1, favouring the older child, was no longer significant at Time 2 (Table 26). In addition, comparisons of the proportion of appraisals relative to overall speech were made within each child, over time. The proportion of appraisals to overall speech increased significantly over time for younger siblings; however, the proportions for older siblings remained stable (Table 26).

Table 24

Mean percentages of self appraisals over time, relative to speech acts

	Time 1	Time 2
	Mean (SD)	Mean (SD)
Older	1.03% (.76%)	1.13% (.54%)
Younger	.51% (.61%)	1.10% (.66%)

Table 25

Statistical effects for the proportion of self appraisals by older and younger children across time periods

		$F(1, 38) =$	$p <$
Main effects	Child	10.21	.01
	Time	8.08	.01
Two-way interactions	Child X Time	6.23	.01

Table 26

Comparison of self appraisals between children and across time[2]

	Degrees of freedom	t-value	p <
Younger vs. Older Time 1	38	3.45	.01
Younger vs. Older Time 2	38	.30	n.s.
Younger Time 1 vs. Time 2	38	3.90	.001
Older Time 1 vs. Time 2	38	.70	n.s.

In summary, language fluency was not a sufficient explanation for differences noted in children's self appraisals. Patterns in appraisals arose despite differences in the children's language production. The unproportionalized scores were used in remaining analyses for the same reason stated in Study 1.

Gender effects

The general procedures for the analyses of gender effects followed Seay and Kay's model (1983). Specific procedures used in this study are detailed in Study 1. Mean frequencies of positive and negative self appraisals made by older and younger children at each time period are included in Table 27.

Gender had a significant impact on self appraisal patterns. Although none of the main effects was significant, several higher order interactions contribute to the understanding of the influence of gender on self appraisals (Table 28). The gender of the Actor interacted with Time. Male and female children appraised themselves equally frequently at Time 1 and increased their self appraisals over time. However, sharper increases for male appraisers were noted such that, over time, the increase in the mean appraisals for males was approximately twice that of females (Figure 9).

[2] Given the number of comparisons made, alpha slippage could be a concern. That is, it is possible that a Type I error could occur. However, given that, in the majority of these comparisons, the significance level far exceeded the .05 level, it is unlikely that the current results are an artifact of alpha slippage. This explanation also applies to other comparisons completed in this study.

Table 27

Mean frequency of positive and negative self appraisals by gender pairing, over time

	Time 1				Time 2			
	Positive		Negative		Positive		Negative	
	O	Y	O	Y	O	Y	O	Y
OM-YM	3.2	.90	1.9	1.4	17.9	13.1	7.7	5.7
	(2.4)	(1.0)	(2.4)	(2.1)	(11.3)	(10.0)	(4.5)	(3.3)
OF-YF	4.4	3.0	3.5	1.8	7.6	6.8	8.2	3.6
	(5.8)	(3.0)	(3.5)	(2.0)	(5.0)	(4.3)	(8.9)	(1.6)
OM-YF	4.0	.20	2.3	.90	10.3	7.2	6.2	4.1
	(5.9)	(.42)	(2.3)	(1.7)	(6.6)	(6.6)	(3.7)	(4.1)
OF-YM	2.4	.22	1.8	.67	8.0	9.1	3.7	6.7
	(2.5)	(.44)	(2.1)	(1.0)	(6.0)	(8.4)	(2.9)	(4.4)

An Actor X Partner X Time interaction qualified this two-way effect (Table 28). That is, the gender of the actor and of the partner influenced the frequencies of self appraisals over time. At Time 1, there were relatively small differences between the four actor-partner combinations (Figure 10); however, by Time 2, the differences became much more dramatic. Males with brothers appraised the self significantly more frequently than any other pairing, whereas all other groupings showed similar frequencies in their use of self appraisals.

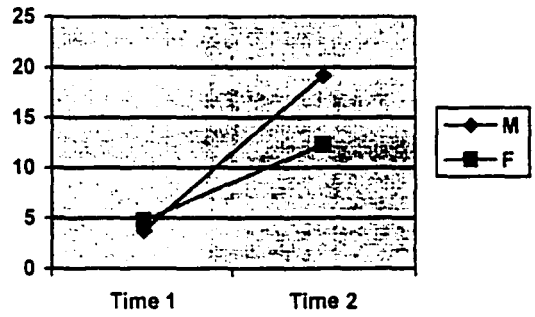
Table 28

Statistical effects for the effects of Gender, Child, Time, and Valence of self appraisals

		t (35) =	p <
Main effects	Actor	1.19	n.s.
	Partner	0.16	n.s.
Two-way effects	Actor X Partner	1.66	n.s.
	Actor X Valence	1.37	n.s.
	Actor X Child	0.37	n.s.
	Actor X Time	2.11	.05
	Partner X Valence	1.09	n.s.
	Partner X Child	0.14	n.s.
	Partner X Time	1.78	n.s.
Three-way effects	Actor X Partner X Valence	1.51	n.s.
	Actor X Partner X Child	1.41	n.s.
	Actor X Partner X Time	2.05	.05

Figure 9

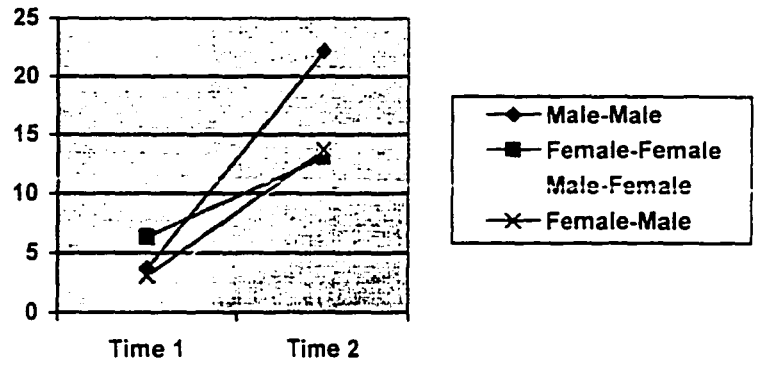
Frequency of appraisals for male and female actors over time



Note. The frequencies in this graph represent the average of the occurrence of self appraisals for male and female siblings within each time period.

Figure 10

Frequencies of self appraisals made by gender of actor and partner over time



Note. The frequencies in this graph represent the average of the occurrence of self appraisals for male and female siblings and their male or female partners within each time period.

In summary, the frequency of self appraisals over time depended on the gender of both appraisers and partners. In particular, male-male pairings showed a more dramatic increase in their use of self appraisals over time relative to other pairings, which were relatively similar in their use of self appraisals by Time 2. It was also interesting, and somewhat surprising to note, given previous findings from Ruble et al. (1994) that showed that school-age boys showed a stronger defensive tendency than did girls, that no interactions between gender and valence were found.

Attributes appraised

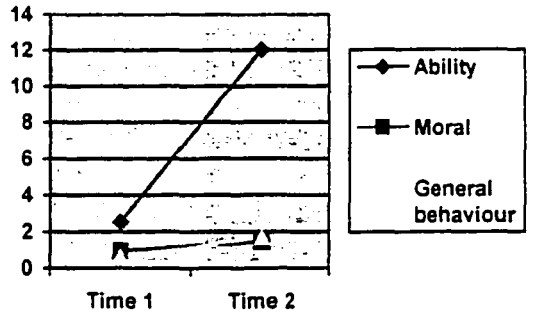
Children's self appraisals were categorized by domain – ability, moral quality, or general qualities – and these categories were then examined along with factors of child, valence, and time of observation. Only main and interaction effects of Attribute are discussed here, as other effects are redundant with those previously reported.

The frequency of children's appraisals was related to the category of the appraisal. Children tended to appraise their abilities more frequently than their moral or general qualities (Table 29). This main effect was moderated by two interactions with Time and with Valence (Table 30). For the Attribute X Time interaction, children generally showed some increase over time in their appraisals of themselves in each of the categories. Appraisals of ability

increased dramatically from Time 1 to Time 2, while moral and general qualities appraisals increased only minimally (Figure 11). The interaction of Attribute and Valence indicated that children's appraisals varied depending on both the attribute appraised and whether the appraisal was positive or negative. That is, children appraised their abilities more frequently than either their moral or general qualities, particularly positive appraisals (Figure 12).

Figure 11

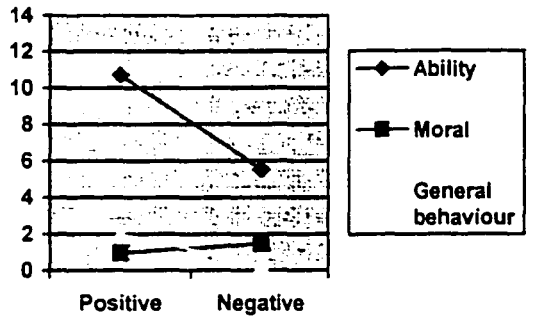
Mean frequencies of self appraisals by attribute appraised over time



Note. See note for Figure 8.

Figure 12

Mean frequencies of positive and negative self appraisals by the attribute appraised



Note. See note for Figure 8.

Table 29

Mean frequencies of self appraisals by attributes appraised, valence and child over time

	Time 1						Time 2					
	Ability		Moral		General qualities		Ability		Moral		General qualities	
	+	-	+	-	+	-	+	-	+	-	+	-
Older	3.1	.59	.38	.90	.077	.90	9.5	3.9	1.2	.91	.29	1.8
	(4.2)	(1.6)	(.63)	(1.3)	(.27)	(1.3)	(7.8)	(4.8)	(2.1)	(1.2)	(.68)	(2.2)
Younger	1.0	.36	.051	.59	.026	.26	8.5	3.1	.44	.58	.15	1.2
	(1.9)	(.93)	(.22)	(1.2)	(.16)	(.72)	(7.5)	(2.7)	(.94)	(.95)	(.43)	(1.6)

Note. 1. "+" = Positive self appraisal and "-" = Negative self appraisal.

2. Standard deviations are in brackets.

Table 30

Statistical effects for Child, Valence, Time, and Attribute Appraised for self appraisals

		F (2, 76) =	p <
Main effect	Attribute	56.65	.001
Two-way interactions	Child X Attribute	2.54	n.s.
	Time X Attribute	36.67	.001
	Valence X Attribute	66.18	.001
Three-way interactions	Child X Valence X Attribute	3.84	.05*
	Child X Time X Attribute	.33	n.s.
	Valence X Time X Attribute	17.74	.001
Four-way interaction	Child X Valence X Time X Attribute	1.12	n.s.

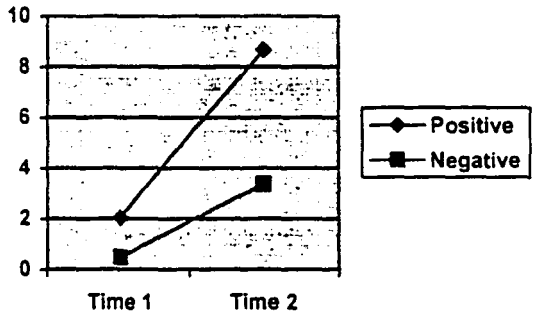
Note. * Although this value was significant under standard conventions, violations of sphericity rendered it non-significant when the degrees of freedom were adjusted to accommodate the violations. Other values in this table remained significant despite adjustments to degrees of freedom.

These interaction effects were moderated by a significant three-way interaction of Attribute, Valence, and Time (Table 30). T-tests were used to compare positive and negative

self appraisals for each attribute within each observation period. For appraisals of ability, children made significantly more positive than negative self appraisals at both time periods (Table 31). By Time 2, this difference was even larger due to the dramatic increase in positive appraisals of ability (Figure 13). Significant differences were also apparent for moral quality and general qualities, but the pattern was reversed such that children negatively appraised their moral and general qualities more often than positively, except for appraisals of moral behaviour at Time 2 where there was no difference. As is apparent in Figures 14 and 15, these differences, while statistically significant, may not be psychologically significant because differences were between mean appraisal rates of around one (i.e., approximately one appraisal across nine hours).

Figure 13

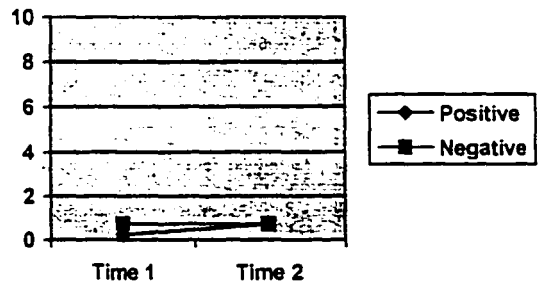
Mean frequencies of positive and negative self appraisals of ability over time



Note. See Note for Figure 8.

Figure 14

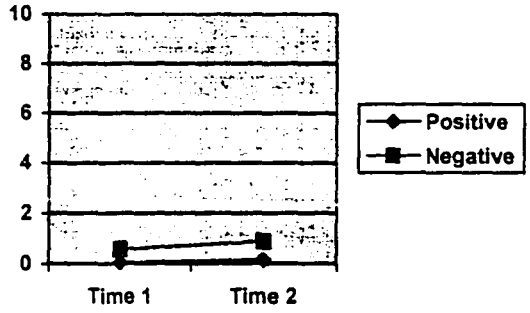
Mean frequencies of positive and negative self appraisals of moral behaviour over time



Note. See Note for Figure 8.

Figure 15

Mean frequencies of positive and negative self appraisals of general qualities over time



Note. See Note for Figure 8.

Table 31

Comparisons of appraisals across Valence, Time, Child and Attribute for self appraisals

		Degrees of freedom	t-value	p <
Valence X Time X Attribute	ANG1 – AP1	38	3.57	.01
	ANG2 – AP2	38	6.48	.001
	MNG1 – MP1	38	4.32	.001
	MNG2 – MP2	38	.07	n.s.
	BNG1 – BP1	38	4.09	.001
	BNG2 – BP2	38	4.08	.001

Note. O = Older; Y = Younger; A = Ability; M = Moral; B = General qualities; NG = Negative; P = Positive; 1 = Time 1; 2 = Time 2.

In summary, the pattern of children appraising themselves positively was only evident for appraisals of ability. By Time 2, children showed a dramatic increase in their use of positive appraisals of abilities, where most self appraisals occurred. Differences were also found for appraisals of general qualities, but negative appraisals occurred more frequently than the reverse. Even though these differences were opposite to what had been predicted, they seemed much less notable in the face of the stark differences for ability appraisals. Findings

for appraisals of moral and general qualities, although statistically significant, are likely not psychologically significant given the low frequency of these types of self appraisals.

Targets for self appraisals

Even though appraisals were examined within the context of the sibling relationship, parents were present during the observations and children had the opportunity to communicate appraisals to them. Thus, it seemed important to examine whether the valence of self appraisals varied depending on to whom they were directed. As with sibling appraisals, only clear instances where children were speaking to their parent or to their siblings were considered. Instances when children directed their self appraisals to both, or where it was unclear to whom it was directed, were not included in these analyses. Such instances were rare, occurring only 2.9 times per nine hours for older children (range 0 – 14), and 1.8 times per nine hours for younger children (range 0 – 13). These instances were removed from analyses to clarify interpretations of the results. Only the main effect and interactions of other factors with the Target factor are presented here since other results were discussed earlier.

The main effect of the Target factor was significant, favouring self appraisals directed to siblings, rather than those directed to parents (Table 32 for means and 33 for effects). Interactions of the Target factor with Time and with Valence moderated this effect. As with sibling appraisals, the Target X Time interaction revealed that the frequency of self appraisals directed to siblings and those directed to parents increased over time, but particularly for appraisals addressed to siblings. For the interaction of Target and Valence, the valence of children's self appraisals depended on whether they were said to the sibling or to a parent, such that positive appraisals occurred more frequently than negative, but particularly when siblings were the audience.

Both of these effects, though, were qualified by a three-way interaction of Target, Valence, and Time. Thus, children's use of positive and negative self appraisals varied depending on the time of the observation and whether it was stated to a sibling or to a parent. In examining these effects separately for each target, the frequency of positive and negative appraisals depended on the time period for appraisals said to siblings, Valence X Time Interaction, F (1, 38) = 8.93, $p < .01$, but not for those said to parents, Valence X Time Interaction, F (1, 38) = .91, $p > .05$ (Figures 16 and 17). That is, the frequency of positive self appraisals directed to siblings was significantly greater than that of negative appraisals directed

to siblings but only at Time 2 (Table 34). In contrast, parent-directed self appraisals did not differ significantly across time or according to appraisal valence, as is apparent in Figure 17.

Table 32

Means for each child at each Time period according to the Target of the self appraisals.

	Time 1				Time 2			
	Directed to sibling		Directed to parent		Directed to sibling		Directed to parent	
	+	-	+	-	+	-	+	-
Older	2.9	2.0	.49	.31	7.6	4.6	1.6	1.1
	(4.2)	(2.3)	(.76)	(.61)	(6.2)	(4.9)	(2.3)	(1.6)
Younger	1.0	.95	.026	.26	7.4	3.7	.65	.79
	(2.0)	(1.5)	(.16)	(.91)	(6.8)	(3.0)	(1.5)	(1.4)

Note. 1. "+" = Positive self appraisal and "-" = Negative self appraisal.

2. Standard deviations are included in brackets.

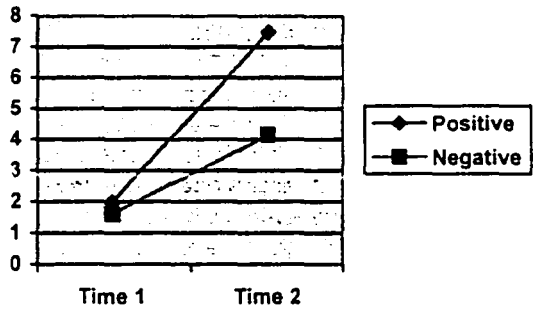
Table 33

Statistical effects for Child, Valence, Time, and Target for self appraisals

		$F(1, 38) =$	$p <$
Main effect	Target	89.60	.001
Two-way interactions	Child X Target	2.6	n.s.
	Time X Target	24.05	.001
	Valence X Target	13.65	.001
Three-way interactions	Child X Valence X Target	.59	n.s.
	Child X Time X Target	2.60	n.s.
	Valence X Time X Target	8.45	.01
Four-way interaction	Child X Valence X Time X Target	1.59	n.s.

Figure 16

Mean frequencies of positive and negative self appraisals directed to siblings over time



Note. See Note for Figure 8.

Table 34

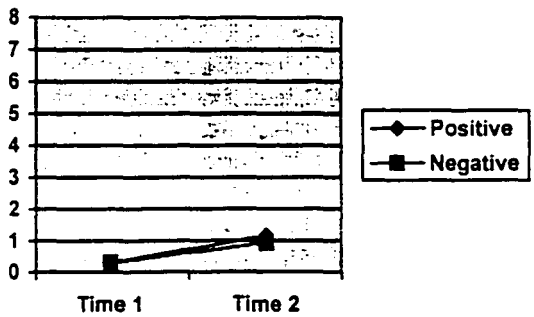
Comparisons of appraisals across Valence for self appraisals directed to siblings within each time

		Degrees of freedom	t-value	p <
Valence X Time X Target	SP1 – SNG1	38	-.84	n.s.
	SP2 – SNG2	38	-4.12	.001

Note. S = Directed to sibling; NG = Negative; P = Positive.

Figure 17

Mean frequencies of positive and negative appraisals directed to parents over time



Note. See Note for Figure 8.

Overall, both positive and negative self appraisals directed to siblings occurred more frequently than those directed to parents. Especially by the second time period, children were more likely to make positive and negative self appraisals in conversations with their sibling than with their parents. There were no significant changes in the frequency of occurrence of appraisals directed to parents, so it appears that the increase in frequency of self appraisals was largely directed to siblings. It is important to note that the method of this study did not allow for consideration of parent-child interaction that did not include the sibling. It may be the case that children directed other self appraisals to their parents, but they were not transcribed given the initial focus of the study, which was sibling interaction and the administration of parental justice.

Context of appraisals

To get an understanding of the dynamics of self appraisals, the context (i.e., the valence of the preceding action) was examined using a series of log-linear analyses. In order to conduct these analyses, self appraisals were made the unit of analysis and were collapsed across families, based on the factor being tested, to allow sufficient frequencies in each cell to test the null hypothesis model. In other words, no differentiation was made between families. Thus, conclusions from these analyses represent findings for the whole sample of children and can only be applied to the sample in this study (Bakeman & Gottman, 1986).

In these analyses I considered whether the valence of children's self appraisals depended on the valence of the events in the context prior to the appraisal. Analyses were conducted for context and appraisal valence, and other factors were added to the model to ascertain whether patterns differed across time periods or between older and younger siblings. These relations were examined using the Likelihood ratio χ^2 which tests the fit of a specified model. For these analyses, the null hypothesis model, or the model of independence, was being tested. If upheld, the null hypothesis model states that the factors being tested are independent and therefore, that the observed expectancies do not deviate significantly from the expected frequencies. When testing the fit of a model using the Likelihood ratio χ^2, a significant p-value (less than .05) was sought to indicate that the factors were dependent and that the frequency patterns occurred at a level that differed from chance. Any time the null hypothesis was rejected, significant relationships between variables were noted using the standardized residuals for each individual cell. Standardized residuals are z-scores so that any

value larger than an absolute value of 1.96 (at the .05-level) was considered a significant departure from the value that would be expected given the particular model tested (i.e., the null hypothesis model of the observed frequencies matching the expected frequencies).

In some situations it was difficult, if not impossible, to ascertain the event that preceded an appraisal. These situations arose most often when the self appraisal occurred at the beginning of an interactional sequence between the children or when the preceding act seemed to have occurred prior to the observation period. These occasions were not included in these analyses, but they only occurred in 18.8% of all self appraisals.

Using a 3 (Valence of Context) X 2 (Appraisal Valence) log-linear analysis, it was found that the model of independence did not fit these data, and in fact, the valence of the context and of self appraisals were significantly related, $\chi^2(2) = 34.19$, $p < .001$. Examination of the residuals revealed a pattern of results similar to that found for sibling appraisals, such that positive and negative prior acts were more likely to precede positive or negative self appraisals, respectively, and less likely to precede negative or positive appraisals, respectively (Table 35). This pattern appeared to be particularly strong for negative acts and appraisals. Over and above these statistical patterns, it is important to consider the cell frequencies. Examining the frequencies, positive appraisals occurred in positive contexts twice as often as negative contexts, but negative appraisals were preceded almost equally often by either a positive or negative contexts. This pattern suggested that positive appraisals that occurred in a negative context were potentially in defense of the self. However, it was important to note that these negative contexts were also those in which children did evaluate themselves negatively.

When Time was added to the analysis, no significant relationship was noted among the three factors: time, valence of the prior act, and valence of the appraisal, $\chi^2(3) = 5.09$, $p > .05$, indicating that the above described patterns remained stable for the two time periods. Similarly, the patterns in the relations between context and appraisal valence did not differ across older and younger siblings, $\chi^2(5) = 4.75$, $p > .05$.

Table 35

Relations between the valence of prior acts and the valence of self appraisals

	Positive context	Neutral context	Negative context
Positive appraisals	386 (3.54)	95 (-.62)	149 (-3.99)
Negative appraisals	133 (-4.53)	68 (.80)	183 (5.11)

Note. Standardized residuals appear in brackets for each cell.

Responses to self appraisals

Parent responses to self appraisals

Parents were expected to be within hearing distance of their children during the observation, although not necessarily directly involved in their children's interactions. At times, parents were already involved with interactions when a self appraisal occurred, and at other times, they were solicited by one of the children (e.g., directing the appraisal to parents). However, parents often did not become directly involved in interactions following self appraisals. More specifically, parents responded to slightly fewer than half of the appraisals that occurred, that is 48.3 % of the time. They responded in a variety of ways, including praising, criticizing, reasoning with the child, or responding in an unremarkable fashion (e.g., continuing a game that was already underway, without acknowledging the appraisal).

Self appraisal valence and parents' responsiveness. Since parents' behaviour was not directed by the study, it was important to consider their involvement in interactions relative to the valence of self appraisals. A qualitative analysis of the frequency with which parents responded to positive and negative self appraisals indicated that parents responded 43.3% of the time to positive self appraisals and about 56.6% of the time to negative self appraisals (Table 36). This difference in response rates is interesting given that parents generally made more responses (with respect to their frequency alone) to positive self appraisals.

Table 36

Frequencies of parents' response relative to the valence of self appraisals

Appraisal	Parent presence – Response	Parent absence - No response
Positive	406	532
Negative	331	254

Relations between self appraisals and parents' support of appraisals. Parents' responses were also examined to determine whether their support of or opposition to children's self appraisals was dependent on the valence of appraisals. It is important to note that the difference in total frequencies of parent responses from Table 36 to Table 37 resulted because of those times when parents directed their responses to both children or when they did not respond in spite of being involved in the interaction prior to the appraisal. In total, these events occurred 187 times out 737 parent responses (about 25% of all parent responses).

It was hypothesized that parents would tend to support their children by supporting positive and disputing negative self appraisals. These analyses focused on the meaning of parents' responses to the children and not simply on the tone used in the communications. In a 2 (Appraisal valence) X 3 (Parent support) log-linear analysis, it was found that these factors were dependent and that parents showed differential support for positive and negative self appraisals, $\chi^2(2) = 13.31$, $p < .01$; however, significant residuals revealed patterns which ran counter to predictions (Table 37). For instance, parents were less likely to support or agree with positive self appraisals, and they were more likely to support or agree with negative self appraisals. When examining the actual frequencies of parents' responses, it was interesting to note that parents frequently responded in a neutral way to positive and negative self appraisals – particularly for positive appraisals, about 53% of the time. These results are similar to those found in Study 1. The effects of Child and Time on the patterns between parent support and appraisal valence were not significant, Child: $\chi^2(5) = 2.37$, $p > .05$, and Time: $\chi^2(2) = 4.18$, $p > .05$, suggesting that the patterns between parents' support of appraisals and the valence of self appraisals were independent of the influences of both the identity of the appraiser and of the time of the observation.

Table 37

Patterns in parents' support of positive and negative self appraisals

	Support appraisal	Neither support nor dispute appraisal	Dispute appraisal
Positive appraisals	71 (-1.99)	180 (1.38)	56 (.18)
Negative appraisals	90 (2.24)	111 (-1.55)	42 (-.20)

Note. Standardized residuals appear in brackets for each cell.

Sibling responses

As with sibling appraisals, the frequency of responses to self appraisals was identical to the frequency of the appraisals themselves because a response was recorded for every appraisal that occurred. Children responded in a variety of ways to self appraisals, including agreeing, defending the appraiser, or responding in an unremarkable fashion (such as continuing an activity or ignoring their sibling's comments). Thus, it was interesting to consider whether the likelihood of children's responding in a meaningful way (such as agreeing or disagreeing in some way, rather than simply continuing their activity) was related to the valence of self appraisals. Further, investigating whether siblings tended to support, oppose, or respond in a neutral fashion to positive and negative self appraisals was helpful for determining the extent to which children were sensitive to self appraisals made by their sibling.

Relations between self appraisals and siblings' responsiveness. Patterns in the frequencies revealed that children tended to respond in some way to both positive and negative self appraisals, about 76% of the time (Table 38). Children's responses might directly address the appraisal, but they also frequently responded by continuing or changing an activity or responding in some other fashion (which did not directly address the appraisals). Their ratio of responses to either positive or negative appraisals was about equal, for positives, 78.6%, and for negatives, 72.4%.

Table 38

Relations between the valence of self appraisals and whether siblings respond

Appraisal	Response	No response
Positive	738	200
Negative	424	161

Relations between self appraisals and siblings' support of appraisals. Sibling responses were also considered with respect to whether they were likely to support, oppose, or neither support nor oppose self appraisals. These analyses were conducted on only those times that children responded (a total of 1162, Table 38). In a 2 (Appraisal valence) X 3 (Sibling support) log-linear analysis, it was found that whether children tended to support their siblings' self appraisals was related to the valence of the appraisals, $\chi^2(2) = 10.72$, $p < .01$. However, none of the residuals was interpretable (Table 39). An examination of the simple frequencies of children's responses indicated that children typically responded to self appraisals in a neutral fashion. The majority of their responses to both positive and negative self appraisals fell in this category, approximately 84% and 90%, respectively. Frequencies in the other response categories were evenly split between supporting and opposing appraisals.

Table 39

Patterns in siblings' support of positive and negative self appraisals

	Support appraisal	Neither support nor dispute appraisal	Dispute appraisal
Positive appraisals	59 (1.15)	617 (-.72)	62 (1.37)
Negative appraisals	21 (-1.52)	383 (.95)	20 (-1.81)

Note. Standardized residuals appear in brackets for each cell.

When these patterns were considered over time and between the two children, the patterns did not change significantly, for Time: $\chi^2(4) = 2.28$, $p > .05$, and for Child: $\chi^2(3) = 1.11$, $p > .05$. Thus, the observed frequencies did not differ significantly from the expected frequencies under the null hypothesis with the addition of Time or Child, suggesting that the patterns described above were independent of the influences of both Time and Child.

Discussion

Prevalence and nature of self appraisals

The range in the prevalence of self appraisals across children and families was striking: some siblings made no self appraisals at Time 1 and others made as many as 38 by Time 2. Although the majority of children in this study appraised themselves at both time periods, older siblings tended to appraise themselves more frequently than did their younger counterparts. Some of the younger siblings at Time 1 may have found it challenging to evaluate themselves. Indeed, Stipek et al. (1990) argued, in their study of self-concept development in children 1- to 3-years-old, that children only began to evaluate themselves when they saw themselves as distinct from others around them. For most children in Stipek et al.'s sample, this behaviour increased between 19 and 29 months of age, and it had occurred by the time that they were 30 months old. It may be that some of the younger children in my sample were not able to evaluate themselves verbally, as in Stipek et al.'s study. Interestingly, a small positive correlation ($r = .23$) was found between the age of the younger siblings and the frequency with which they made appraisals. Although the correlation was small, it was in the direction that suggests that the frequency of self appraisals is a developmental phenomenon, although not necessarily a process that has discrete stages (Harter, 1999). However, it may also be that children have the capacity to self-evaluate but, at early ages, this behaviour may occur relatively infrequently so that the observations simply did not capture it. All in all, though, by the second time period, all children were appraising themselves. At this point, the youngest children were approximately 4-years-old and well beyond the estimated age when self-evaluation begins to emerge (Stipek et al., 1990).

Moreover, within families, the frequencies of older and younger siblings' self appraisals were positively correlated at both time periods. Further examination of the frequencies of self appraisals revealed that their valence depended on the time of the observation. Although there was little difference between the frequencies of positive and negative appraisals at Time 1, by Time 2, a dramatic increase in positive self appraisals relative to negative appraisals was clearly evident. One possible explanation is that positive behaviour occurred more frequently than negative behaviour, and children's comments reflect that ratio. It is also possible that, by the second time period, the pattern in children's appraisals was consistent with those expected

under the self-presentational bias as positive appraisals occurred almost twice as often as negative ones (Ross & Fletcher, 1985; Ruble et al., 1994). Indeed, since this pattern did not differ across the two children, the results highlight the ubiquitous quality of this phenomenon. Thus, it is possible to speculate that the motivation to present oneself in a favourable light is one that begins early in the developmental process and is reciprocated by siblings. However, this process is not completely one that can be explained by development alone. Since the valence of children's appraisals did not interact with the age of the children, it appears that some other dynamic process may be at play. For some reason, when both children were somewhat older, their positive appraisals increased dramatically, but when they were two years younger, this process was not apparent. Moreover, it is important to note that 4-year-old children at Time 1 were not showing this pattern, but 4-year-old children at Time 2 were. Thus, older children may have shown a dramatic increase in their appraisals from Time 1 to 2 and younger children are trying to keep up, or it may be that 4-year-old older siblings did not need to engage in this behaviour at Time 1 because there was less need than when their younger sibling was approaching school age (at Time 2). Therefore, it appears that by age 4 children can make frequent self appraisals, but that without an older sibling, this behaviour remains less prominent until the younger sibling develops these skills further.

Within this discussion, it is also important to acknowledge that the tendency for children to appraise themselves positively more often than negatively may either be associated with their views of themselves or may be influenced by elements of social discourse. The extent to which children believe these appraisals has implications for the way they are explained. If believed, then children's appraisals may represent a reasonably accurate portrayal of their self-concept. It is possible, following Vygotsky's model of development (1978), that children use self appraisals to monitor and comment on their developing skills. Vygotsky suggests that part of the process of learning new skills is a period of time where individuals use their speech to guide their behaviour. Eventually, these comments are internalized as the new skills are mastered. As such, children may be commenting on their actual behaviour as it develops. However, if this pattern represents a social interactional style, rather than children's beliefs about themselves, then children's appraisals should not be used as an indicator of their self-worth. In this case, the frequency with which children appraise themselves positively may

be influenced by social factors and may represent more than an attempt to present the self favourably. Unfortunately, the data in this study are unable to address this issue. In light of the findings, though, future studies need to address the idea of whether children's self appraisals are a part of social discourse with their sibling, whether they represent an accurate assessment of the child's self-concept, or whether both processes are involved. Findings from my study suggest that children show a greater tendency toward positive self appraisals when interacting with six-, versus two-, year-old siblings. Such a study might involve observing the ways that children appraise themselves with different interactional partners (i.e., peer, close friend, sibling, parent). If appraisals are heavily reliant on interactional partners, then differences in the number of self appraisals would arise across these different dyadic interactions.

With respect to the attributes children evaluate in themselves, it was clear that self appraisals were most likely to have to do with ability, rather than with moral or general qualities, especially by the second time period. Children appraised themselves positively more often than negatively only with respect to ability appraisals. For moral and general qualities appraisals, children were making, on average, two appraisals over a nine-hour observation time and were more likely to appraise themselves negatively than positively. It hardly seems likely that at such a low frequency, any significant conclusions can be drawn about these differences. Children were simply less likely to appraise their behaviour in these domains. For instance, children did not make statements about their polite or impolite behaviour. In fact, most negative appraisals of general and moral behaviour had to do with occasions where siblings were apologizing for inappropriate behaviour (either spontaneously or following parent direction). Overall, though, these types of self appraisals were rare. It must be remembered that these domains represent the researcher's categorization of children's appraisals, and may in fact, not be representative of the ways that children compartmentalize their world. As noted in Study 1, this issue represents an empirical question to be addressed in a future study.

In contrast, ability appraisals occurred frequently, particularly by Time 2, and were showing some interesting patterns. As indicated earlier, it seemed that children wanted to establish a positive view of themselves, but particularly with respect to their abilities. Children wanted to let their sibling know when they were winning, and to highlight their own accomplishments. Children also used comparative statements. For example, children made

appraisals like, "I can do it better than you." The dramatic increase in ability appraisals over time was consistent with findings from Pomerantz et al. (1995) who found that, after starting school, children become increasingly self-aware and self-evaluative. They conducted a cross-sequential study of children at school and observed and interviewed children to investigate the presence of and opinions held toward social comparison. This process does not begin upon entering school; just prior to beginning school, children start to notice and appraise their skills regularly, as shown in the current study. Pomerantz et al.'s study, though, did not examine naturalistic self-evaluations as was done here. In addition, many studies of children's self-evaluations are focused only on those behaviours which pertain to achievement (such as athleticism and academics). My study demonstrates the potential of naturalistic observation because self-evaluations were not restricted to one domain. In addition, this study offers unique observations of the areas about which children tend to comment without prompting.

Taken together, these findings are consistent with the self-presentational bias noted in many other studies, but it is important to note that the pattern was present even in the interactions of siblings who are only four and six years old (at the second time period), and mainly with appraisals of their abilities. Given that many studies of self appraisal are done with school-age children and typically involve questionnaire or interview assessments of self appraisals, it was interesting to see that overt self appraisals do exist within sibling interactions even before children enter school. This study highlights that overt self-evaluations are evident in many sibling interactions from very early on, and that by Time 2, self appraisals were a more consistent part of children's interactions. Therefore, the sibling relationship may be an important arena for the development of overt self-evaluation. In addition, my study validates the focus in the self-evaluation literature on achievement and ability, because within a naturalistic context, self appraisals typically fell in that domain. In the future, though, it will still be important to consider the ways in which children appraise their moral and general qualities. It may be that this process becomes covert at an early point in development, possibly because significant events in those domains tend to be negative (e.g., the transgression of moral rules). Alternatively, the self-presentational bias may become evident in these appraisals as children develop.

Several questions remain with respect to understanding the patterns that were found in young children's self appraisals within the sibling relationship. Similar to sibling appraisals, these questions included: (1) Why do older children appraise themselves more frequently than their younger siblings appraise themselves? (2) Why do children appraise themselves positively more often than negatively? and (3) Do self appraisals mirror reality?

Why do older children make more self appraisals than their younger siblings?

Although controlling for linguistic competence was expected to account for some of the differences between the frequencies of older and younger children's self appraisals, differences in children's linguistic fluency were insufficient to explain differences in the frequencies of children's self appraisals, as had been predicted. Although the proportion of self appraisals to overall speech acts remained relatively constant across the two time periods for older children, younger siblings' self appraisals became a significantly greater proportion of their overall speech acts by Time 2, almost matching that of older siblings. It is important to note that by age four, it was not just linguistic capacity, but rather children's language fluency that likely influenced the increase in their use of self appraisals relative to overall speech. Given that younger children's proportions of appraisals were similar to those of older children by the second time period, and that the proportion of self appraisals for older children did not change significantly over time, a developmental explanation may be appropriate. That is, as described above, the ability to self-evaluate develops during the preschool years (Stipek et al., 1990), and overt self-evaluations seem to be a skill that is in place by about age four, at least within this study. Thus, the increase in the proportion of younger children's self appraisals relative to overall speech acts may not be surprising in this light because by the second time period, the younger children had reached that developmental plateau where self-evaluation is in place. In fact, younger children in the first time period may have been continuing to look to others for evaluations of their behaviour rather than monitoring it themselves, as suggested in the research of Stipek et al. (1992). These researchers found that at age two, children looked to others for approval of their behaviour and, by age three, they had internalized those standards of behaviour developed through interactions with their caregivers. Therefore, even though capable of self-evaluation, two- to three-year-old children simply may not make as many appraisals, proportionally speaking, and they may not have learned the potential usefulness of

self appraisals for self-enhancement. It is also possible that younger children may make self-evaluations in different ways, such as using nonverbal gestures to seek approval from others in their environment. These types of evaluations, though, not assessed in this study, could be an addition to future work on siblings' self appraisals.

Why do children appraise themselves positively more often than negatively?

A potential way of understanding the positive bias evident in children's self appraisals patterns was that it may reflect children's efforts at self-enhancement within their interactions with their siblings. Given that the self-presentational bias is a consistent finding within the adult literature (e.g., Ross & Fletcher, 1985) and one that is emerging within studies of children (e.g., Felson, 1985, Felson & Reed, 1986; Ruble et al., 1994; Wilson, Smith, Ross, & Ross, pending), it might be a useful construct for explaining the bias found in overt self appraisals. In particular, it had been predicted that children would show such a self-presentational bias in their appraisals directed to both their siblings and their parents. Interestingly, children more frequently directed self appraisals to their siblings than to their parents. By Time 2, positive self appraisals had increased dramatically, as described earlier, but the increased frequency of appraisals was occurring with siblings, not with parents. In fact, there was little change in the frequency of positive or negative self appraisals directed to parents over the two time periods. By the second time period, children, regardless of birth order, seemed to be more likely to highlight their good qualities and abilities for their sibling. Although this finding seems somewhat intuitive, given various findings in the literature supporting the competitive nature of the sibling relationship (e.g., Dunn, 1988), this tendency to present favourably for your sibling has never been addressed directly, through studies of self concept or social comparison by other sibling researchers.

Since the increase in self appraisals was directed to siblings, the hypothesis that children would present themselves favourably to parents through positive self appraisals was not supported. Perhaps, children have more opportunities to make such appraisals when interacting with their siblings than with parents because they may be more likely to have to defend their efforts or highlight their good qualities. Moreover, between the ages of 3 and 4, younger siblings' interactions with their older brothers and sisters increase, whereas their interactions with their parents decrease (Dunn, Creps, & Brown, 1996). In essence, children

are interested in presenting themselves well; however, their efforts are directed toward shaping positive views in the eyes of their siblings rather than their parents, likely in response to the competition that is inherent in sibling relationships (e.g., Dunn et al., 1995; Vandell & Bailey, 1992). This desire to present well to siblings may also be fuelled by the fact that they hear more positive self appraisals from their siblings than from parents. Children's self appraisals are reciprocal, which could stem from an explicit type of social comparison, and an implicit form of competition between the siblings (e.g., one child say, "I can do this well," then at a later point the other child may say, "Well, I do something else well"). In addition, it may be that children do not feel compelled to improve their parents' views of them because parents often seem to share a similar positive bias toward their children (Felson & Reed, 1986), or that children only engage in favourable self-presentation with parents when it is beneficial to them, such as during parent intervention in sibling conflict.

Although this discrepancy between appraisals said to siblings and those addressed to parents is interesting, it is important to recall the procedure used for collecting these data. Specifically, parent-child conversations within the observation sessions that were not directly associated with the sibling or with conflict were not transcribed. Thus, intimate parent-child interactions where appraisals may occur were not included in this data set. Therefore, these findings suggest that children self-present to their siblings, but not to their parents, in the context of sibling interactions. A broader study, including more direct parent-child interaction, is needed to determine whether these dramatic frequency differences are replicated. On the other hand, there is no particular reason to expect that a positive bias would emerge in the parent-directed appraisals that were missed in this study, when that bias was absent in the appraisals that were observed. It may be that children can admit their shortcomings more readily to their parents.

In summary, theories of self-presentation provide some explanation for the positive bias observed in children's self appraisals; however, implicit in these findings is the idea of competition or comparison driving self appraisals. Even though this pattern was only evident in those appraisals directed to siblings, the competition necessary to spark self-enhancement is more likely to be present within the sibling relationship than in the parent-child relationship.

Indeed, within boy-boy pairings, this competitive spirit seemed to be quite apparent, relative to other sibling pairings, because they appraised themselves the most frequently of all pairs.

Do self appraisals mirror reality?

As with sibling appraisals, it was possible that the differences noted between positive and negative self appraisals were attributable to the context in which they occurred. That is, it may be that children more often appraised themselves positively because they were simply commenting on positive actions and behaviours they were doing within their interactions with their sibling. This interpretation may be somewhat tenuous because, even if children were acting inappropriately or misbehaving, it is unlikely that they would openly admit such wrong-doings to their sibling or parent. However, considering links between the prior actions and self appraisals that did occur illustrated that when appraising the self, children, as a group, seemed to tell the truth, just not the whole truth.

Although it was expected that the connection between prior context and actual appraisals would not be as clear for self appraisals as it was for sibling appraisals, it was still thought that children's appraisals would be based on actual events in their interactions rather than occurring spontaneously. Children's self appraisals, in this sample, tended to arise out of and to be closely connected to the context in which they occurred. That is, across the group of children, appraisals were more likely to mirror the valence of the actions that preceded them than to be dissimilar. This pattern was quite strong and was not influenced by the time of the observation nor by the child making the appraisals. It is important to consider the fact that since these analyses were conducted at a group level (i.e., using appraisals as the unit of analysis rather than children), it is possible that this pattern was not reflected within each sibling pair. Informal analysis of the frequency for each sibling dyad indicated that many of the pairs showed patterns that were matched or were similar to that which was found at a group level.

We also need to be cautious in the interpretation of these findings because the valence of the context of appraisals was coded simultaneously with the actual appraisals, due to time limitations, rather than being coded at different times. For instance, the valence of some preceding acts may have been somewhat ambiguous (i.e., could fall in one of two categories), and the categorization of the valence of the preceding behaviour may have been coloured by the

appraisal made by the child (e.g., both coded as falling in the same category because the appraisal fell in a definite category). It may be that if contexts were coded independently from appraisals, such strong relations may not have been evident. Thus, these findings, although robust, should be interpreted conservatively. Despite these cautions, it is interesting to note that children did negatively appraise themselves on occasion after their own negative actions. In other studies, children have been found to make self appraisals that blatantly ignore negative feedback that has been delivered, and even make more positive self appraisals than if given feedback about success (Ruble et al., 1994). Thus, my study highlights that children may be aware of negative events they have caused and can even evaluate these actions, but only occasionally do they do so overtly. In this study, these acts were comprised most often of instances where children were apologizing for some wrong-doing they had committed.

How does gender impact the self appraisals children make?

Predictions highlighted the strong finding that boys appraise themselves positively more frequently than do girls, following from a study by Ruble et al. (1994). Moreover, it was suggested that the gender of the sibling partner would have an impact on the types of appraisals children would make. The findings reported here partially substantiate these ideas in that male children tended to make more appraisals than female children when paired with a male partner; however, the patterns in the valence of children's appraisals remained relatively unaffected by the influences of gender. Interestingly, these gender differences did not emerge until the second time period. Male-male pairs at Time 2 were more likely to appraise themselves, regardless of their valence. Even though an association between gender and the valence of appraisals was not found for both boys and girls, positive appraisals occurred more frequently than negative appraisals, especially at Time 2 when the gender effects emerged. Therefore, the competition of males in general (e.g., Ruble et al., 1994) and of male siblings in particular (e.g., Brody, Stoneman, & Mackinnon, 1985) was possibly expressed here through self appraisals – with brothers tending to make many more appraisals than female siblings did at Time 2.

When and how do parents respond to self appraisals?

Overall, parents' responses to self appraisals were somewhat unexpected. Although it was predicted that parents would react to both positive and negative appraisals, proportionally speaking, parents tended to react to situations where negative appraisals occurred, but were less

likely to do so in the face of positive self appraisals. This pattern replicated that found for sibling appraisals, and it may be that parents tended to react to negative appraisals because of the situations in which they occurred. Generally, negative self appraisals tended to arise in a negative context. Thus, something within that context (such as intensity of children's voices or the negative interactions between the children), along with the self appraisal, may have prompted parents to respond. However, it may also be that negative self appraisals prompted parents in this sample to intervene either to agree or disagree with the appraisal.

When parent responses were examined further with respect to their support of self appraisals, they showed another striking, yet unexpected pattern, which provided some clarification for the above findings. Parents were expected to support positive appraisals and dispute negative appraisals. A popular belief suggests that making negative comments about oneself can have serious implications for self-esteem. Following such a belief, parents would perhaps want to intervene to mitigate the effects of such negative statements on their child's self-esteem. (e.g., Leman, 1995). This pattern was not substantiated in this study. Indeed, in the face of negative and positive self appraisals, parents were more likely to support negative appraisals, and less likely to support positive appraisals. By support, it was meant that either directly or indirectly (e.g., through words or actions), parents gave an indication of their concordance with the view expressed in the appraisal. As with sibling appraisals, it may be that parents were tending to react in ways that suggested their agreement with the negative appraisal, and in essence, their disapproval of a given behaviour that had been highlighted in the self appraisal. Thus parents in this sample may have viewed negative self appraisals as a chance for the child to take responsibility for inappropriate behaviour, rather than feeling the need to advocate for their child to buffer them from the effects of their own appraisals, as suggested earlier. It is also possible, though, that the context of negative self appraisals influenced parents' responses, much like it may have influenced the likelihood of parents' intervening in the first place. That is, negative appraisals may have prompted parents to respond in ways that supported the appraisals rather than attempting to support their child because they possibly were having to manage the negative interactions occurring between the siblings by getting the children to take responsibility for their actions.

However, if parents wanted to emphasize children's wrongdoings so they would learn from their mistakes, why did parents not support the positive appraisals children made? Parents either ignored or failed to support the positive actions, which again contradicts my hypothesis. In addition, it was important to note that since most of children's self appraisals evaluated behaviours associated with ability or achievement, this interpretation (that parents were trying to get children to take responsibility for their bad behaviour) would only hold true for a small portion of appraisals in this study. Their lack of support for appraisals of ability may then be characterized, for example, as disagreeing with children wrongly stating that they have won a game or perhaps with some kind of evaluation of children's execution of certain activities. In essence, then, parent responses to children's appraisals did not mimic patterns noted in parents' appraisals – Felson and Reed (1986) showed that parents' appraisals of their children's performance at school also showed a positive bias, like the children's own appraisals. Instead, parents were reacting to their children's behaviours and abilities that spawned the appraisal.

When and how do siblings respond to self appraisals?

Given that self appraisals have not been studied within the sibling context, few predictions were made with respect to sibling responses except that it was expected that siblings would tend to respond in ways that supported their sibling, by either agreeing with positive appraisals, or disagreeing with negative appraisals. Even though sibling responses were recorded for each self appraisal, it became clear that siblings were less likely to respond to self, than to sibling, appraisals in a well-defined manner. That is, they rarely directly agreed or disagreed with appraisals, and were more likely to respond in a neutral fashion or not to respond at all. Similar to patterns in parent responses to children's self appraisals, siblings tended not to offer much support to their siblings in response to positive or negative self appraisals.

This response pattern may reflect that children in this sample did not feel the need to respond to self appraisals in the same way they did to sibling appraisals, because they were not the subject of the appraisals, and their "honour" was not being questioned or praised. For sibling appraisals, where the person responding had just been evaluated, there was a greater likelihood that they would have something to say (e.g., agreement, defense, counter-appraisal,

etc.) than if they had to respond to a self appraisal. In effect, given the nature of the sibling relationship as somewhat competitive, it is also unlikely that children would respond to self appraisals by supporting a child after either a positive or negative appraisal, but it may also be considered too harsh to agree with negative appraisals or disagree with positive evaluations. As such, children in this sample may be more likely to just let the comment pass without any directly related comment, as was noticed in the frequencies of children's responses.

Comparing sibling and self appraisals

It is interesting to consider these findings regarding self appraisals in the context of the findings from Study 1. A number of remarkable observations arise regarding the similarities and differences between sibling and self appraisals. Children's appraisals, whether of their sibling or of themselves, occur within meaningful context and occur as a result of some prior incident that is directly related to the appraisal that followed. In addition, children's language fluency did not provide a sufficient explanation for differences in the patterns within sibling and self appraisals, so other factors seem to be playing a role. Parent responses were also similar across both sibling and self appraisals. In both cases, they tended to respond more frequently in the face of negative appraisals, and they tended to support negative appraisals of the sibling and of the self. For sibling responses, the current study revealed that even though children responded more to sibling than self appraisals, no specific association was found between the valence of sibling appraisals and when children respond. These findings were consistent with findings for sibling responses to self appraisals. However, while children tended to oppose negative sibling appraisals, as shown in Study 1, the pattern in children's responses here showed that they tended not to disagree with negative self appraisals. As noted earlier, it is likely that this difference arises because children attempted to defend themselves against negative comments made by their siblings, but did not feel as compelled to respond when the negative comments were about their siblings (i.e., self appraisals).

Although patterns in children's sibling and self appraisals had some basic similarities, there were also some important and striking differences. First, recall that children appraised their siblings negatively and that this tendency became increasingly strong over time, particularly for younger siblings. With self appraisals, however, findings revealed that children showed the opposite pattern, and it did not differ significantly across the two children. In

effect, the pattern that becomes apparent in children's sibling and self appraisals may have implications for children's ideas about themselves. Indeed, children tended to comment more frequently on the negative aspects of their siblings' behaviour at the same time as they highlighted the positive aspects of their own behaviour. Taking these two patterns together, it may be that children inadvertently use overt sibling and self appraisals to highlight their own strengths and their partner's weaknesses or shortcomings. Alternatively, children's overt positive self appraisals may be in defense against the negative feedback they receive from their sibling – whether right at the moment of a negative sibling appraisal or just as a balance against the negative tendency of sibling appraisals. This hypothesis requires further testing, particularly as the domains of the most frequent appraisals differed for sibling and self appraisals (moral appraisals were most frequent for sibling appraisals, and ability appraisals for self appraisals). However, it is important to remember that findings for sibling appraisals differed somewhat across gender pairings – male-male pairs appraised each other negatively much more than other pairings, whereas the pattern of negative appraisals occurring more frequently than positive appraisals occurred in all sibling pairs. Furthermore, this positive self appraisal bias occurs at a time in the sibling relationship when sibling aggression and conflict is declining (Martin, 1997; Ross et al., 1998). It is possible that children are tending toward a more socialized form of the same interpersonal dynamics of competition and rivalry that had manifested itself in the higher level of aggressive conflict noted in the first time period. However, at the same time this pattern is occurring, positive sibling appraisals also increased, indicating that children may be becoming more appreciative of their sibling's good qualities – a pattern that was not present at Time 1.

A second difference between sibling and self appraisals was that children's sibling appraisals tended to focus on appraisals of moral quality, whereas self appraisals were more often appraisals of abilities. Interestingly, children's positive sibling appraisals generally fell in the ability category. These positive sibling appraisals were more than matched by the positive ability appraisals made by children of themselves. Even relative to the accomplishments and abilities of another person, children are likely more aware of their own accomplishments than those of their sibling. Salience may also explain children's tendency to focus on the moral wrong-doings of their siblings; however, sibling and self appraisals within each category may

be related or connected in meaningful ways. For example, it may be that the positive sibling appraisals of ability, particularly by older siblings, are what prompt children to appraise themselves in this area more frequently than in the other categories included in this study. Study 3 ventures to answer this question and examines whether such predictive patterns exist over time.

Finally, children's sibling and self appraisals also differed with respect to the target of the appraisal. While all appraisals tended to be directed to siblings more often than to parents, the valence of self appraisals interacted with the target of appraisals, such that by Time 2, self appraisals directed to siblings had become more often positive than negative. The lack of an interaction between valence and the targets of sibling appraisals was somewhat surprising, given that it was expected that children would try to make themselves look good in front of their parents. The difference in self appraisals may reflect children's attempts to present themselves well in front of their siblings, which can be achieved through the use of positive self appraisals, and this behaviour may be in response to negative sibling appraisals. Further examination of this hypothesis is required and is a part of Study 3. However, this interpretation must be made with some caution. It is important to realize that this interaction, although worthy of discussion, may have resulted from the specific procedures employed in this study. That is, because children were required to be in the same room and to interact with their siblings, and parents were expected to be in the same room, but not necessarily interacting, it is possible that children's appraisals were directed to their sibling more frequently by default.

General conclusions

Taken together, the results of this study provide an understanding of the development of self appraisals in young children within the sibling relationship. One important finding revealed that children's use of self-evaluation increases significantly over time, particularly for younger siblings. These increases were especially evident in boy-boy pairs in the second time period. Despite the fact that the children are talking about the self, this behaviour is highly social. More specifically, children showed reciprocity and competition as is reflected in positive relations in the frequency with which they appraised themselves. That is, they seemed to match one another in the frequency of self appraisals, making implicit, if not explicit, comparisons with one another. Further, the audience of self appraisals mattered to children.

The patterns in the valence of their appraisals depended on whether siblings or parents were the recipients of appraisals. Thus, even though the self is an idea that seems private, children use their social environment to learn and talk about who they are. Perhaps as Cooley (1902/1964) stated, people may only come to know who they are when in the presence of others.

This study replicated and extended past knowledge of self appraisals. It replicated the positive bias people generally tend to exhibit, although further research is needed to determine the extent to which young children are motivated and conscious of such efforts. It extended our knowledge by examining prior context and responses to appraisals, by examining appraisals in very young children within the sibling relationship, by considering the relation between valence and the domains of children's appraisals, and by investigating the relation between language fluency and appraisals. The next study will compare sibling and self appraisals more directly to determine their associations within and across time.

Study 3: Developmental and contemporaneous associations between sibling and self appraisals

Introduction

Exploring the nature and prevalence of sibling and self appraisals within the sibling relationship in Studies 1 and 2 provided a stepping-stone to the next study. Further examination of the connections and associations between these appraisals themselves and with other aspects of the sibling relationship are necessary to add to our understanding of the sibling relationship and help us appreciate the meaning of appraisals for children's development. Appraisals made by siblings may be an important early source of information about children's attributes and abilities and may be linked in important ways to how young children see themselves. No past research has specifically emphasized or compared self and sibling appraisals.

Examining sibling and self appraisals concurrently provides an opportunity to note contrasts and relationships in these comments as well as to potentially gain an indirect assessment of children's self-concept (via their self appraisals). This study has many unique qualities, in particular the naturalistic occurrence of overt self and other appraisals within the sibling relationship, as well as the longitudinal design that allowed for the testing of developmental predictions.

Many questions arise when considering potential associations among appraisals and other sibling relationship characteristics: Are sibling and self appraisals related within or across time, and if so, how? What impact do sibling appraisals have on later self appraisals? How are sibling appraisals in one domain related to self appraisals in the same or different domains? Do children show patterns of reciprocation in their sibling or self appraisals? This study endeavoured to answer these questions. The following sections highlight the theoretical reasoning for predictions regarding associations among sibling and self appraisals.

Contemporaneous and Developmental Influence of Sibling Appraisals

Although many researchers have examined the impact of the parent-child relationship (e.g., Bowlby, 1969) on child development, sibling relationships are generally among the first close connections that children develop with someone other than an adult (Lamb, 1982), and siblings spend large amounts of time together prior to beginning school (Buhrmester, 1992). Some researchers have characterized this relationship as quite different from other childhood

relationships. Dunn (1988) has suggested that the sibling relationship is "distinctive in its emotional power and intimacy, its qualities of competitiveness, and of emotional understanding" (p. 119). Although siblings do not choose each other as interaction partners, the family environment and bond is such that they may be encouraged to get along, play together, or help one another regardless of the prevalence of positive or negative events in the relationship. Thus, the frequency and intensity of sibling interactions, especially during the preschool years, may make these interactions particularly significant contemporaneously and developmentally (Abramovitch, Pepler, & Corter, 1982; Dunn, 1988; Lamb, 1982; Stocker & Dunn, 1991).

Given the strong and relatively consistent body of evidence highlighting the intensity of the sibling relationship and its influence on other aspects of development, it was expected that this power would also be apparent in the concurrent and predictive patterns of appraisals. In other words, in the early years, siblings are a captive audience for one another, and appraisals made within the context of the relationship are likely to be related to other aspects of the relationship assessed within the same time period or over time. By focusing on specific interactions involving appraisals, we may learn more about the interplay of different features of this unique dyadic relationship than if we examined only its global attributes, as has been the case in many past studies (e.g., Dunn, Slomkowski, & Beardsall, 1994; Vandell & Bailey, 1992). In this study, the contemporaneous and developmental effects of sibling appraisals were investigated in three ways: (1) the association of sibling appraisal behaviour with self appraisals, (2) the degree of reciprocity in sibling and self appraisals, and (3) the potential for sibling and self appraisals to predict later sibling and self appraisals, respectively. This aspect of the study represents a first step toward establishing correlational patterns, within and across time, to demonstrate the possibility that appraisals may be associated with the sibling relationship and with children's developing sense of self.

There may be different ways in which children's sibling appraisals are related to concurrent or later self appraisals. Two possible patterns explored here are derived from the "Looking Glass Self" model and a Compensation model of self development. Specific hypotheses associated with each theory, along with a discussion of each theory, are detailed in the following two sections.

Links between sibling and self appraisals: Looking Glass Self model. A longstanding theoretical tradition of Symbolic Interactionism, which has appraisal behaviour as its core, was one potential way of considering appraisals within the sibling relationship and their potential effects on self development. Recent studies suggest that this theory has gained renewed interest among psychologists interested in the self (e.g., Harter, 1999; Hoelter, 1984; Kenny & DePaulo, 1993). Given that children's early social environments typically consist of their parents and siblings, it seems that evaluative interactions within either relationship would contribute in some way to the development of children's feelings about themselves. In the preschool years, evidence also suggests that children begin to develop a sense of standards for behaviour through observations of and interactions with their parents (Alessandri & Lewis, 1993; Harter, 1999). Similarly, Bowlby (1969) suggests that, in the same way that children use parent appraisals to develop an early sense of self, they may also use appraisals to arrive at an understanding of and learn about parents' expectations for behaviour and conduct. If, as Mead (1934/1962) suggests, "we see ourselves through another person's eyes" (p. 70), then these early evaluations by significant others likely play a critical role in the development of children's self-worth. Mead (1934/62) furthered this argument by stating that people use language to develop what he termed a "generalized other," that contains a collection of the ways that the self thinks that others think about him/her. The generalized other ultimately governs, to some extent, how a person may act or respond in any given situation.

Taking a similar Symbolic Interactionist approach, Cooley (1902/1964) believed that people learn about themselves through interactions with others: what people say about you, your perceptions of others' opinions of you, and your own feelings about your behaviour and actions are eventually incorporated into your thoughts about yourself. These processes combine to define his conceptualization of the "Looking Glass Self." In essence, he felt that, "directly or indirectly the imagination of how we appear to others is a controlling force in all normal minds" (1902/1964, p. 203). He argued that it is only through interactions and relations with others and knowing their reactions to you, that one can learn about one's self: "The individual self is felt only in relation to other individuals" (p. 210). As such, actual appraisals by others, self appraisals, and reflected appraisals (those we assume or believe others make of us) could play a crucial role in the early development of self and would continue to be an influence throughout the life span. Even though reflected appraisals are often seen as a key

variable in this theory, actual appraisals may have a direct predictive relation with children's overt self appraisals. Moreover, in order to consider appraisals naturalistically, reflected appraisals are necessarily removed as a variable of study because of their implicit and covert nature. The study of connections between actual appraisals made by others and self appraisals provides meaningful information under naturalistic conditions; however, the conclusions derived from associations that are found may need to make reference to the reflected appraisal process as a potential mechanism for such relations.

Since the theory was first proposed, many researchers have conducted studies to test its propositions. Shrauger and Schoeneman (1979) reviewed many of these studies to assess the overall validity of this theory. They found that many of the naturalistic and laboratory studies had only modest correlations between people's self-perceptions and their perceptions of others' opinions of them (i.e., reflected appraisals). Although these results may suggest that the theory has some relevance to our everyday experience, Shrauger and Schoeneman criticized the studies for omitting key analyses such as comparing self-perceptions and others' actual perceptions, or evaluating whether self-perceptions change in the direction of others' perceptions over time.

As suggested by Shrauger and Schoeneman (1979), it is particularly important to consider links between others' appraisals from an earlier time period as having an effect on the appraised person's later self appraisals in testing a model of the Looking Glass Self. That is, if the Looking Glass Self model is operating in the manner suggested, individuals' self-perceptions should move, over time, in the direction of other people's perceptions of them. For example, children may internalize this information and appraise themselves in the future in similar ways as their siblings had in the past especially if they believe the appraisals to be true. In this study, children's appraisals of self and sibling were examined to determine the extent to which children are influenced by evaluations they receive from others. Although I am unable to draw causal conclusions from my study findings, I outline possible correlational patterns in sibling and self appraisals to be explored in this and future studies of appraisals and self-concept development to determine specific causal pathways.

Shrauger and Schoeneman (1979) also highlighted that most studies had been performed on adults or adolescents. They argued that these populations may have a more stable sense of self than young children, the sample used in this study. Indeed, findings from

Study 2 indicated that children's self appraisals are not stable over time and show great change, at least in the frequency with which they occur. It is possible that studies on young children (i.e., preschool) were avoided because it was thought that children did not have the sophistication to manage the appraisal process the theory describes. However, it is important to note that even young children are capable of using social feedback to understand or evaluate their own and others' behaviour. Schoeneman, Tabor, and Nash (1984) interviewed children in preschool and in Grades One and Three (total of 70) to determine which method of self-knowledge (social feedback, self-observation, or social comparison) was most salient. Children were read narratives about and shown pictures of a child learning that s/he was forgetful, noisy, or tall through the three different means of self-knowledge and were asked to identify how the child learned the information. They were also asked to rank how useful they would find the different sources of self-knowledge for learning information about their own behaviour. Preschool children tended to favour social feedback, over self-observation or social comparison, as a way for other people to gain information about their behaviour, but identified self-observation as the best way to gain information about their own behaviour. Although children did not identify social feedback as a way of evaluating their own behaviour, it may have been that they associated any type of feedback with criticism, and therefore they chose self-observation as a less aversive feedback method to avoid potential negative feelings associated with direct evaluation. It is also important to note that the self-report style of this study made it difficult to draw conclusions about how young children obtain this information in their day-to-day lives. Regardless of the explanations for this distinction, preschool children do have an understanding of social feedback as a useful way for people to gain information about behaviour, but further study is required to understand how frequently evaluations are given and received over the years. The present study begins to address this shortcoming by examining connections between sibling and self-evaluation between preschool-age siblings over a two-year period.

Researchers and theorists have also examined some useful extensions of the developmental role of appraisals made by parents and peers. Many studies have highlighted that appraisals from various people in children's lives can have some impact on their own appraisals or on other aspects of their development. For instance, Alessandri and Lewis (1993) examined parents' appraisals of their children during three problem-solving tasks (puzzles,

copying, and basketball toss) that ranged in level of difficulty. Parents gave their children a time limit for each task and were not allowed to provide any physical assistance. They found that parents' negative evaluations of their three-year-old children in a variety of problem-solving contexts were associated with displays of shame (e.g., nonverbal cues such as a sad mouth, body collapse, eyes down, and/or verbal cues such as negative self-evaluation). Children receiving more frequent positive evaluations from their parents were less likely to display such behaviour.

Similarly, in an investigation of the effects of parent appraisals on children's appraisals of their own physical attractiveness and performance at school and in sports, Felson and Reed (1986) found that the influence of parents' appraisals on children's appraisals depended on the domain of the appraisal (e.g., grades, sports, or attractiveness). Children from 22 Grade Four to Grade Seven classes were asked a number of questions to elicit self-appraisals and level of satisfaction in each domain. Performance measures were obtained for academics and athletic ability using standardized tests of achievement and fitness, and grade point average. Generally, parents had some influence on their children's appraisals of school performance and athletic achievement -- appraisals from both sources were positively correlated. They based this causal conclusion on multiple regression analyses where the parents' appraisals were used to predict children's appraisals, while controlling for performance, in each domain. However, the causal connections were confounded with timing because the assessment of parents' and children's appraisals were completed simultaneously and not over time. Therefore, even though their regressions take children's performance in a given area into account, they do not clearly establish the direction of causation as links could go from children's self appraisals to their parents' appraisals.

From middle childhood and on, peer approval becomes increasingly important as a way of validating children and adolescents' sense of self worth (Harter, 1999). Using peer nomination and self-perception scales, Cole (1991) examined the influence of peer evaluations on children's views of themselves in five domains (academic competence, social acceptance, athletic competence, physical appearance, and behavioural conduct). Grade Four children completed these measures in the fall and the spring of one academic year. He found peer evaluations predicted a significant amount of unique variance in academic competence and social acceptance over time (while controlling for Time 1 values of the dependent variable).

Although children's peer evaluations had some effects on the other domains, these effects were only evident in combination with other predictor variables (namely teacher evaluations). Even though this study did not fully control for the reality (by measuring "actual" performance in domains, as Felson & Reed, 1986, did) that could explain the association between these variables, it does show that others' evaluations have some importance in predicting children's appraisals of themselves over time. Therefore, using a similar analytic format, it was likely that children's overt self-evaluations would be associated with overt comments made to them by their siblings.

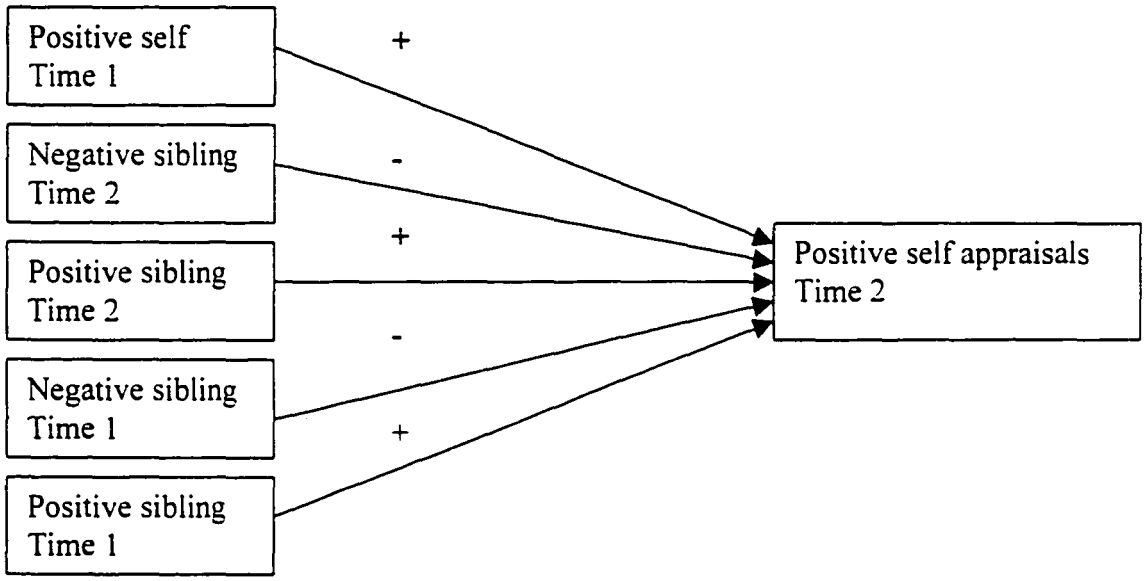
Although this collection of studies supports the proposition that actual appraisals are meaningful in people's development of their views of themselves, they have omitted one of the most important close relationships that children experience before entering school – their relationships with siblings. Like parents and peers, siblings are significant interactional partners, particularly during the preschool years. Thus, the effects of sibling appraisals may represent an important, and unique, path of influence, primarily in the younger years when siblings are close interactional partners. This study is the first to address sibling appraisals as having potential impact on children's own appraisals. Following the "Looking Glass Self" model (Cooley, 1902/1964; Mead, 1934/1962), sibling appraisals may be one way that children begin to learn about who they are and, thus, their appraisals of one another would likely be meaningfully related to their evaluations of themselves. Thus, if children internalize evaluative comments made by their siblings, it was possible that their self appraisals would reflect these evaluations.

Given that various empirical evidence has validated aspects of the Looking Glass Self model in the other relationships, it was appropriate to propose specific predictions for connections between sibling and self appraisals. More specifically, if the Looking Glass Self model is in effect in children's sibling and self appraisals, the pattern of associations would resemble those outlined in Figure 18 for positive self appraisals (this predictive pattern would be reversed for negative self appraisals, except for the Time 1 control variable – negative self appraisals – which would be positively related). The hypothesized pattern of associations was that children's positive and negative self appraisals, within and across time, would be positively predicted by positive and negative sibling appraisals, respectively, at Times 1 and 2. For all of these predictions, it was suspected that, over time, older siblings would exhibit

stronger associations with their younger siblings' self appraisals since they tend to have more of an impact on aspects of the sibling relationship (Dunn et al., 1994; Martin & Ross, 1995; Shantz & Hobart, 1989). These predictions could also be applied to predicting appraisals of specific attributes. For instance, do positive and negative sibling appraisals of abilities predict positive and negative self appraisals of ability within or across time?

Figure 18

Predictions for associations from sibling to positive self appraisals following the Looking Glass Self model



Links between sibling and self appraisals: Compensation model. Although the Looking Glass Self model provides some compelling predictions, it also seemed likely that siblings would not be completely passive in this process and that they could show a reactive pattern in their self appraisals, particularly if they felt the appraisals were not credible. For instance, in Study 1, children's responses showed some tendency toward defensiveness through their disagreements with negative sibling appraisals. With respect to a **Compensation Model**, it was possible that children's self appraisals would follow a defensive pattern to sibling appraisals rather than simply reflecting what their sibling has said, particularly in reaction to negative sibling appraisals. Within the adult literature, Wood, Giordano-Beech, and Ducharme (in press) found empirical support for a Compensation model of self-esteem. Through a series of studies, they discovered that, after a failure experience, university undergraduates had a tendency to seek out social comparisons on attributes or qualities that

they considered personal strengths. Moreover, they specifically sought comparisons with others who were weak in those areas. This process describes a pattern of indirect compensation where students sought self-enhancement by demonstrating strength in an area unrelated to the domain of their failure.

Other studies in the adult literature support such conclusions. Baumeister (1982; Baumeister & Jones, 1978) has conducted similar studies of undergraduate students and concluded that in the face of public failure or presenting a poor impression, individuals with high self-esteem tend to engage in self-compensating behaviours, such as behaving in a favourable way (and one which implicitly contradicts the feedback that was delivered publicly) or by presenting themselves as skilled or positive in other areas unrelated to the negative feedback. In their studies, these researchers utilized a similar experimental paradigm where students were tested in pairs. Students completed various questionnaires and were told one of three possibilities (that information about their personality was being given or made available to their partner, that it was going to be confidential, or that it was in error but was negative). Interestingly, people showed efforts at self-compensation, but these efforts disappeared when they were told that they would never meet their experimental partner. That is, people no longer felt the need to present a positive self-image to their partner. Greenberg and Pyszczynski (1985) found similar results with a female sample using a similar type of procedure. In particular, they noted that after public failure, women were more likely to self-compensate than when they were given failure feedback confidentially. Moreover, like Wood et al.'s findings, compensation was in areas that were unrelated to the trait about which they had just received negative feedback.

It is also possible for individuals to use direct compensation in social situations to maintain or improve feelings about themselves. Wood et al. (in press) defined direct compensation as involving actions such as disagreeing directly with negative feedback or evidence, trying to improve on a poor performance, or trying to counter the feedback through actions. For instance, in Baumeister's (1982) study described above, participants directly countered the negative feedback they had received and that was shared with their experimental partner, by taking a co-operative, rather than an exploitative approach to a game played at the end of the session. Although this behaviour directly contradicted the reports provided to the

experimental partner regarding negative qualities about the person, participants disagreed outright with the reports; instead, their actions represented an analogue for their disagreement.

Although these compensation processes are well established within the adult literature, little, if any, empirical evidence exists to show that children would also compensate using both direct and indirect self-enhancement through self appraisals. Sibling interactions provide a rich environment for the exploration of such possibilities. Following the propositions of the adult theory, it was predicted that the frequency of children's positive self appraisals would be positively associated with the frequency of negative sibling appraisals made of them across domains. Given the high frequency of self appraisals of ability relative to appraisals of moral and general qualities, as shown in Study 2, within domain predictions focus on the ability domain as the only dependent variable. That is, within the ability domain, children would compensate for negative sibling appraisals by making positive self appraisals. If this model were operating, it would also be expected that negative self appraisals would not be predicted by sibling appraisals.

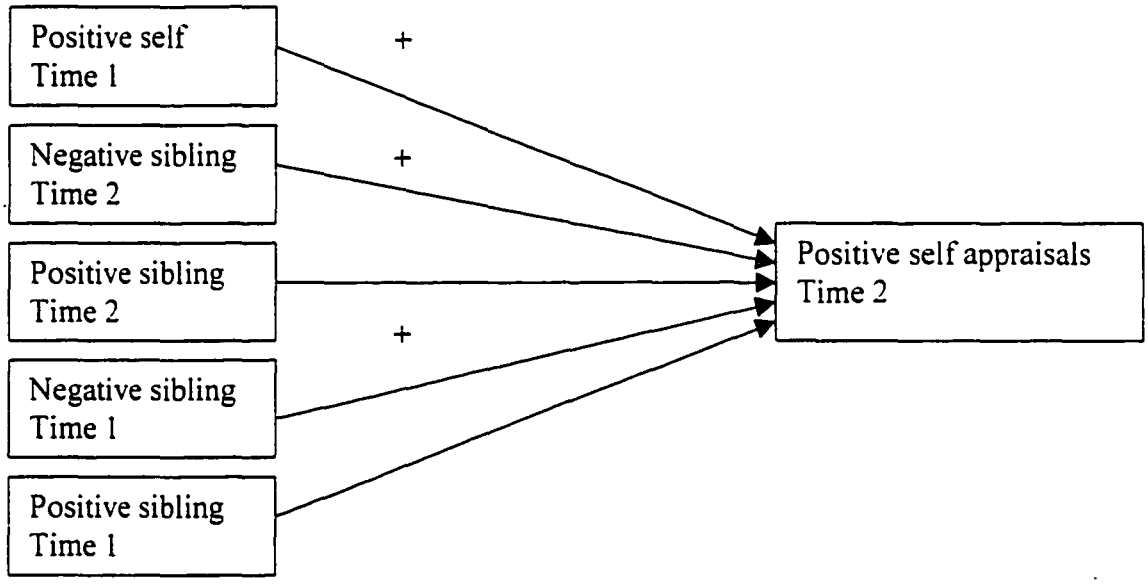
In light of the empirical evidence for indirect compensation, it seemed plausible that children would engage in similar behaviours. That is, if children in this study were negatively appraised by their sibling in one domain, then they may be more likely to appraise themselves positively in another domain. For example, a negative sibling appraisal of the younger siblings' moral behaviour may prompt children to appraise their abilities positively. In particular, it was expected that the frequency of negative moral and general qualities appraisals would be associated with higher levels of positive self appraisals of ability, given the findings from the adult studies. Figure 19 displays the patterns of predictions that would be expected to occur from sibling appraisals to positive self appraisals following the Compensation model. Again, cross-domain predictions only included ability appraisals as the dependent variable because of their high frequency relative to moral and general qualities self appraisals.

One important difference in the structure of the current study compared to those used to generate predictions was the correlational, rather than experimental, nature of the procedures. This issue is significant given that the studies in the adult literature suggest that temporal considerations are important to the compensation process (e.g., Baumeister, 1982; Baumeister & Jones, 1978; Steele, Spencer, & Lynch, 1993; Wood et al., in press). These studies suggest that compensation is much like a toggle switch (i.e., on/off switch) that is triggered by criticism

or some other threat to one's sense of self. However, Steele (1988) has described a somewhat more fluid approach to compensation and people's efforts to maintain the integrity of the self. Although the studies he uses to support such claims follow the linear, temporal structure of other studies in this area, he attempts to highlight that people's efforts to affirm their sense of self is flexible (i.e., occurring within or across domains, over time, etc.). Within the climate of family interactions, it is possible that compensation efforts may be revealed in the form of correlations between appraisals (as outlined in the predictions described earlier). Therefore, even though studies of compensation suggest a temporal basis for this process, it seems reasonable to argue that compensation could occur in open-ended sibling interactions. Given this approach, it may be difficult at times to pinpoint the specific criticism that prompted compensation, but it may have more ecological validity than studies suggesting a purely linear connection between criticism and positive affirmations of the self.

Figure 19

Predictions for associations from sibling to positive self appraisals following the Compensation model



Note. No specific predictions were made for positive sibling appraisals, because the Compensation model does not address these relations. No differentiation was made in the model for within or cross-domain predictions, as the basic premise of the theory remains the same for direct and indirect compensation efforts.

Examination of compensation processes within this study also addresses another sampling issue from the current approach to compensation studies. Most studies within this literature focus on extreme groups with respect to self-esteem. For example, Dodgson and Wood (1993) completed experiments focusing on the cognitive accessibility of strengths and weaknesses, after failure, in two groups, namely high and low self-esteem groups. Like other researchers, they established cut-off points for both groups based on a self-esteem measure. Although this procedure is accepted within this line of research, it does omit those people who fall in the middle of the self-esteem range. It is expected that those people with average self-esteem would engage in compensation efforts, but in the current study, a range of ostensibly average children were observed over a period of time, allowing the possibility to witness compensation occurring in within children with average self-esteem.

Reciprocity in sibling and self appraisals. Siblings' appraisals were also expected to be reciprocally related within and across time. Based on the definitions developed by Ross, Cheyne, & Lollis (1988), reciprocation described in this study is considered dyadic rather than individual or temporal. That is, the overall frequencies of older and younger siblings' appraisals are correlated, and significant positive correlations indicate that the giving and receiving of appraisals are balanced within this specific dyad. More specifically, dyadic reciprocity is defined as "the symmetry of behaviour that two individuals direct to one another" (p. 147). In contrast, individual reciprocity follows a similar procedure but the behaviours of an individual could be directed to any other person – that is, the giving and receiving of behaviour is balanced between the individual and those around him or her. Further, temporal reciprocity refers to "whether each behaviour of one child is *immediately* returned in kind of the partner" (p. 150, italics added). From this point forward, I will refer to dyadic reciprocity as reciprocity.

In the sibling relationship literature, reciprocity has been noted in various aspects of children's interactions. Some empirical evidence suggests that siblings' behaviour is closely, and directly, associated in the preschool years and over time. For instance, Dunn and Munn (1986) studied the development of prosocial behaviour between siblings in the preschool and early childhood years. In their naturalistic observations of 43 sibling pairs with their mothers at two different times (when the younger sibling was 18 and 24 months), they discovered that co-operative behaviour exhibited by the two children was positively correlated within and

across time. Moreover, older and younger children were more likely to engage in prosocial behaviours, such as co-operation and conciliation, when their sibling had been co-operative with them at some point. Similarly, Abramovitch, Corter, Pepler, and Stanhope (1986) observed sibling pairs three times over several years beginning when the younger sibling was 5 years old. They found reciprocity in children's prosocial behaviour, but also noted that agonism from one child was positively correlated with agonism in the other child at all time periods.

The reciprocal pattern of siblings' behaviour in these studies suggests that sibling appraisal behaviours may be meaningfully related; however, the reciprocal nature of sibling appraisals has never been examined. That is, siblings' appraisals may follow some variation of an old adage, such as, "Do *to* others what they have done to you," rather than, "Do *unto* others as you would have them do unto you." Hence, it seemed likely that, within the same time period, children's appraisals of their sibling would be directly related to appraisals made of them by their sibling; that is, negative or positive appraisals of one sibling may beget negative or positive appraisals of the other child, respectively. It was expected that these patterns would be found within time periods. However, it was also interesting to consider the predictive power of sibling appraisals across time to later sibling appraisals. Martin and Ross (1996) have found (in the sample used here) such associations when observing sibling aggression. Older siblings' aggression was more consistent over time, whereas younger siblings' aggression at four years of age was predicted only by their older siblings' aggression two years earlier. Understanding some of these variations and consistencies in siblings' behaviour toward each other is helpful in determining how they may influence one another's development. Using a similar predictive pattern, it was hypothesized that negative and positive sibling appraisals at one time period would predict appraisals two years later. Also, given the developmental advantage of older siblings relative to their younger counterparts, this pattern of influence was predicted to be more clearly noticeable in younger siblings' appraisal behaviour (e.g., Dunn et al., 1994), meaning that younger siblings' appraisal behaviour would be more consistently related to their older siblings' appraisals at an earlier time period.

No past research has examined the reciprocation of self appraisals within the sibling relationship. Knowing the competitiveness associated with sibling interactions (e.g., Dunn et al., 1995; Vandell & Bailey, 1992), it would not be surprising to find that children tended to

reciprocate positive self appraisals as a way of competing with their sibling, particularly within each time period. For this same reason, it was unlikely that children would show patterns of reciprocation in their negative self appraisals. It was possible to expect that these patterns may extend beyond within time associations through the prediction from Time 1 to Time 2 appraisals.

Summary

The aim of this study was to examine the contemporaneous and developmental impact of sibling appraisals on self appraisals. The specific hypotheses for this study included:

- It was predicted that sibling appraisals would have both a contemporaneous and developmental impact on self appraisals within the sibling relationship. These associations were also expected to be consistent with either a Symbolic Interactionist or a Compensation model for the self (direct and indirect). Given the naturalistic structure of this study it was impossible to control for the "reality"; however, Time 1 variables were controlled when making predictions across time.
- It was hypothesized that children's positive and negative sibling and self appraisals would show reciprocal patterns within each time period (i.e., that correlations between older and younger children's appraisals would be positive).
- Finally, it was predicted that earlier sibling and self appraisals (i.e., at Time 1) would be predictive of later sibling and self appraisals (i.e., at Time 2), respectively. In particular, it was expected that, over time, the frequency of older siblings' sibling and self appraisals would have an impact on the frequency of younger children's sibling and self appraisals.

Method

Participants and procedures

Please refer to Study 1 and 2 for a description of the participants, overall study procedures, and coding procedures for sibling and self appraisals.

Results

Predicting self appraisals from sibling appraisals

The bivariate correlations between positive and negative sibling and self appraisals for older and younger children, across both time periods are included in Appendix A. Although no discussion of these associations is provided, these values will be referred to any time they provide clarification or further understanding for the analyses presented below (as was the case for all other analyses completed in this study).

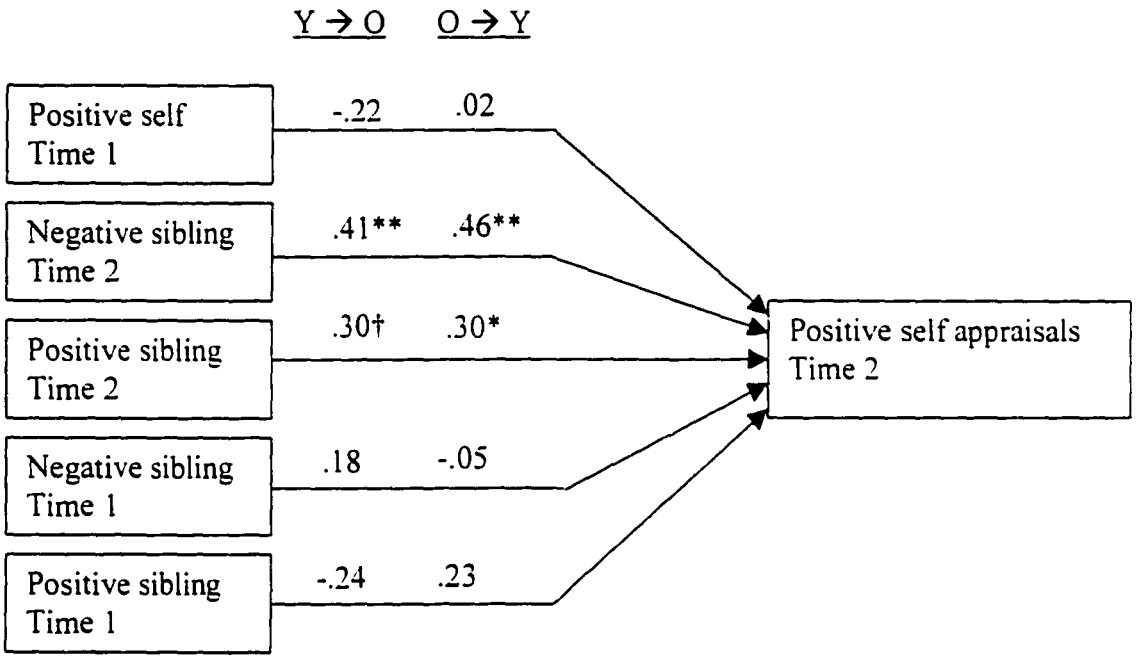
For each child, positive and negative self appraisals were regressed on positive and negative sibling appraisals from both time periods, while controlling for the Time 1 frequency of positive or negative self appraisals. Each regression analysis was completed using a hierarchical approach with a three-step entry process. For example, to predict the older sibling's positive appraisals at Time 2, the Time 1 positive self appraisals were entered first, followed by positive and negative sibling appraisals, made by the younger child at Time 2, and finally positive and negative sibling appraisals by the younger sibling at Time 1. At each step, it was determined whether the added variables contributed significantly to explaining the dependent variable. If the change in the variance was significant, then the standardized beta values were examined to determine the specific relations between the independent and dependent variables.

Predicting children's positive self appraisals. For older siblings, their positive appraisals were significantly predicted by concurrent sibling appraisals by the younger child, $F(2, 35) = 9.45$, $p < .01$, while controlling for Time 1 positive self appraisals. However, Time 1 sibling appraisals did not add to the understanding of older children's Time 2 positive self appraisals, $F(2, 33) = 1.79$, $p > .05$. That is, even though all predictors considered together accounted for a significant portion of the variance in older children's positive self appraisals, $F(5, 33) = 4.69$, $p < .01$, Time 1 sibling appraisals did not explain any unique variance. Considering only the contemporaneous predictors (i.e., Time 2 positive and negative sibling appraisals made by younger children), they accounted for 32.7% of the variance in older children's positive self appraisals. Both positive and negative sibling appraisals accounted for unique variance in the older children's positive self appraisals (Figure 20). More specifically, more frequent negative sibling appraisals predicted increases in positive self appraisals (Beta = .41, $t = 2.78$, $p < .01$), and positive sibling appraisals were also positively associated with older

children's positive self appraisals (Beta = .30, t = 1.93, p < .07). The bivariate correlations between these two pairs of variables were of a similar magnitude, r (38) = .49, p < .01, and r (38) = .39, p < .05, respectively, suggesting that the predictive power of younger siblings' positive and negative sibling appraisals is not simply a spurious result of the regression procedures (Appendix A).

Figure 20

Predictions for associations from sibling appraisals to positive self appraisals for older and younger siblings



** p < .01; * p < .05; † p < .10.

For younger children's positive appraisals, a similar pattern of predictors prevailed. While controlling for Time 1 positive self appraisals, a significant amount of the variance in younger children's positive self appraisals was accounted for by concurrent appraisals from the older sibling F (2, 35) = 11.03, p < .001, but no further variance was explained by the addition of Time 1 sibling appraisals, F (2, 33) = 1.26, p > .05. Although Time 1 variables did not explain any unique variance, all of the predictors taken together accounted for a significant portion of variance in younger children's positive self appraisals, F (5, 33) = 4.99, p < .01. In all, concurrent sibling appraisals accounted for 34% of the variance in younger sibling's Time 2 positive self appraisals. As with older children's appraisals described above, both positive

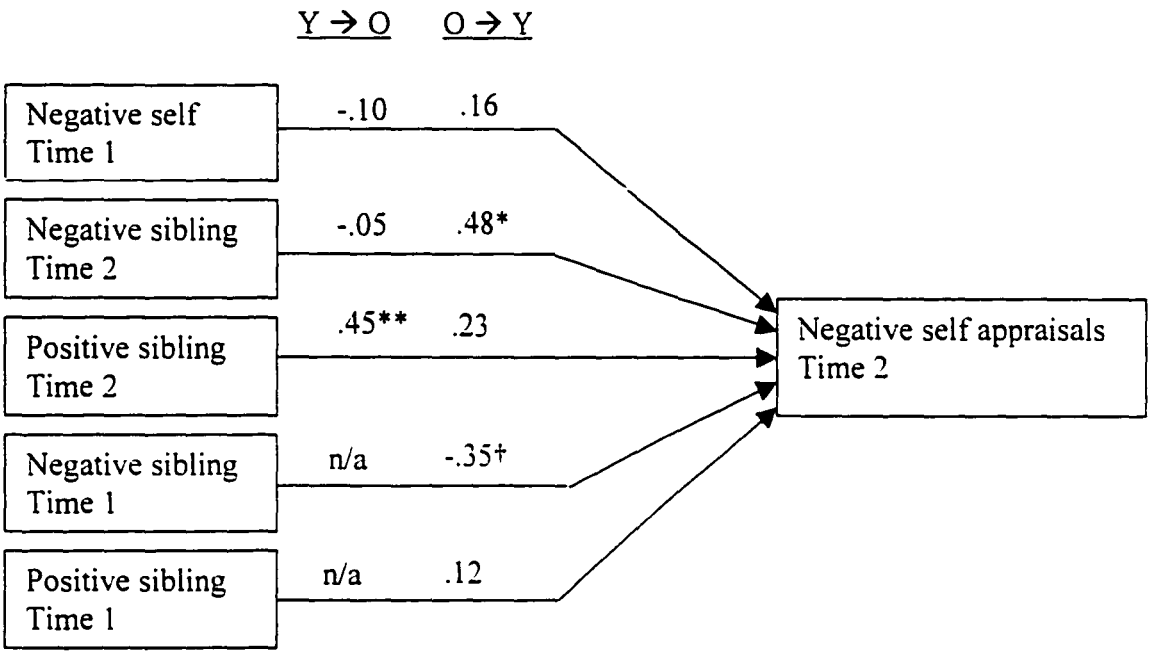
and negative sibling appraisals were significant predictors of younger children's positive self appraisals. A greater frequency of positive and negative sibling appraisals were both associated with a higher frequency of positive self appraisals in younger children (Positive: Beta = .30; $t = 2.08$, $p < .05$; Negative: Beta = .46, $t = 2.49$, $p < .01$) (Figure 20). These associations were also reflected in the simple correlations between both positive sibling and positive self appraisals, $r(38) = .51$, $p < .01$, and negative sibling and positive self appraisals, $r(38) = .47$, $p < .01$.

Across both children, the patterns of prediction illustrated findings that could be associated with both the Looking Glass Self model (positive sibling appraisals predict positive self appraisals) as well as the Compensation model (positive self appraisals predicted by more frequent negative sibling appraisals) for both older and younger children. These patterns did not appear to be stronger for one child over the other as had been predicted.

Predicting children's negative self appraisals. The predictive patterns for negative self appraisals were not as clear. For older children, their Time 2 negative self appraisals were predicted significantly by contemporaneous sibling appraisals, while controlling for Time 1 negative self appraisals, $F(2, 35) = 4.27$, $p < .01$. When Time 1 sibling appraisals were added, they showed no unique contribution, $F(2, 33) = .22$, $p > .05$, nor did they add to the overall amount of variance accounted for when all of the predictors were taken together, $F(5, 33) = 1.72$, $p > .05$. Overall, Time 2 sibling appraisals accounted for 19.9% of the variance in older children's negative self appraisals. Examining significant unique predictors, though, revealed some puzzling associations which were the reverse of those expected (Figure 21). Negative sibling appraisals made by younger children were not related to older children's negative self appraisals (Beta = -.05; $t = -.32$, $p > .05$). Moreover, positive sibling appraisals positively predicted older children's negative self appraisals, suggesting that as the frequency of the younger children's positive appraisals rose, so did the frequency of older children's negative self appraisals (Beta = .45; $t = 2.87$, $p < .01$). However, the reverse may also be true; that is, children's negative self appraisals may prompt their siblings to appraise them positively perhaps as a way of providing sympathy. The simple correlation between positive sibling appraisals and older children's negative self appraisals was moderate and significant, $r(38) = .44$, $p < .01$, suggesting that this relation was not a spurious finding resulting from the regression analyses.

Figure 21

Predictions for associations from sibling appraisals to negative self appraisals for older and younger siblings



** $p < .01$; * $p < .05$; † $p < .10$.

Note. n/a - These values were not included in the figure because the Time 1 predictors did not account for any unique variance in older children's negative self appraisals, nor was the overall equation, with these variables included, significant.

For younger children's negative self appraisals, Time 2 sibling appraisals were significant predictors of younger children's negative self appraisals, F (2, 35) = 3.65, $p < .05$, while controlling for Time 1 negative self appraisals. Time 1 sibling appraisals did not account for any further variance in younger children's Time 2 negative self appraisals, F (2, 33) = 1.55, $p > .05$. However, when considering all of the predictors together in the final step of the regression analysis, the amount of variance accounted for approached significance, F (5, 33) = 2.28, $p < .07$. All of the predictors together accounted for a total of 14.4% of the variance in younger children's negative self appraisals. Support for the Looking Glass Self model was evident in the positive predictive relation between older siblings' negative sibling appraisals and younger children's negative self appraisals (Beta = .48; $t = 2.54$, $p < .05$) (Figure 21). More specifically, higher frequencies of negative sibling appraisals made by older siblings

predicted higher frequencies of negative self appraisals for younger siblings, a relation that was also evident in the bivariate correlation between older children's negative sibling appraisals and younger children's negative self appraisals, r (38) = .36, $p < .05$. Positive sibling appraisals did not contribute significantly to the explained variance in younger children's negative self appraisals (Beta = .23; $t = 1.38$, $p > .05$). Interpretations of these findings must remain somewhat tentative given that reality was not controlled for within these analyses, thus raising the potential for a relation between the variables that has resulted because of the shared reality of the children.

Predicting Time 2 self appraisals of ability from sibling appraisals

The above associations were further explored by examining predictive relationships between sibling and self ability appraisals, as it was thought that appraisal patterns might be domain specific. Given the high frequency of ability self appraisals, particularly at Time 2, regression analyses were completed for ability appraisals as the dependent variable only, rather than including regression analyses for moral and general quality appraisals. Both within and cross-domain analyses were completed. That is, sibling ability appraisals were used to predict later self appraisals of ability, and analyses used sibling appraisals of moral quality and general qualities to predict self appraisals of ability. See Appendix B for the bivariate correlations between sibling and self appraisals within and across domains. Although these analyses were similar to those described above, they are more specific to the domain of children's appraisals and provide a better examination of the predictions associated with the Compensation model.

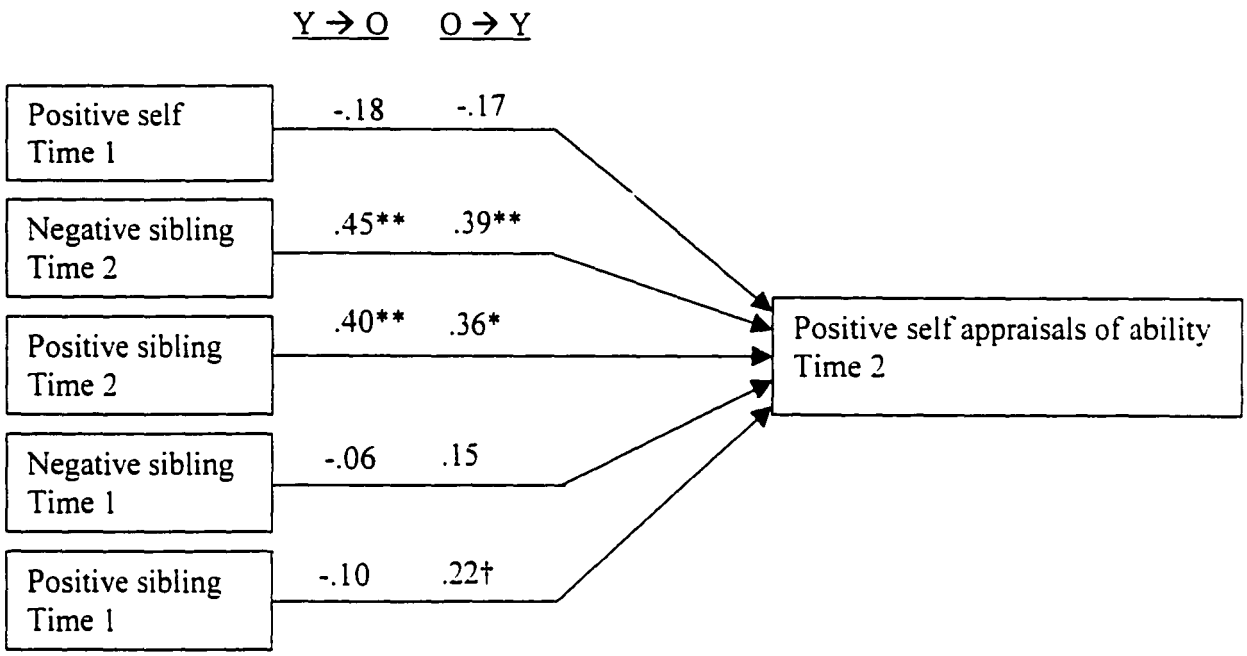
For positive ability appraisals, older siblings' self appraisals were significantly predicted by concurrent ability appraisals made by their younger siblings, F (2, 35) = 3.89, $p < .05$. Although Time 1 sibling ability appraisals did not contribute a significant amount of explained variance, F (2, 33) = .29, $p > .05$, all of the predictors accounted for a significant proportion of variance in positive self appraisals of ability from older siblings, F (5, 33) = 4.95, $p < .01$, accounting for 34.2% of the variance. Both positive and negative sibling ability appraisals at Time 2 accounted for unique variance in older children's positive self appraisals of ability (Figure 22). The frequency of older children's positive ability self appraisals increased directly with the occurrence of negative sibling appraisals (Beta = .45; $t = 3.15$, $p < .01$) and of positive sibling appraisals of ability (Beta = .40; $t = 2.80$, $p < .01$). These values reflect the correlations between these variables, r (38) = .50, $p < .001$, and r (38) = .46, $p < .01$,

respectively. Time 1 sibling appraisals of ability were not unique predictors of older children's self appraisals of ability (Negative: Beta = -.05; t = -.39, p > .05, and Positive: Beta = -.10; t = -.69, p > .05).

For younger children, a similar predictive pattern emerged. Only Time 2 sibling ability appraisals accounted for a significant amount of variance in younger children's positive self appraisals of ability, Time 1: F (2, 33) = 2.16, p > .05, and Time 2: F (2, 35) = 15.08, p < .001. Overall, both concurrent and developmental predictors accounted for 45.4% of the variance in young siblings' positive appraisals of their ability, F (5, 33) = 7.31, p < .001. As with older children's appraisals, the unique predictors were the concurrent sibling appraisals of ability (Figure 22). Both positive and negative ability appraisals were directly related to the frequency of younger children's positive appraisals of their ability (Positive: Beta = .36; t = 2.47, p < .01, and Negative: Beta = .39; t = 3.05, p < .05). As already noted, Time 1 variables were not unique predictors, although the coefficient for positive sibling appraisals approached significance (Positive: Beta = .22; t = 1.69, p < .10, and Negative: Beta = .15; t = .85, p > .05). Interestingly, the respective correlations between Time 1 positive and negative sibling appraisals and positive self appraisals of ability were identical and significant, r (38) = .38, p < .05.

Figure 22

Predictions for associations from sibling ability appraisals to positive self appraisals of ability for older and younger siblings



** $p < .01$; * $p < .05$; † $p < .10$.

For negative self appraisals of ability, younger children's concurrent sibling appraisals of ability significantly predicted their older siblings' self appraisals, F (2, 35) = 6.66, $p < .01$, whereas Time 1 sibling appraisals did not account for any further variance, F (2, 33) = .42, $p > .05$. Even though Time 1 predictors did not contribute a significant amount of unique variance, they, combined with Time 2 variables to account for 29.7% of the variance in older children's negative self appraisals of ability, F (5, 33) = 2.78, $p < .05$. The only unique predictor was younger siblings' positive sibling appraisals of ability (Figure 23). They were positively related to older children's negative self appraisals of ability – so as positive sibling appraisals increased so did the frequency of older siblings' appraisals (Beta = .40; t = 2.43, $p < .05$). Other predictors were not unique predictors (Time 2 Negative: Beta = .24; t = 1.57, $p > .05$; Time 1 Positive: Beta = -.08; t = -.46, $p > .05$, and Negative: Beta = -.11; t = -.78, $p > .05$).

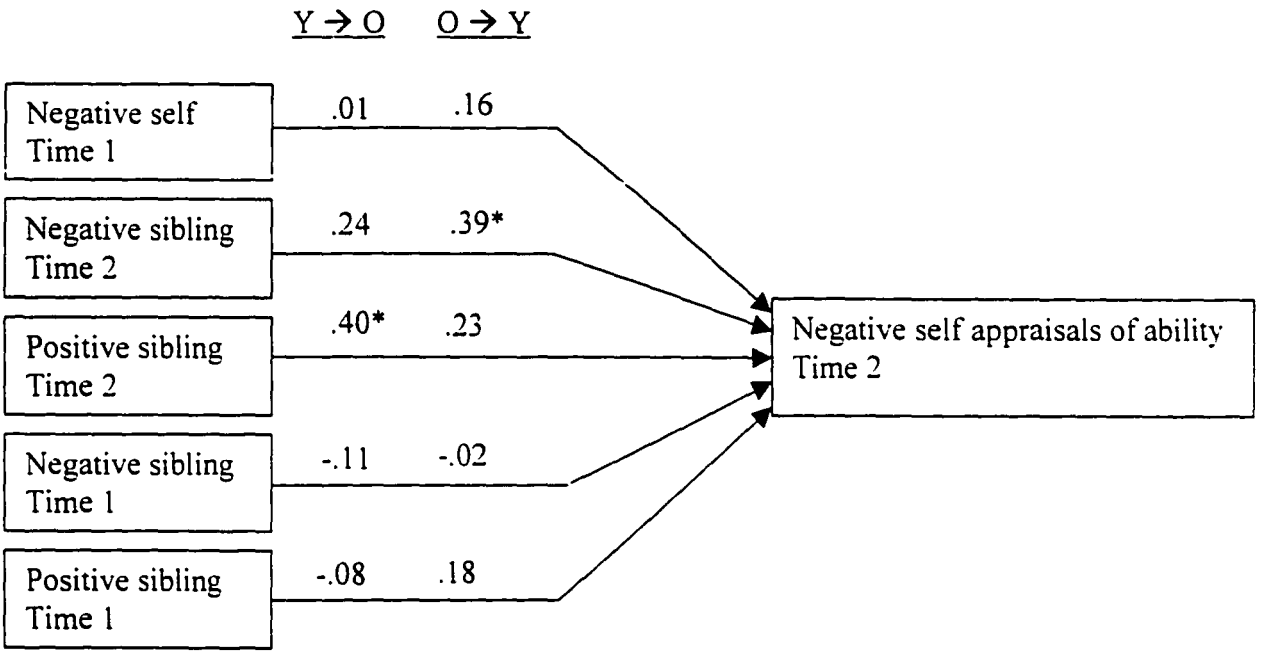
When predicting younger children's negative self appraisals of ability, again only Time 2 sibling appraisals accounted for significant portions of variance, F (2, 35) = 6.35, $p < .01$. Time 1 sibling appraisals of ability did not contribute to further understanding younger children's negative self appraisals of ability at Time 2, F (2, 33) = .63, $p > .05$. The overall

regression, including Time 1 and Time 2 predictors, as well as a Time 1 control variable, significantly predicted younger children's negative self appraisals of ability, F (5, 33) = 2.95, p < .05, accounting for approximately 20.4% of the variance. The only unique predictor in the regression was older siblings' negative sibling appraisals of ability (Figure 23). That is, as the frequency of older siblings' negative appraisals of ability increased, so did the frequency of younger children's negative self appraisals of ability (Beta = .39; t = 2.59, p < .05), as reflected in the simple correlation, r (38) = .42, p < .01. No other predictors accounted for unique variance (Time 2 Positive: Beta = .23; t = 1.34, p > .05, Time 1 Positive: Beta = .18; t = 1.12, p > .05, and Negative: Beta = -.02; t = -.13, p > .05), even though positive sibling appraisals of ability were significantly correlated with younger children's self appraisals of ability, r (38) = .59, p < .001.[3] As noted earlier, it is important to recognize that because it was impossible to control for the underlying reality shared by the children, it is possible that this relation is the result of a third variable (i.e., the underlying reality), rather than reflecting a "true" association.

[3] It is important to note that the sibling appraisals in each category were generally independent (i.e., not correlated significantly). However, at Time 2, younger children's negative sibling appraisals of general qualities and of ability were significantly correlated (r (38) = .48, p < .01), suggesting that this finding may not provide evidence of cross-domain compensation.

Figure 23

Predictions for associations from sibling ability appraisals to negative self appraisals of ability for older and younger siblings



** p < .01; * p < .05; † p < .10.

Cross-domain predictions of Time 2 self appraisals

The Compensation model of self-concept proposes that adults often compensate for failure feedback in one domain by making positive self statements in another, unrelated domain (Wood, et al., in press). Since positive ability self appraisals occurred most frequently of the three categories of appraisals, regression analyses examined the predictive power of negative moral and general quality appraisals made by siblings to children's positive self appraisals of ability. Analyses were conducted in the same fashion as those described earlier. Time 2 positive self appraisals of ability were the dependent variable and the cross-domain negative sibling appraisals were the predictors. Variables were entered in three steps: control variable (Time positive self appraisals of ability), Time 2 negative sibling appraisals, and finally, Time 1 negative sibling appraisals (see Tables C1 to C4, Appendix C for bivariate correlations for sibling and self appraisals for moral and general quality appraisals).

Predicting positive self appraisals of ability from sibling appraisals of moral quality. It was expected that negative sibling appraisals in one domain would predict compensation

efforts of children in another domain. However, regression analyses for older and younger children revealed no significant predictive value from negative moral sibling appraisals to positive self appraisals of ability. Older: F (3, 35) = .63, p > .05; and Younger: F (3, 35) = .61, p > .05. Unlike other predictive analyses, the contemporaneous findings were not significant.

Predicting positive self appraisals of ability from sibling appraisals of general qualities. For both older and younger siblings, negative sibling appraisals of general qualities were predictive of children's positive appraisals of their ability, but only when negative sibling appraisals were within the same time period, while controlling for children's positive self appraisals of ability at Time 1. That is, Time 2 negative sibling appraisals of children's general qualities accounted for a significant amount of the variance in children's positive self appraisals of their abilities, Older: F (1, 36) = 4.19, p < .05; and Younger: F (1, 36) = 5.21, p < .05. Consistent with the Compensation theory, the greater the frequency of negative sibling appraisals of general qualities, the more positive self appraisals of ability were made by both older and younger children (Older: Beta = .33; t = 2.05, p < .05; Younger: Beta = .36; t = 2.28, p < .05). Although significant, concurrent negative sibling appraisals of general qualities accounted for only 5.6%, for older children, and 7.9% of younger children. The addition of Time 1 variables did not further explain the variance in children's positive self appraisals of ability, Older siblings: F (1, 35) = .47, p > .05; and Younger siblings: F (1, 35) = 2.02, p > .05. The overall regression approached significance for younger siblings only, Older: F (3, 35) = 1.56, p > .05; and Younger: F (3, 35) = 2.47, p < .10.

Predicting self appraisals from the other child's self appraisals

Given that siblings have shown themselves to be competitive at times and that positive self appraisals occurred significantly more frequently than negatives ones (Study 2), it was expected that children's self appraisals would be associated with the self appraisals of their sibling, both within and across time. To assess the level of reciprocation between children's self appraisals, bivariate correlations were calculated between children's positive and negative self appraisals within each time period. For the across time analyses, one child's Time 1 and 2 self appraisals were used to predict the other child's Time 2 positive and negative self appraisals. As with other multiple regression analyses the same general procedure was used such that the Time 1 self appraisal variable was entered first (as a control), followed by the Time 2 self appraisals of the other child, and finally the Time 1 self appraisals of the other

child. See Appendix A for the bivariate correlations between older and younger siblings' self appraisals.

Reciprocation in children's self appraisals. Reciprocation patterns were only evident in children's positive self appraisals. At Time 1, the more often older siblings made positive self appraisals, the more often their younger sibling did as well, r (38) = .46, p < .01. By Time 2, the reciprocation pattern was even stronger between older and younger siblings, r (38) = .64, p < .001. Time 1 and 2 correlations between older and younger siblings' negative self appraisals were not significant, Time 1: r (38) = .25, p > .05, and Time 2: r (38) = .25, p > .05.

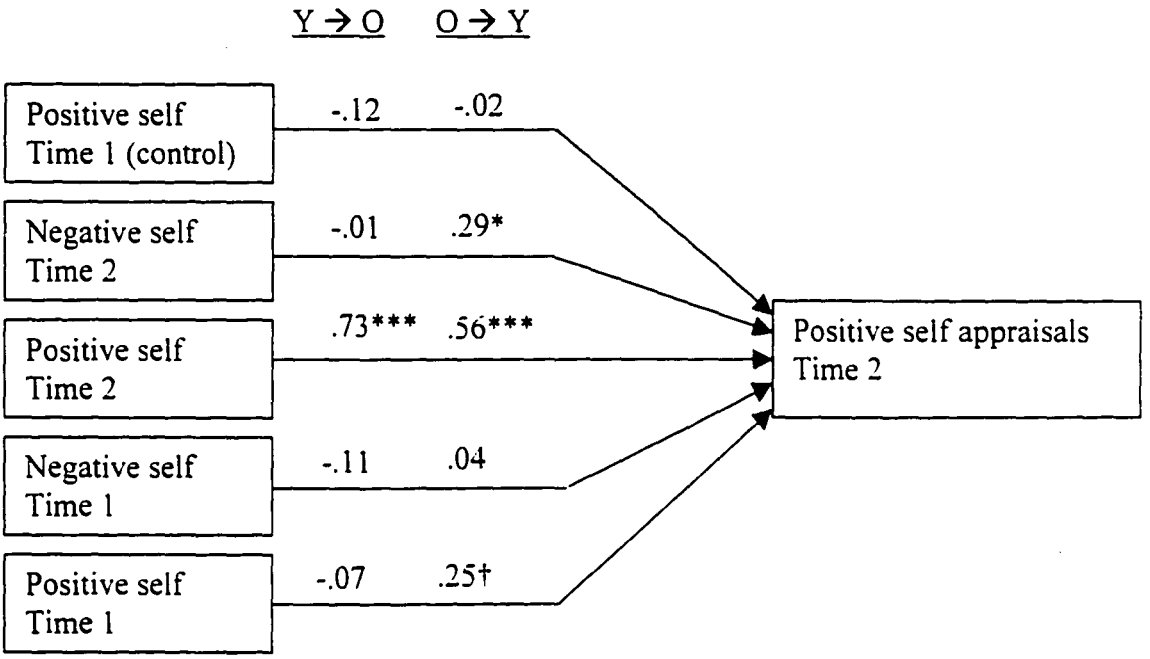
Predicting children's positive self appraisals. Older children's positive self appraisals were predicted significantly by their younger siblings' positive and negative self appraisals, F (5, 33) = 6.35, p < .001. However, only Time 2 self appraisals accounted for a significant proportion of unique variance, when controlling for older children's Time 1 positive self appraisals, F (2, 35) = 15.60, p < .001, whereas Time 1 positive and negative self appraisals by younger children were not significant predictors on their own, F (2, 33) = .61, p > .05. Overall, the predictors accounted for 41.3% of the variance in older children's positive self appraisals. The only unique predictor was younger children's positive self appraisals from Time 2 (Figure 24). That is, the more often younger siblings appraised themselves positively, the more frequently older siblings did the same (Beta = .76; t = 4.58, p < .001).

Younger children's positive self appraisals were also predicted by older siblings' self appraisals across both time periods, while controlling for Time 1 positive self appraisals from younger siblings, F (5, 33) = 9.37, p < .001. Even though all of the predictors together accounted for 52.4% of the variance in younger children's Time 2 positive self appraisals, Time 1 self appraisals by older children did not explain a significant proportion of variance on their own, F (2, 33) = 2.08, p > .05, while Time 2 appraisals did, F (2, 35) = 19.99, p < .001. Positive and negative self appraisals by the older child were both unique predictors of younger children's positive self appraisals (Figure 24). Similar to findings for older children, as older children's positive self appraisals increased, younger children's concurrent positive self appraisal also increased (Beta = .56; t = 4.42, p < .001). Although much less strongly, older children's Time 2 negative self appraisals were also positively associated with younger siblings' positive self appraisals (Beta = .29; t = 2.40, p < .05). With respect to Time 1 appraisals, although neither positive or negative self appraisals by the older child significantly

predicted unique variance in younger children's positive self appraisals at Time 2, a trend was noticed in the relation between positive self appraisals of the older child to positive self appraisals of the younger sibling (Positive self appraisals: Beta = .25; t = 1.88, p < .10; Negative self appraisals: Beta = .04; t = .33, p > .05).

Figure 24

Predictions for associations from self appraisals of one sibling to the positive self appraisals of the other child for both older and younger children



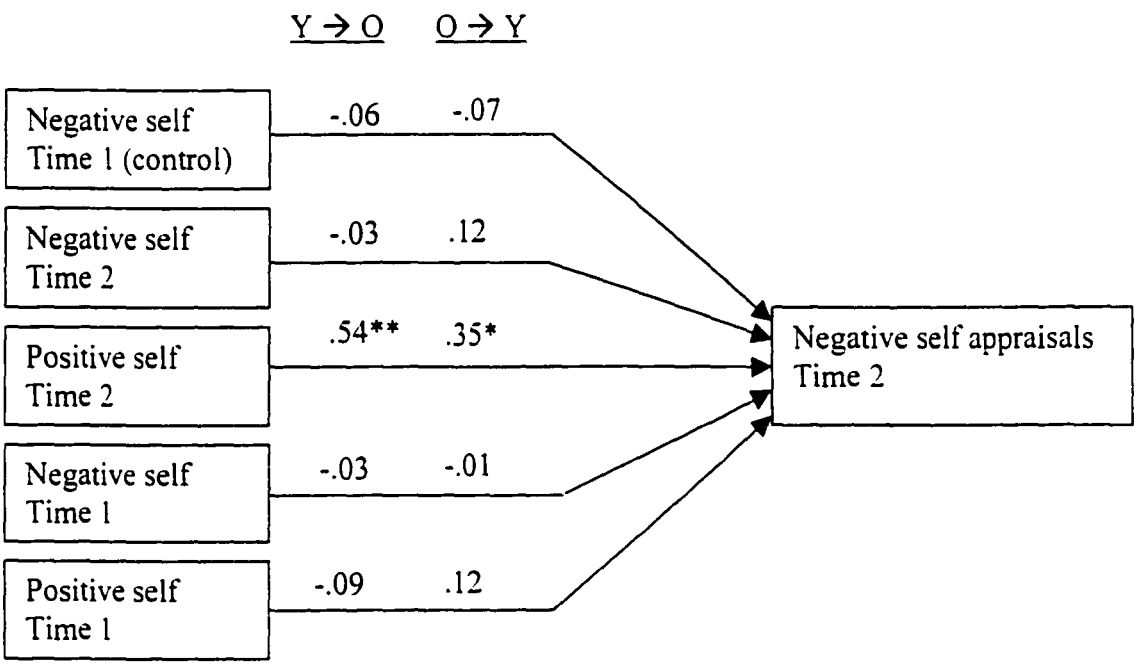
*** p < .001; ** p < .01; * p < .05; † p < .10.

Predicting children's negative self appraisals. Older children's negative self appraisals at Time 2 were predicted by their younger siblings' positive self appraisals across both time periods, F (5, 33) = 2.54, p < .05, although only Time 2 appraisals accounted for a significant portion of unique variance, when controlling for Time 1 negative self appraisals by the older child, Time 1: F (2, 33) = .15, p > .05; Time 2: F (5, 35) = 6.36, p < .01. In all, 27.8% of the variance in older children's negative self appraisals was accounted for by Time 1 and 2 predictors. The only unique predictor was Time 2 positive self appraisals by the younger child – the higher the frequency of younger children's positive self appraisals, the more often older children appraised themselves negatively (Beta = .54; t = 2.85, p < .01) (Figure 25). Notably, the prediction from positive self appraisals to negative appraisals was highly significant;

however, the reverse prediction (from negative self appraisals to positive self appraisals, Figure 24) was not significant. This difference is likely associated with the variables that have been controlled prior to their inclusion or with the predictive strength of the other variables also included in the equation. That is, positive self appraisals accounted for a large amount of the variance in positive self appraisals, leaving less variance to be accounted for by negative self appraisals (Figure 24). In predictions of negative self appraisals, very little variance was accounted for by other variables that had been entered prior to the inclusion of positive self appraisals (Figure 25). None of the other predictors accounted for a significant amount of unique variance in older children's negative self appraisals (Time 2 negative self appraisals: Beta = -.03; t = .29, p > .05; Time 1 positive self appraisals: Beta = .09; t = .54, p > .05; Time 1 negative self appraisals: Beta = -.03; t = -.18, p > .05).

Figure 25

Predictions for associations from self appraisals of one sibling to the negative self appraisals of the other child for both older and younger children



** p < .01; * p < .05; † p < .10.

For younger children, their negative self appraisals were only partially predicted by their older siblings' self appraisals. Although Time 2 self appraisals from older children accounted for a significant amount of variance in younger children's positive self appraisals, F

(5, 33) = 2.95, $p < .05$, the overall regression only approached significance, F (2, 35) = 2.64, $p < .07$. Older children's Time 1 self appraisals did not further explain any of the variance in their younger siblings' positive self appraisals, F (5, 33) = 1.63, $p > .05$. Only 11.5% of the variance in younger children's negative self appraisals was accounted for by Time 2 self appraisals made by their older sibling, while controlling for Time 1 negative self appraisals. The only unique predictor of younger children's negative self appraisals was older siblings' positive self appraisals (Figure 25). That is, the frequency of younger children's negative self appraisals increased relative to increases in older siblings' positive self appraisals (Beta = .35; t = 2.13, $p < .05$). In contrast, negative self appraisals by the older child did not account for any unique variance in younger children's negative self appraisals (Beta = .13; t = .80, $p > .05$).

Predicting sibling appraisals from the other child's sibling appraisals

The process used to examine reciprocation and prediction in sibling appraisals was similar to that used for self appraisals. Reciprocation was analyzed within each time period by examining the bivariate correlations between older and younger children's positive and negative sibling appraisals. With the respect to predicting sibling appraisals, positive and negative sibling appraisals were regressed on the other child's positive and negative sibling appraisals from both time periods for each child, while controlling for the Time 1 frequency of either positive or negative sibling appraisals. The variables were entered in exactly the same fashion as was described in the previous section and the process for interpreting the results was also identical. In all cases, it was expected that a pattern of reciprocity would be evident in children's appraisals and that this pattern would exist over time as well as contemporaneously. See Appendix A for bivariate correlations between sibling appraisals made by older and younger siblings.

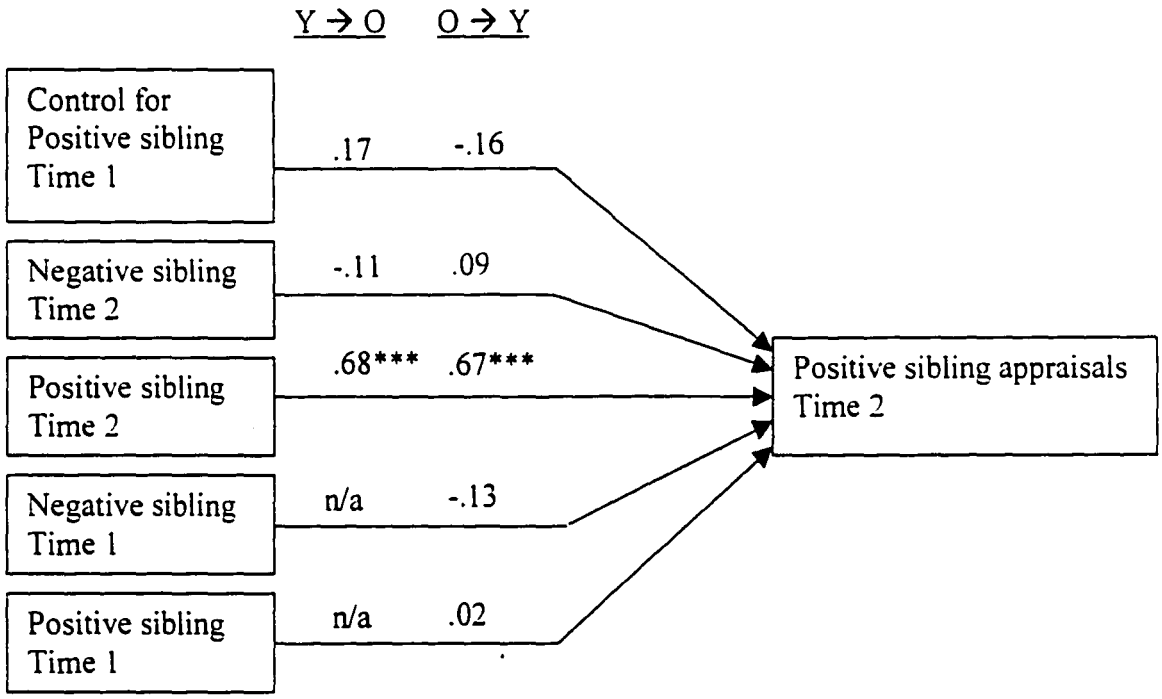
Reciprocation of sibling appraisals. Surprisingly, no support was found for reciprocation at Time 1, Positive appraisals: r (38) = .18, $p > .05$, and Negative appraisals: r (38) = .23, $p > .05$. In contrast, by Time 2, children showed strong patterns of reciprocation in both their positive and negative sibling appraisals, Positive appraisals: r (38) = .57, $p < .001$, and Negative appraisals: r (38) = .50, $p < .001$.

Predicting children's positive sibling appraisals. A similar pattern was found for older children's positive sibling appraisals, although only concurrent appraisals proved to be significant. When older children's Time 1 positive sibling appraisals were controlled for, their

Time 2 positive appraisals were significantly predicted by younger children's Time 2 sibling appraisals, F (2, 35) = 15.03, $p < .001$. More specifically, the frequency of younger children's positive sibling appraisals had a strong direct association with older children's positive sibling appraisals (Beta = .68, t = 5.47, $p < .001$), whereas younger children's negative appraisals showed no significant connection (Beta = -.11, t = -.85, $p > .05$) (Figure 26). Time 1 appraisals, made by the younger sibling, did not explain a significant amount of the variance in older sibling's positive appraisals at Time 2, over above that already explained by the aforementioned factors, F (2, 33) = .44, $p > .05$. In all, all of the predictors explained a significant portion of the variance in older siblings' positive sibling appraisals, accounting for 44.8% of the variance, F (5, 33) = 6.73, $p < .001$.

Figure 26

Predictions for associations from sibling appraisals of one sibling to the positive sibling appraisals of the other child for both older and younger children



** $p < .01$; * $p < .05$; † $p < .10$.

Note. n/a = Values that were not included in the final model because the Time 1 predictors did not account for any unique variance in older children's positive sibling appraisals, nor was the overall equation, with these variables included, significant.

Similarly, Time 2 appraisals from older siblings significantly predicted younger children's positive sibling appraisals, F (2, 35) = 15.73, $p < .001$, when younger siblings' Time 1 positive sibling appraisals were statistically controlled. Although Time 1 variables did not account for a significant portion of unique variance in younger children's positive sibling appraisals, F (2, 33) = .37, $p > .05$, all predictors taken together accounted for a significant amount of variance in the appraisals, F (5, 33) = 6.53, $p < .001$. In all, predictors accounted for 42.1% of the variance. Examining these findings more closely, it again appeared that younger siblings' positive sibling appraisals varied directly with their older sibling's positive appraisals of them (Beta = .67, t = 5.44, $p < .001$) (Figure 26). No other predictors were significantly associated with younger children's positive sibling appraisals. As with older children's appraisals, adding Time 1 appraisals did not further our understanding of younger children's positive sibling appraisals, F (2, 33) = .37, $p > .05$.

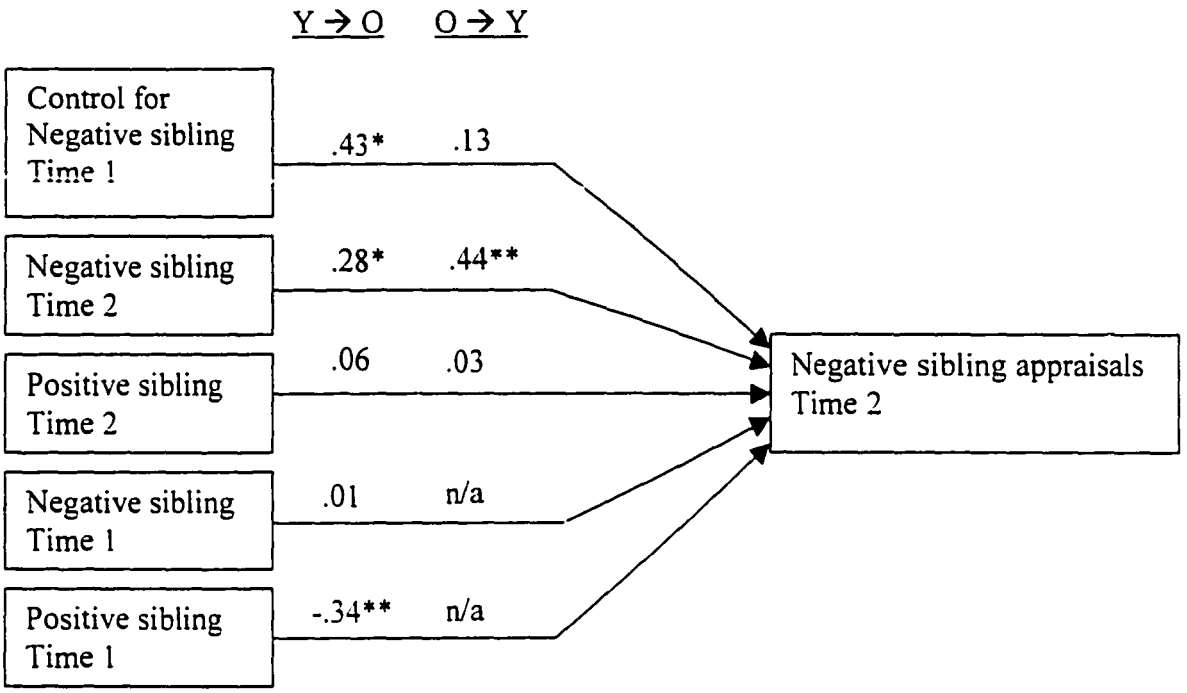
Predicting negative sibling appraisals. When Time 1 negative sibling appraisals were controlled, older children's negative sibling appraisals were marginally predicted by contemporaneous sibling appraisals, F (2, 35) = 3.02, $p < .10$, and significantly predicted by earlier sibling appraisals from their younger sibling, F (2, 33) = 3.89, $p < .05$. Although the regression with only the Time 2 variables was significant, neither of the sibling appraisal predictors was significantly associated with later negative sibling appraisals (Figure 27). Only the control variables, older siblings' negative appraisals at Time 1 was significantly predictive of later appraisals (Beta = .48, t = 3.50, $p < .001$). When Time 1 variables were included, there was a direct positive relationship between concurrent negative sibling appraisals made by younger siblings and negative sibling appraisals made by older siblings (Beta = .28, t = 3.13, $p < .05$). In contrast, younger siblings' positive appraisals were not associated with older siblings' positive sibling appraisals (Beta = .06, t = .49, $p > .05$). With respect to Time 1 sibling appraisals, only one predictive pattern appeared. That is, the frequency of the younger siblings' positive appraisals was negatively related to later negative sibling appraisals made by the older sibling (Beta = -.34, t = -2.76, $p < .01$). This association suggests that fewer positive sibling appraisals at Time 1 was associated with greater levels of negative sibling appraisal behaviour at Time 2. Younger siblings' Time 1 negative sibling appraisals did not predict later negative sibling appraisals by the older sibling (Beta = .01, t = .05, $p > .05$). Overall, 52.9% of the variance in older children's Time 2 negative sibling appraisals was accounted for by the

Time 1 and 2 appraisals made by the younger sibling; that is, the overall regression, including all predictors, was significant, F (5, 33) = 7.41, $p < .001$.

Younger children's sibling appraisals showed somewhat different patterns to those for older siblings' appraisals. Younger children's negative sibling appraisals were predicted significantly by Time 2 appraisals made by their older sibling, F (2, 35) = 4.38, $p < .05$, while controlling for the effects of the frequency of Time 1 negative sibling appraisals. No significant influence was found for earlier appraisals in Time 1, F (2, 33) = .17, $p > .05$. About 15% of the variance in young children's negative sibling appraisals was accounted for by associations with concurrent appraisals by their sibling, F (3, 35) = 3.29, $p < .05$. However, the regression analysis including all predictors was not significant, F (5, 33) = 1.95, $p > .05$. Not surprisingly, the frequency of younger children's Time 2 negative sibling appraisals was positively predicted by their siblings' concurrent negative appraisals (Beta = .44, t = 2.86, $p <$ .01), suggesting a pattern of reciprocity highlighted in findings from the regression analyses of older siblings (Figure 27).

Figure 27

Predictions for associations from sibling appraisals of one sibling to the negative sibling appraisals of the other child for both older and younger children



** $p < .01$; * $p < .05$; † $p < .10$.

Note. n/a = Values that were not included in the final model because the Time 1 predictors did not account for any unique variance in younger children's negative sibling appraisals, nor was the overall equation, with these variables included, significant.

Discussion

What impact do sibling appraisals have on later self appraisals?

Findings in the current study indicate that the predictive influence of sibling appraisals seems to be limited to contemporaneous prediction rather than developmental. Despite the lack of longitudinal findings, some support was found for both proposed models – the Compensation and Looking Glass Self models. As predicted, patterns for positive self appraisals provided support for both models, whereas for negative self appraisals, evidence for the Looking Glass Self model was only found for younger siblings. Recall, though, that the Compensation model does not lend itself to predictions for negative appraisals. In the next two sections, the support provided for each model is explored in more detail.

Looking Glass Self model. The Looking Glass Self model received support with regard to positive self appraisals, for both children, and for younger children's negative self appraisals. Findings showed that the frequency of children's self appraisals, either positive or negative, were significantly predicted by positive or negative sibling appraisals, respectively. These results were apparent only within, but not across, time. These patterns were also evident in the predictions of ability appraisals. For both children, their positive self appraisals of ability were predicted by positive sibling appraisals of ability. However, only for younger children were negative sibling appraisals of ability predictive of their negative self appraisals.

Before proceeding, it is important to clarify that the purpose of this study was not to validate the Looking Glass Self theory. Given the structure of the current study, my aim was to determine whether relationships between children's sibling and self appraisals showed any patterns consistent with this model. Indications of such relationships within children's day-to-day interactions would then suggest the need to bring this behaviour into a laboratory setting where a proper validation effort could be structured. For instance, Felson & Reed (1986) controlled for the actual performance of children on standardized tests of academic achievement and physical fitness when examining the impact of others' appraisals on children's own appraisals. Within the limits of the current study, such control mechanisms were impossible to obtain. However, the study's structure did allow for some efforts to control for the shared environment of the two children. For example, when predicting Time 2 self appraisals, Time 1 self appraisals were held constant and concurrent sibling appraisals, followed by Time 1 appraisals, were then used as predictors. As such, had I obtained

significant cross-time results, it would seem less likely that the common environment or shared reality of the children would be the only cause of such findings, especially when Time 1 appraisals were controlled and accounted for variance in Time 2 self appraisals that could be attributed to the children's shared reality. Without cross time prediction, the children's shared reality may explain the significant relationships between sibling and self appraisals within each time period. The contemporaneous findings discussed here are weaker than if cross-time findings had been obtained or if "actual" performance could be controlled. Nonetheless, these findings should not be dismissed solely on this argument particularly because of the variations in the patterns of valence between sibling and self appraisals. Because they oppose one another (i.e., children appraise themselves positively and their siblings negatively), other factors than the children's shared reality seem to be at play and need to be further explored. That is, if children's appraisals were based solely on their shared reality, the frequencies of positive and negative sibling and self appraisals would have to match, and they do not.

In general, the overall findings prompt three main questions: (1) why is the pattern for positive self appraisals evident for both children, (2) why are negative self appraisals only predicted by older siblings' appraisals of younger children, and (3) why are the findings contemporaneous only? These questions are each discussed below.

With respect to the first question, although the strongest predictive effect was shown between older children's negative sibling appraisals and younger siblings' negative self appraisals, showing that younger siblings may be impacted greatly by negative sibling appraisals, the predictive effects for positive self appraisals were evident for both children. Moreover, these associations were also prevalent in the prediction of older and younger children's positive appraisals of ability and of younger children's negative self appraisals of ability. Therefore, the associations between positive self appraisals and positive sibling appraisals appeared to have greater strength as a general phenomenon than did predictions for negative self appraisals from negative sibling appraisals. The Looking Glass Self literature does not generally distinguish between the valence of statements that come to be internalized; however, findings here suggest that it may be somewhat easier for children to be influenced by positive, than negative, appraisals. Children's overt positive self appraisals may be supported indirectly or implicitly by the positive appraisals they have heard from their sibling. In some way, children may come to internalize the positive evaluations their siblings have made into a

"structure" like that suggested by Mead (1934/1962) – the "generalized other." As he had theorized, the evaluative comments that people hear over time become synthesized into a schema that would represent the essence of such comments. Unfortunately, given that the only predictive relationships found were contemporaneous, it is impossible to make any causal attributions. Positive sibling appraisals could cause positive self appraisals, but it is also possible that positive sibling appraisals of one child are caused by the positive self statements heard from the sibling. Moreover, these associations may be spurious because of the potential for the children to agree (i.e., show a positive correlation between sibling and self appraisals of a similar valence), because they are observing the same objective phenomena, rather than reflecting a representation of the Looking Glass Self model, as described above. The associations found here warrant further exploration to determine whether reverse causation or spurious linkages exist.

Another possible explanation for why the predictive relationships were clearer for positive, than negative, appraisals is that positive appraisals were consistent with a positive self bias, described in detail in Study 2. In addition to children evaluating themselves positively, they may also be more likely to internalize positive appraisals from others. Pelham and Swann (1994) noted that when adults are certain about a particular self-view, they tend to seek out self-consistent feedback from others. Perhaps children in this sample were beginning to do the same. At this time in their lives, siblings likely provide frequent enough appraisals for children to select and attend to appraisals containing self-consistent feedback. The role of siblings as providing self-consistent feedback to each other may be one way in which the supportive side of the sibling relationship, described by Dunn et al. (1994), shows itself. Overall, the strength of the predictive relationships for positive self appraisals suggests that siblings may have some influence on the development of overt positive self appraisals in young children. As such, this area should be explored further in research on sibling interactions to determine the extent to which children contribute to and support the development of a positive sense of self of their sibling. For example, such examination might include analyzing appraisals of sibling dyads in middle childhood or adolescence and determining their impact on children's scores on a self-concept measure, or examining appraisals, from the current study, in a sequential or temporal fashion.

There was also contemporaneous evidence consistent with the Looking Glass Self model with respect to children's negative self appraisals, but only for younger siblings. Why were only the younger children's negative self appraisals predicted by sibling appraisals? It may be that, as hypothesized, younger siblings are influenced more by their older siblings more than the reverse, therefore, like developmental patterns in sibling aggression, where younger siblings' aggression was predicted only by their older sibling's aggression two years earlier (e.g., Martin & Ross, 1995). Indeed, younger children's views of themselves are likely less stable than those of their older siblings largely because of their older sibling's developmental advantage (Harter, 1999). Moreover, older siblings may generally appear more knowledgeable than younger siblings and also may seem more credible as both critics and praisers in the eyes of their younger siblings (e.g., Abramovitch, Corter, Pepler, & Stanhope, 1986). Consequently, younger siblings may be more vulnerable to the negative comments of their elders, or more malleable. If they hear many negative sibling appraisals, younger siblings may be more likely to begin to develop a negatively-valenced "generalized other," that could potentially colour how they view or report on their behaviour. As their views become increasingly consolidated, younger children, like older siblings, may become less influenced by their sibling's words.

Of course, it is also possible that younger siblings simply did not make enough appraisals of their sibling to have as big an impact. This idea could be tested empirically by examining the associations between the appraisals of sibling pairs that are older than those observed in this study. Again, as with interpretations for positive self appraisals, some caution must be used in making causal statements about these results as the significant relationships were contemporaneous. It is possible that children could echo the negative self-statements of their sibling in their negative sibling appraisals of them. Although following that interpretation, it would be expected that older children would mimic or agree with their younger siblings' negative self statements more often than would younger siblings (i.e., younger siblings agreeing with their older siblings' negative self appraisals). Future studies examining the ways in which older and younger siblings evaluate their behaviour following no feedback, positive feedback, or negative feedback from their sibling would facilitate the understanding of these issues.

Finally, the questions remains: why are these findings only contemporaneous? The Looking Glass Self model purports that people's evaluations, among other things, would continue to influence you throughout development and into adulthood. However, although some of the coefficients for Time 1 predictors were in the predicted direction, findings here generally suggest that the longitudinal pattern was not evident in this sample of young children. The resistance of older siblings to the appraisals made by their younger siblings may have affected the across time results. That is, older siblings may have developed a sense of self that is stable enough so as to allow them to resist evaluative comments from their younger sibling, who may be viewed as being much less capable than they are (Abramovitch et al., 1986). Even though their appraisals were not showing a pattern of consistency (Negative self appraisals Time 1 to Time 2: r (38) = -.06, and Positive self appraisals Time 1 to Time 2: r (38) = .05), self appraisals may not adequately assess children's self-concept or may not reflect the stability that would be expected if another measure were used (i.e., questionnaire). It is also possible that some other factors may have influenced these findings, namely, availability (i.e., linguistic and memory-based) and the potential for young children to make use of social feedback.

The development of the self is highly reliant on language and memory. As described by Harter (1999), language is seen by many researchers as a necessary condition to allow children to represent various abstract aspects of the self that cannot be represented otherwise. Moreover, when children develop an understanding of the past tense, they are then able to access events and characteristics that are based in the past. Since children do not begin to master the past tense until the end of their third year and the youngest children in this study were younger than three years at Time 1 (see Harter, 1999), it may be that they were unable to encode or utilize this information and recall it at a later time. Although possible, this explanation does not help us to understand why these predictive relationships did not hold true for older siblings (who had already developed past tense skills at Time 1).

In addition to language, memory also serves many functions in the development of the self. For example, over time, children begin to collect many specific memories of their experiences as well as general information about the self. As memory develops between the ages of 2 and 3 years, children are able to use language to access past events. These events and ideas are carried with children throughout the years and new experiences and information are

then assimilated or accommodated by their memory. As with language, the lack of developmental findings in this study may have been partly related to the availability of information for them. That is, current sibling appraisals were much more closely related, temporally, to self appraisals than were sibling appraisals from two years earlier. With adequate memory skills, it is possible that appraisals from two years earlier could play a role along with concurrent appraisals. However, it may be that children, like adults, re-interpret the past in light of current circumstances and situations (Ross, 1989), and in a manner consistent with their theories of how events unfold. Thus, it may be possible that children's contemporaneous views of their siblings are understood as being consistent (e.g., "He likes me now," becomes "He always liked me."). As such, Time 2 sibling appraisals would necessarily have a greater predictive impact on predicting self appraisals, than those from Time 1. It could also be that, rather than memory, Time 1 appraisals have some impact on Time 2 appraisals because of the ongoing process of appraisals (i.e., continuing over time). However, given the structure of the analyses (i.e., entering Time 2 variables first to control for the stability of appraisals and determining whether Time 1 variables contributed further to explaining variance) and the fact that children's appraisals were not consistent over time, this possibility seems quite unlikely.

Aside from these explanations that attempt to explain the findings by determining what cognitive skills children lack, it is also possible to consider that self appraisals may be sensitive to the social environment in which they occur. There is a rapid increase in self appraisals from Time 1 to Time 2. It is unclear whether this rise is steady or abrupt. It could be that a great deal of development took place very close to the second observation period and information from Time 1 sibling appraisals was simply too long ago. In addition, the fact that younger children at Time 2 were so much more likely to appraise themselves than were older siblings at Time 1 (Study 2, Table 22) and given the reciprocity effects found for self appraisals, self appraisals seem to be malleable and responsive to the immediate environment. Perhaps they are more reflective of social discourse between siblings than of children's true feelings of self-worth or self-concept. However, the fact that younger siblings seemed to pick up on the negative evaluations of their elders seems significant. This finding seems to be less a function of social talk and more significant with respect to children's self-denigration. These effects

may also be subtle because children are generally more likely to evaluate themselves positively.

In summary, the current findings are partly consistent with the Looking Glass Self model. Contemporaneous rather than longitudinal relationships were found; however, these findings provide interesting information about the appraisal process within the sibling relationship. The finding that positive sibling appraisals are predictive for both children whereas negative sibling appraisals only predicted younger children's negative self appraisals raises the question of whether children generally pay attention to positive comments and younger siblings are less able to avoid the negative evaluations of their older siblings, who are experts in activities that are part of sibling interactions. Other cognitive factors need to be explored further to determine their effect on children's integration of appraisals perhaps by examining these processes in sibling pairs who are older. Generally, though, this study highlights that the Looking Glass Self model has some support based on appraisals within sibling interactions.

Compensation model. The findings were also consistent with the Compensation model, using analyses that explored both within and cross-domain compensation in children's self appraisals. Indeed, for both children, predictive relationships within domain showed that as the frequency of negative sibling appraisals increased, children's positive self appraisals also increased, supporting hypotheses generated in Study 2. Further exploration of these processes within the ability domain demonstrated the same patterns, so children's negative appraisals of their siblings' ability predicted their siblings' positive self appraisals. In both cases, the predictive power of negative sibling appraisals was similar for older and younger children (i.e., the beta values were comparable), indicating that the propensity of children to counteract negative evaluations with positive self-statements was generally present in sibling interactions.

Although studies of adults have focused on the immediate use of positive self-evaluation in the face of threatened self-worth (Baumeister, 1982; Baumeister & Jones, 1978; Dodgson & Wood, 1998; Wood et al., in press), it seems that in a global sense children may attempt to shore up their sense of self by making overt positive self appraisals to counteract the impact of negative evaluations made by their siblings. My findings suggest that another possible direction for examining the compensation process may be to explore periods of interaction to assess the occurrence of compensation in everyday interactions rather than in

laboratory settings. Such studies could begin to elucidate the ways that children and adults regulate their sense of self over time in natural settings. Thus, much like the categories used to describe reciprocity in the sibling literature (Ross et al., 1988), researchers may need to consider new ways of expanding their studies of compensation to include both temporal (i.e., the types generally studied in the self literature) and global forms of compensation (i.e., examining ratios of negative sibling and positive self appraisals).

Given that my findings are based on correlational analyses of children's sibling and self appraisals, it is difficult to establish the path of causation. Indeed, one possible criticism of my findings is that negative sibling appraisals may be prompted by positive self appraisals. However, findings from Studies 1 and 2, with respect to children's responses to sibling and self appraisals, provide some support for the current interpretation. Children disputed negative sibling appraisals of self about 18% of the time, indicating a form of direct compensation (Wood et al., in press). Although this percentage is somewhat small, children were even less likely to dispute their siblings' positive self appraisals, only 8% of the time. In fact, in terms of actual frequencies, children disputed negative sibling appraisals 354 times, and disputed positive self appraisals 62 times. Although these numbers do not eliminate the possibility of reverse causation, they provide some support for the direction of the interpretation as children are more likely to dispute negative sibling appraisals than they are to dispute positive self appraisals.

Along with highlighting a global form of compensation, these findings are also unique because to my knowledge, researchers have never examined this process within younger samples, even though it is well established within adult findings. Older and younger siblings in this study seemed to make use of overt self appraisals. To this end, it may be that overt self appraisals are not a direct and simple measure of children's self-concept, as had been thought prior to this study. If children, like adults, use self appraisals to enhance their feelings about themselves or to defend themselves from attack, then these appraisals, taken together, may provide a somewhat inflated or aggrandized view of the self relative to children's true feelings about themselves. Enhancing one's self-esteem likely is not the only reason for the occurrence of positive self appraisals. It may be that positive self appraisals are in part a defensive strategy against the influx of negative appraisals children regularly hear from their sibling. In this way, children may be motivated (consciously or unconsciously) to use these appraisals,

either at the moment of receiving negative appraisals from their sibling or within a completely different situation, to defend against the negative feelings this information could raise if it were believed or internalized. It is important to note that the defense could also be aimed at convincing the other, and not just the self, of one's own self-worth, suggesting a more literal defense against an attack, rather than (or in addition to) an ego defense. In this way, children may use positive self appraisals as a direct way to correct what they see as their siblings' wrong impressions of their abilities or qualities.

Although somewhat equivocal, cross-domain findings also showed some support for the Compensation model. Wood and her colleagues (in press) noted that compensation might occur in a domain other than the one where negative feedback had been received. Even though moral sibling appraisals did not vary directly with children's positive self appraisals of ability, appraisals of general qualities did have some predictive power. Thus, higher frequencies of negative sibling appraisals of general qualities predicted a greater frequency of occurrence of positive self appraisals of ability. These findings may apply to older children only, though, because of the zero-order correlation noted within younger children's negative sibling appraisals of ability and general qualities. Older children showed greater differentiation (in frequency, not necessarily in cognitive understanding) in their appraisals that fell within each category relative to their younger siblings' appraisal patterns. The independence of children's appraisals of general qualities was not clear for younger children, suggesting that predictions involving this variable are not independent from those using negative sibling appraisals of ability. In addition, the concurrent nature of these findings does not permit as clear an interpretation as would be possible under experimental conditions, because of the temporal organization of the study allows. It is important to remember that these findings, although significant, accounted for only a small proportion of the variance in children's positive appraisals of ability. Therefore, replication is required before commenting further on indirect compensation in the sibling relationship.

Generally, compensation seems stronger within, than across, domains. However, it is uncertain whether I have defined domains in the same way that children do (i.e., we say that it is within domain compensation when a negative ability statement from a sibling is compensated by a positive ability self-statement of another ability). What is unclear is whether children are hearing, "You can't write your name," and responding with, "I drew a good

picture," and if these two abilities are really cross-domains in the eyes of the respondent. However, this possibility does not account for the lack of cross-domain compensation from moral to ability appraisals. Thus, a future study that questions children about the categories they would use to describe their appraisals would help to answer this question.

With the cross-domain results, the non-significant findings for negative sibling appraisals in the moral domain provide useful information. Within the adult literature, findings reveal that cross-domain compensation occurs in light of negative feedback (e.g., Wood et al., in press). Since these processes have never been examined with young children or with siblings, the lack of cross-domain findings may suggest that these processes work differently with children. For instance, young children, like those in this study, may not have the self-awareness to realize that recognizing strength in one area may compensate for feelings of weakness in another area. Compensation within domains is a more direct and simple process, and children may be more likely to take the direct approach to defending themselves. In the experimental situations, the evidence participants received might have been more reliable, whereas in this context they hear only their siblings' opinion, which they might regard has easier to contradict (as in Study 1 which showed that children did dispute negative sibling appraisals). Thus, relative to experimental findings where compensation may occur in another domain when it cannot occur in the same domain, children may have had greater opportunity to compensate within domains. Furthermore, the Compensation model has been tested mainly within an experimental setting where, for instance, adults may complete a task, receive failure feedback relative to another study participant, and then be given an opportunity for further comparisons with that person. The participant is often primed to seek comparisons in different domains. Studies of compensation have not examined this process naturalistically. Therefore, the differences in the results reported here might be partly due to the fact that children's appraisals were collected during sibling interactions where the one-to-one relationship of comparisons in different domains is likely less obvious.

Taken together, some of the associations between sibling and self appraisals are consistent with the Compensation model. When these associations were explored further, both within and across domains, it appeared that children relied more frequently on the Compensation model for their within-domain appraisals, than appraisals that are cross-domain. Although the cross-domain findings did not replicate results reported for adults, it will be

interesting to consider whether this finding represents a difference in the process between adults and children, or in the procedure used in this study. Regardless, these results represent a first step toward an ecologically valid test of the Compensation model within sibling interactions.

Reciprocity and developmental predictions in the appraisal process

Links between children's self appraisals. In Study 2, some discussion revolved around the purpose and reasons for children's self appraisals. It was suggested that similar frequencies in children's appraisals might represent attempts by children to compete with one another in describing their positive qualities and abilities. An element of competition may be present because of the tendency for children's positive appraisals to fall within the ability domain. This type of behaviour could be seen as a form of reciprocity, and it was only apparent in children's positive self appraisals. Not surprisingly, analyses in this study revealed that reciprocity was only noted in children's positive self appraisals, and became increasingly strong by the second observation period. In addition, the predictive power was strong for each child's self appraisals to predict the other's self appraisals. This reciprocity pattern could be consistent with a pattern of competition often attributed to sibling interactions (e.g., Dunn et al., 1995; Vandell & Bailey, 1992). Particularly by Time 2, when overt conflict was generally decreasing between siblings (Time 1 $\underline{M}$ = 57.9, s. d. = 17.1, and Time 2, $\underline{M}$ = 37.1, s. d. = 22.4), children may be moving toward subtle ways to assert themselves within the relationship. That is not to say that children do not continue to use conflict, but perhaps the exchange of positive self appraisals is another way through which children achieve that goal and maintain their position relative to their sibling.

Alternatively, it could be that as children's sense of self develops, they begin to acknowledge their strengths. As such, the rate at which each of the children made self appraisals might map onto one another because of this similarity in their self development rather than because of their need to compete with their sibling. Especially by the second time period, children would have been at similar points in their self-concept development according to the general time line stated in the theory of self development proposed by Harter (1999). An interesting test of this hypothesis might be to examine the presence of self appraisals in the absence of a sibling, while in the presence of another child (such as a peer).

Links between children's sibling appraisals. Correlational and regression analyses indicated that children's sibling appraisals showed a pattern consistent with dyadic reciprocity, as described by Ross and her colleagues (1988). That is, children showed an association or predictive relationship between their positive and negative appraisals in a global sense, rather than suggesting that children reciprocated specific appraisals, or temporal reciprocity (although cases of this behaviour exist within the data set). Interestingly, children's sibling appraisals did not show reciprocity until the second time period. However, by Time 2, reciprocation was evident in both positive and negative appraisals. With respect to prediction, although the regression analyses revealed only concurrent predictive associations in sibling appraisals, findings in this study echo those of other sibling studies (e.g., Abramovitch et al., 1982, Perlman & Ross, 1997; Ram, 1999). My findings show that positive and negative behaviour can be reciprocated between siblings. Examining the impact of negative reciprocity alone would fail to appreciate the potential for warmth between siblings that has been alluded to by some researchers (e.g., Dunn & Munn, 1986). It is important to note that the positive reciprocity that occurred between siblings was a regular part of their day-to-day interactions and do not only occur in response to stress or negative external circumstances. If positive sibling appraisals are characterized as one way that children provide their sibling with support, then the supportive role of siblings, described by Dunn (1996), is one that goes beyond times of stress. Thus, the reciprocation of both positive and negative sibling appraisals between siblings suggests that children do behave in ways that fit with the adage, "Do unto others as you would have them do unto you," and as well as the revised saying for negative sibling appraisals, suggested in the introduction, "Do *to* others what they have done to you." Further research focusing on the positive qualities of sibling interactions may add to our understanding of this relationship and of the reasons why the conflict and competition that siblings experience are not as disruptive to children's development as might be expected by parents given the intensity of their interactions at times (e.g., Dunn et al., 1994).

The other prediction with respect to sibling appraisals within and across time was that patterns for the younger sibling would be more strongly predicted by sibling appraisals made by the older child than the reverse. For example, in a study of reciprocation in children's negative behaviour using this data set, Perlman and Ross (1997) found that older children reciprocated force at Time 1, but younger siblings did not. In addition, Ram (1999) found

temporal reciprocity in children's problem-solving, contention, and struggle when sibling pairs were attempting to resolve conflicts of interests (in a toy division task). Using sequential analysis techniques, she found that problem-solving was reciprocated when it was initiated by either child, but contention was only reciprocated when initiated by the younger sibling. In the current study, this pattern was replicated but only for negative sibling appraisals. These findings suggest that younger children may be more impressionable or more likely to follow the model provided to them by their older sibling. Although negative sibling appraisals were also predicted for older siblings, the predictive relationship was less strong than that found for younger siblings. As an aside, it is likely that the lower relation for older siblings is a result of the consistency, from Time 1 to 2, in older children's negative sibling appraisals, which accounted for a large proportion of the variance in their Time 2 appraisals. Much like aggressive behaviour, the frequency of older children's negative sibling appraisals had a greater impact than did the frequency of younger siblings' negative sibling appraisals on their older siblings. It is notable, though, that developmental predictions were not present for negative sibling appraisals. It appears that any modeling effect that older siblings have on their younger counterparts is limited to the current time or observations, rather than having an impact over time.

In contrast, for positive sibling appraisals, the associations for both older and younger children were almost identical, indicating that neither child seems to have a greater effect than the other on predicting positive sibling appraisals. This finding cannot be explained by Time 1 positive sibling appraisals accounting for a large part of the variance in Time 2 positive appraisals (as was the case for older siblings' negative sibling appraisals). It appears that positive appraisals are less related to power and dominance within the sibling relationship. Siblings are competitive and can be conflictual in their interactions. Negative appraisals in particular can be related to themes of power and dominance simply because when you are evaluating someone negatively, you may be putting them down in some way. Thus, it may be more likely for younger children to be influenced by their older siblings, than the reverse, as they are in a weaker position given their standing relative to their older sibling. However, compared to negative sibling appraisals, positive appraisals are suggestive of warmth and encouragement which, in this sample, seemed to flow equally between the children regardless of age or birth order. These findings resonate with those reported by Dunn and Munn (1986)

in their longitudinal study of the interactions of 43 sibling pairs. They reported strong correlations between children's prosocial behaviour within observation periods. These correlations were based on co-operative behaviour shown by the children. My study extends these findings and shows that positive appraisals are one way that children show warmth within the sibling relationship, as indicated by the positive predictive relationships found between positive sibling appraisals for both older and younger children.

Across these various findings of reciprocation of sibling appraisals, it is important to consider the potential purpose of appraisals within this process. Findings suggest that patterns of reciprocity were present for both negative and positive sibling appraisals, which at the most basic level indicates that children showed some balance in the giving and receiving of appraisals. However, could the reciprocation patterns they show have any other function within the sibling relationship? Above and beyond criticizing or supporting their siblings, it is possible that young children are consciously or unconsciously using sibling appraisals to help them foster a satisfying relationship with their siblings. That is, they may make positive and negative sibling appraisals to let their siblings know about the behaviour they want continued and that which they would like stopped. The sibling relationship may be one that helps to fulfill children's needs for social interaction, and as such, they would likely be motivated to guide their siblings' behaviour in ways that are personally or mutually pleasing. Furman and Buhrmester (1985a) completed a study examining the role of siblings in children's need fulfillment. They had preadolescent siblings rate the extent to which various people in their lives, including their siblings, met their needs for companionship, affection, instrumental help, and intimacy. They found that children rated their siblings, next to their friends, as being quite important people for meeting their needs for companionship and intimacy. Given that other studies found that sibling disclosure is highest in the younger years (i.e., elementary school), it is likely that sibling pairs at a young age (i.e., preschool or early school-aged) fulfill these needs to a greater extent than for siblings at an older age (see Buhrmester, 1992). The children in this study had not yet entered school at the first observation period, and only older children had begun attending school by Time 2. Therefore, children may be attempting to negotiate their sibling relationship, through their appraisals, in such a way as to meet their own needs for companionship and affection. This interpretation provides an alternative to the purposes ascribed to appraisals earlier – that of being associated with self-development or with

competition. However, further research is needed to determine whether appraisals perhaps serve singular, dual, or multiple functions within the sibling relationship

In summary, both sibling and self appraisals exhibited patterns of reciprocity. For sibling appraisals, reciprocity of negative evaluations was consistent with the patterns of conflict and competition found in other studies of the sibling relationship (e.g., Abramovitch et al., 1982). Similarly, the reciprocation of positive sibling appraisals may be seen as a part of the warmth typically noticed in sibling relationships (e.g., Dunn et al., 1994). For self appraisals, the reciprocity of positive appraisals seemed to be consistent with a pattern of competition between siblings or sibling rivalry of sorts as they try to better one another, and was evident even at the first time period. It is unclear why reciprocity was present in self appraisals prior to appearing in sibling appraisals, and it remains an empirical question. Interestingly, reciprocity in sibling and self appraisals seemed to function as different, but possibly related, processes in that patterns consistent with competition (from negative sibling and positive self appraisals), with conflict (from negative sibling appraisals), and with sibling warmth (from positive sibling appraisals) all seemed evident. Helping children to negotiate the bounds of their relationship with their sibling may be another function that appraisals serve (particularly sibling appraisals). Future studies may endeavour to tease apart the functions of appraisals proposed here.

General Conclusions

Overall, the results of this study suggest that sibling and self appraisals are involved in some interesting processes in the sibling relationship and it highlighted some unique ideas about overt appraisals. The associations noted between sibling and self appraisals showed contemporaneous evidence that was consistent with both the Looking Glass Self and Compensation models of the self. The findings in support of the Looking Glass Self are important given that no other study has examined these processes within the sibling relationship and that overt appraisals were the focus of study, rather than reflected appraisals. Some researchers have suggested that reflected appraisals (the perceptions one has about someone else's view of the self) are the mechanism by which the Looking Glass Self model works (Felson, 1985, 1989). It still may be that reflected appraisals are playing a role, but at least here, the actual appraisals of siblings produced some connections on their own. Moreover, findings consistent with the Compensation model of the self highlight that these

processes are prevalent even in very young children. Research concerning this theory has focused on adult populations (i.e., undergraduate students) and has never been extended to children or siblings. Thus, even from a very young age, children within the sibling relationship seem to behave in ways similar to adults to maintain their sense of self, although children showed less cross-domain compensation efforts than are present in adult populations (e.g., Baumeister, 1982; Baumeister & Jones, 1978; Wood et al., in press). Further research into the development of compensation strategies in young siblings within an experimental paradigm similar to the one used by Wood et al. (in press) would likely enrich the adult research literature.

In addition, the impact of appraisals was predominantly concurrent rather than developmental. It seems that appraisals are a part of the social discourse of siblings that occurs in the here and now, rather than representing information that is maintained and given significance that would endure over time. The reciprocity evident in children's sibling and self appraisals also supports this interpretation of appraisals as a behaviour that is part of the social environment. To this end, these findings may suggest that sibling appraisals are one method employed by siblings to negotiate their relationship and maximize their satisfaction with their interactions with their siblings. Moreover, although self appraisals in this study did not seem to be an indicator of children's self-concept, overt self appraisals are more than self-concept. That is, they are self presentation within sibling discourse, rather than responses to a questionnaire. This finding is also interesting because it may help us to understand that some of sibling interactions function in ways that maintain one's sense of self and position or status relative to a sibling. In future studies, it would be interesting to determine how overt sibling appraisals relate to children's self-worth as assessed by a self-concept measure and whether there are any obvious differences in those associations compared to the associations between sibling and self appraisals.

General Conclusions for the Three Studies

This study has both replicated and extended findings within the sibling and self literatures. Bringing these two literatures together in a unique way has answered many questions and raised others. Comparisons in findings from Studies 1 and 2 highlight the negative bias children show when appraising their siblings and the positive bias they have when appraising themselves, and that these biases increase over time. At the same time children do not evaluate themselves exclusively in positive terms, nor their sibling in exclusively negative terms. These exceptional kinds of appraisals did show developmental patterns over the two time periods. For instance, there was an increase over time for both children in their positive sibling and negative self appraisals. These increases, though, were not at the same rate as those noted for negative sibling and positive self appraisals. In addition, although it was expected that children might attempt to use sibling and self appraisals to present themselves favourably to their parents, this pattern did not emerge. In fact, children tended to deliver their sibling and self appraisals directly to their siblings, suggesting that they may attempt to present favourably in front of their siblings.

With either of these findings alone, one could ask whether the "bias" is not a bias at all, but simply a product of the reality or environment with which children were faced. For example, if children's behaviour were most often negative then negative sibling appraisals might simply reflect that fact. The findings in Study 1 suggest that, as a group, children's appraisals are based on the reality of their siblings' behaviour (Study 2 also indicated a compatibility between the valence of appraisals and preceding actions, but it was not as clear as for sibling appraisals). However, the same child (i.e., the younger sibling) who was frequently appraised negatively by their sibling was appraising themselves positively. Although it may be possible for both of these tendencies to be a product of the reality children face, it seems likely that other factors, such as the desire to present favourably, must also be implicated. The children apparently selected different aspects of their own or one another's behaviour to evaluate. Future researchers that address these processes may wish to consider whether the tendency to appraise the self positively and others negatively varies with different interactional partners (e.g., parents, siblings, or peers). It might also be possible to demonstrate this selectivity in the content of children's appraisals by inducing and controlling children's successful and unsuccessful behaviour, and then examining what aspects they appraise. Since

the findings reported for the consistencies between the valence of both contexts and appraisals for sibling and self appraisals were performed at the group level, it will be important in the future to study such processes within cases to discern whether patterns associated with group findings are in fact true of those found in individual sibling dyads.

It is also important to add here that sibling gender did not play as big a role as had been predicted. That is, for sibling appraisals, the gender of the partner was the only aspect of gender that had a significant impact on appraisals patterns (male siblings received more negative appraisals than females). Self appraisals showed that male-male siblings exchange self appraisals more frequently of all sibling pairings, but only at the second time period. Thus, the gender of whomever was appraised was key in this study. Considering these patterns together, they appear to show a contrast, particularly for boys. When they appraise themselves, their appraisals are mostly positive; in contrast, their male siblings frequently appraised them negatively.

The content of children's appraisals was different across sibling and self appraisals. For sibling appraisals, children tended to focus their negative appraisals on the moral qualities and behaviour of their siblings. It was interesting to note that children also appraised their siblings' abilities and skills frequently and that the majority of positive sibling appraisals fell in this area. Self appraisals fell predominantly in the ability domain. The overall frequency of ability appraisals for both self and siblings were similar. For both sibling and self appraisals, it was suggested that it may be the concrete nature of the behaviours associated with these appraisals that caused them to be the most frequent. Children seemed to notice changes in ability and were often victims of the transgressions that typically preceded negative sibling appraisals. However, it is important to recall that occasions where children were presented with skills or a moral transgression that were not appraised would need to be compared with times that were appraised. The fact that the domain of children's appraisals was coded and analyzed represents a unique aspect of this study relative to others that preceded it. Studies of appraisals of self and other rarely allow for spontaneous appraisals – researchers tend to use questionnaires or interviews to learn about people's views of the self or others in a particular domain. In this study, though, children were not asked to make appraisals and the patterns observed represent what children noticed and evaluated. Although this study did acknowledge the different domains of children's appraisals, it will be important in future studies to examine the ecological

validity of the coding categories and how well the categories represent children's views of the domains of their appraisals. That is, children may use broader or narrower categories to classify their appraisals. A study that presented children with pairs of appraisals (of either self or other) and asked them to describe whether they fall within the same or different domain would attempt to answer such a question.

Children in this sample responded to both sibling and self appraisals in ways that supported themselves or opposed their siblings. Although there were occasions when children supported their siblings' positive self appraisals and disputed their negative self appraisals, these occasions were infrequent and not significant. For sibling appraisals, children were likely to dispute the negative appraisals they received (based on their response patterns to sibling appraisals in Study 1), but showed no particular tendencies in their responses with respect to positive sibling appraisals. These response patterns may be consistent with children's desires to present themselves well in that they are attempting to defend themselves against negative evaluations. However, it may also be that children are simply becoming caught up in the context in which negative sibling appraisals occur. In addition, it would be interesting to explore the extent to which children defend themselves in other ways, such as through indirect compensation efforts (as suggested earlier in the Discussion for Study 3) that were not addressed in this study.

Parent responses to both sibling and self appraisals were not as supportive as had been anticipated. Parents generally tended to respond to children's negative behaviour rather than addressing appraisals in a particular way. That is, parents in this sample tended to address negative sibling appraisals with appraisees rather than with appraisers. Similarly, for self appraisals, parents tended to support, or agree with, children's negative appraisals of themselves. Thus, it appears that parents in this sample of young children viewed negative sibling or self appraisals as opportunities to focus on the behaviour that had been appraised, in order to correct it, rather than supporting the child who had been criticized by self or other.

Sibling appraisals had some power to predict self appraisals contemporaneously. The associations reflected patterns that were consistent with the propositions of two theories of the self: Looking Glass Self and Compensation theories. These theoretical propositions have never been investigated within the context of sibling interactions, and for Compensation theory, never with children. My findings suggest that there may be some applicability of these

theories to the early development of the self and to sibling interactions. However, since this study represents the first test of these theories within sibling dyads, replication would add strength to the interpretations proposed here. It is also important to note that developmental predictions were not supported by these data.

However, some developmental patterns were evident. For sibling appraisals, differences in positive and negative appraisals were present at Time 1 and became greater at Time 2, because of the increase in negative appraisals. This pattern was true for most of the findings for sibling appraisals. In contrast, self appraisals showed some dramatic shifts from Time 1 to Time 2. For instance, a difference between positive and negative self appraisals was only noted at Time 2. This difference was driven by an increase in positive self appraisals which was then evident in other findings, including patterns in gender, ability appraisals. Therefore, despite the lack of developmental findings in the predictive models, developmental trends and changes were apparent in children's sibling and self appraisals.

Finally, although it had been predicted that appraisals may reflect children's feelings about themselves and others, it appears that they are more a part of children's social discourse; instead of representing comments that are held in memory for long periods of time and become a long-standing part of their self-concept (e.g., over a two-year period). This interpretation stemmed from the findings that concurrent associations were generally found between sibling and self appraisals. The finding that children reciprocate appraisals was evident in their positive self, negative sibling, and positive sibling appraisals also provide support for this idea. Similar to the biases children show in their appraisals, these findings suggest that competition exists between siblings (through reciprocation of negative sibling and positive self appraisals, in particular). It is important though to note that the reciprocation in positive sibling evaluations highlights the other side of sibling relationships (Dunn, 1988; Dunn & Munn, 1986). It would be interesting to pursue questions about the influence of appraisals on self-concept with further empirical studies that test the extent to which children's self appraisals reflect or are related in any way to their scores on self-concept measures. It may also be interesting to determine whether children remember some appraisals for longer periods of time, or whether as children become increasingly self-conscious (during adolescence), their siblings' negative appraisals carry more meaning, particularly in an area of the self that is valued.

Other ideas for future studies that stem from the findings presented here include examining these processes within an older sample of siblings (such as starting with age 4 and 6 and continuing to when children are 6 and 8 years old). It would also be interesting to investigate sibling and self appraisals in a laboratory setting, using an experimental paradigm similar to that used by Ruble and her colleagues (1994). The goal of such a study might be to determine what things children would say about each other under a situation that stresses competition and or controls for ability.

Limitations

Some limitations to this study restrict some of the conclusions that can be drawn from the data and findings presented here. First, the correlational nature of the study reduced the ability for causal conclusions to be made. The longitudinal design allowed for causal interpretations to be suggested for significant predictive findings from Time 1 to Time 2, but within each time period, it was impossible to determine causal mechanisms. However, to answer the questions proposed in these studies, a correlational design was necessary. It allowed me to explore potential relationships between sibling and self appraisals and to examine their consistency with some theories of the self. Given my results, it is now possible to pursue other observational as well as experimental designs to explore related questions regarding the theories of the Looking Glass Self and of Compensation.

Second, although the longitudinal, or cross-sequential, design of the current study allowed developmental predictions, it is difficult to determine whether any developmental trends noted here would continue to follow the same direction because a third observation period was not included. Without the third observation period, comments about development in children are limited to the two periods observed and to speculate that the patterns continue. The cross-sequential design, although allowing me to examine three ages (2 to 4 years and 4 to 6 years), poses a confound with the relative age of the children, and birth order. Even with this limitation, I was able to show that sibling and self appraisals show some unique developmental patterns and changes over the two year period. Sibling appraisals appeared to develop relatively continuously in children 2 to 6 years of age. In contrast, self appraisals were less continuous based on my findings; younger siblings appraised themselves more frequently at Time 2 than did their older siblings when they were the same age. Future replication of my findings could address this concern by including a third observation period either between the

two years (i.e., observing the children each year) or as an additional time point (i.e., adding another observation period, two years after the termination of the current study).

Third, in my test of the Looking Glass Self theory, I could not include reflected appraisals. Although the theory indicates that reflected appraisals are an integral part of this process, they are impossible to assess using naturalistic observation. Children do not make them overt (e.g., "He thinks I'm a fool, but I'll show him!"). Thus, even though they were not explicitly observed or inquired about in this study, they could be the mechanism by which actual appraisals from others impacted self appraisals. However, since the Looking Glass Self theory does not propose specific pathways for actual and reflected appraisals to impact self appraisals, it is possible for actual appraisals to have a direct relationship with self appraisals, as shown in my study. Future examinations of these processes will need to consider whether overt sibling appraisals are directly related to self appraisals or whether their influence is also mediated by reflected appraisals.

Fourth, when examining the Looking Glass Self model, my analyses were hampered by an inability to control for the underlying reality that the children shared. As already noted, the purpose of this study was to determine whether there was any possibility of connection between sibling and self appraisals. Such associations were found, but are subject to alternate explanations because of their contemporaneous nature. Thus, their connection could be spurious and only appeared because of the common reality shared by the children in the study. That is, children may simply be showing some similarity in their appraisals because they are viewing the same reality and the Looking Glass Self model may have no role at all, particularly because the relations were found only in the contemporaneous interactions. However, it remains interesting that similar patterns in the valence of children's sibling and self appraisals was not found as should be the case if they are viewing the same reality. As such, these relations require further study to determine whether the common reality shared by the children is the only aspect that connects these two constructs or whether some aspect of the Looking Glass Self model applies.

Fifth, it is important to note that the pattern in the valence of children's sibling and self appraisals as well as their tendency to elevate positive self appraisals in the face of negative sibling appraisals may be restricted to the cultural group of the families in this study – namely, Caucasian. As noted earlier, it is possible that the tendency for competitiveness and

individualism, that are valued in the North American society, may be a causal factor in the children's patterns. As such, generalizations to other cultural groups or to Caucasians living in other cultures would be inappropriate given that family structures and social norms vary greatly across cultures.

Finally, no measure of self-concept was included in the study. However, self appraisals were still predicted by sibling appraisals and showed patterns that had never before been seen in children's own appraisals. Adding a self-concept measure would help to determine the ways in which children's overt self appraisals are related to self-concept and to examine the potential predictive relationships between sibling appraisals and children's ratings of their self-concept. Without this measure, though, my findings still highlight the fact that appraisals seem to be part of the social discourse patterns between young siblings, and they show that children begin to show patterns in their appraisals that are consistent with patterns studied in adults.

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Appendix A

Table A1

Correlations between positive and negative sibling and self appraisals over time

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.	16.
ONGSE1	1.00															
OPSE1	.24	1.00														
YNGSE1	.25	.24	1.00													
YPSE1	.13	.46••	.38*	1.00												
ONGSI1	-.05	.29†	.38*	.30†	1.00											
OPSI1	.61•••	.27	.39*	.12	.29†	1.00										
YNGSI1	-.04	-.06	.25	.26	.23	.10	1.00									
YPSI1	.38*	.32*	.29†	.54•••	-.14	.18	.16	1.00								
ONGSE2	-.06	.15	.17	.09	.07	.13	.00	-.06	1.00							
OPSE2	-.20	.05	.01	-.14	.30†	.05	.15	-.32•	.38*	1.00						
YNGSE2	-.03	.21	.13	-.13	.07	.18	-.18	-.16	.25	.39*	1.00					
YPSE2	-.02	.36*	.26	.03	.34*	.33*	.04	-.12	.48••	.64•••	.59•••	1.00				
ONGSI2	-.20	.15	.12	-.14	.58•••	.07	.08	-.38•	.22	.68•••	.36*	.51••	1.00			
OPSI2	.05	.54••	-.02	.21	.20	.29†	-.21	.03	.61•••	.13	.30†	.47••	.23	1.00		
YNGSI2	-.20	.30†	.20	-.07	.33*	.14	.15	-.03	.09	.49••	.20	.61•••	.50••	.15	1.00	
YPSI2	.06	.38•	-.17	-.08	.06	.13	-.18	-.18	.44••	.39*	.35*	.57•••	.21	.57•••	.27†	1.00

Note. 1. *** - $p < .001$, ** - $p < .01$, * - $p < .05$, † - $p < .10$.

2. O = Older; Y = Younger; NG = Negative; P = Positive; SE = Self; SI = Sibling; 1 = Time 1; 2 = Time 2.

3. $N = 39$.

Appendix B

Table B1

Correlations between positive and negative sibling and self appraisals of ability, over time

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.	16.
ONGSE1	1.00															
OPSE1	.11	1.00														
YNGSE1	.19	-.09	1.00													
YPSE1	.10	.51**	.37*	1.00												
ONGSI1	.07	.79***	-.03	.64***	1.00											
OPSI1	.32*	.20	.02	.14	.32†	1.00										
YNGSI1	-.01	.32*	.35*	.73***	.39*	.18	1.00									
YPSI1	.49**	.19	.18	.31†	.13	-.06	.01	1.00								
ONGSE2	.06	.23	.05	.08	.18	.20	-.10	-.15	1.00							
OPSE2	-.05	.05	-.12	-.12	.23	.13	-.09	.23	.48**	1.00						
YNGSE2	.06	.06	.15	-.05	.23	.26	-.10	-.11	.47**	.59***	1.00					
YPSE2	.10	.32*	.13	.03	.38*	.38*	.04	-.18	.51**	.65***	.57***	1.00				
ONGSI2	-.15	.01	-.02	-.09	.20	.00	-.03	-.21	.41**	.82***	.42**	.50***	1.00			
OPSI2	.16	.61***	-.01	.31	.51**	.37*	.19	.02	.74***	.25	.35*	.53***	.17	1.00		
YNGSI2	-.09	.31†	.08	.04	.31†	.16	.03	-.12	.34*	.50***	.23	.76***	.59***	.34*	1.00	
YPSI2	.27†	.30†	-.08	.03	.29†	.31	.03	-.13	.47**	.46**	.53***	.60***	.17	.51***	.25	1.00

Note. 1. *** - $p < .001$, ** - $p < .01$, * - $p < .05$, † - $p < .10$.

2. O = Older; Y = Younger; NG = Negative; P = Positive; SE = Self; SI = Sibling; 1 = Time 1; 2 = Time 2.

3. $N = 39$.

Appendix C

Table C1

Correlations between positive and negative self appraisals of ability and positive and negative appraisals of moral behaviour for older siblings

	1.	2.	3.	4.	5.	6.	7.	8.
OANGSE1	1.00							
OAPSE1	.09	1.00						
OANGSE2	.06	.23	1.00					
OAPSE2	-.05	.05	.48**	1.00				
YMNGSI1	.04	-.04	-.02	.15	1.00			
YMPSI1	.09	.07	.01	.13	53**	1.00		
YMNGSI2	.07	.05	-.07	.18	.11	-.09	1.00	
YMPSI2	-.05	-.15	-.21	-.21	.26	-.06	-.13	1.00

Note. 1. *** - $p < .001$, ** - $p < .01$, * - $p < .05$, † - $p < .10$.

2. O = Older; Y = Younger; A = Ability; M = Moral; NG = Negative; P = Positive; SE = Self; SI = Sibling; 1 = Time 1; 2 = Time 2.

3. $N = 39$.

Table C2

Correlations between positive and negative self appraisals of ability and positive and negative appraisals of moral behaviour for younger siblings

	1.	2.	3.	4.	5.	6.	7.	8.
YANGSE1	1.00							
YAPSE1	.36*	1.00						
YANGSE2	.15	-.05	1.00					
YAPSE2	.13	.03	.57**	1.00				
OMNGSI1	-.09	.20	.00	.16	1.00			
OMPSI1	-.11	.09	-.14	.30	.09	1.00		
OMNGSI2	-.12	.01	.13	.22	.55***	.07	1.00	
OMPSI2	n/a	n/a	n/a	n/a	n/a	n/a	n/a	1.00

Note. 1. *** - $p < .001$, ** - $p < .01$, * - $p < .05$, † - $p < .10$.

2. O = Older; Y = Younger; A = Ability; M = Moral; NG = Negative; P = Positive; SE = Self; SI = Sibling; 1 = Time 1; 2 = Time 2.

3. $N = 39$.

4. n/a = Correlations were not calculated because older children made no positive moral sibling appraisals at Time 2.

Table C3

Correlations between positive and negative self appraisals of ability and positive and negative appraisals of general qualities for older siblings

	1.	2.	3.	4.	5.	6.	7.	8.
OANGSE1	1.00							
OAPSE1	.11	1.00						
OANGSE2	.06	.23	1.00					
OAPSE2	-.05	.05	.48**	1.00				
YGNGSI1	.02	-.14	-.04	.17	1.00			
YGPSI1	-.01	.28	-.08	-.25	-.06	1.00		
YGNGSI2	-.09	.26	.01	.32*	.18	.02	1.00	
YGPSI2	-.03	.29	.35*	.11	-.12	-.14	.10	1.00

Note. 1. *** - $p < .001$, ** - $p < .01$, * - $p < .05$, † - $p < .10$.

2. O = Older; Y = Younger; A = Ability; G = General qualities; NG = Negative; P = Positive; SE = Self; SI = Sibling; 1 = Time 1; 2 = Time 2.

3. $N = 39$.

Table C4

Correlations between positive and negative self appraisals of ability and positive and negative appraisals of general qualities for younger siblings

	1.	2.	3.	4.	5.	6.	7.	8.
YANGSE1	1.00							
YAPSE1	.37*	1.00						
YANGSE2	.15	-.05	1.00					
YAPSE2	.13	.03	.57***	1.00				
OGNGSI1	.17	.15	.07	.34*	1.00			
OGPSI1	.26	.09	.18	.12	.13	1.00		
OGNGSI2	.08	-.16	.10	..35*	.35*	-.08	1.00	
OGPSI2	.07	-.09	.01	-.01	-.12	.06	.13	1.00

Note. 1. *** - $p < .001$, ** - $p < .01$, * - $p < .05$, † - $p < .10$.

2. O = Older; Y = Younger; A = Ability; G = General qualities; NG = Negative; P = Positive; SE = Self; SI = Sibling; 1 = Time 1; 2 = Time 2.

3. $N = 39$.