

## 5. DISCUSSION

The final chapter of this dissertation is divided into three main sections. The first section addresses the central findings of the study. The findings of preparatory analyses addressing the development of the structural relations and mean levels of agency and means-ends beliefs, and their functioning in the domain of friendship during middle childhood and their implications for main findings are briefly discussed first. The findings regarding mean levels of dimensions of perceived control and their relationships with action strategies, self and friend ratings of friendship quality across sociometric groups of friended and friendless children are discussed thereafter. Subsequently, the meaning of the finding that sociometric groups of friended and friendless children did not differ in the ascribed importance of friendships for the interpretation of the findings is addressed. This section ends with suggestions for future research. The second section outlines the strengths and limitations of the study. The discussion ends with a summary and conclusions.

### 5.1 The Main Findings of the Present Study

Employing an action-theory model of perceived control (e.g., Skinner, 1995; Skinner et al. 1988b) as a major theoretical framework, the central purpose of this study was to investigate the effects of sociometric peer-status on the relationships of perceived control, action strategies, and friendship outcomes. Thereby, the present study focused on the most stable classifications of sociometric status: Popular, average, and rejected children. The theory differentiates among agency beliefs, means-ends beliefs, and global perceptions of control. Firstly, agency beliefs represent children's perceptions of their access to specific action means. Secondly, means-ends beliefs represent children's perceptions of the usefulness of the specific action means. Thirdly, as a global and means-unspecific perception of control children's perceptions of the difficulty of friendship goals (i.e., Goal Difficulty) were measured. Importantly, the present findings provided support for the assumption that Goal Difficulty is more highly related to means-ends beliefs than agency beliefs. Goal Difficulty and means-ends beliefs have in common that they target at the contingencies provided by the social context. In other words, these beliefs reflect the responsiveness of the environment. In contrast, agency beliefs target at children's perceptions of their competence.

Moreover, it was investigated whether perceived control is related to different types of action strategies which are theoretically assumed to mediate the effects of perceived control on friendship outcomes. Based on the literature of children's coping (see Theory Chapter, Section 2.3.3) *Direct Action*, *Seeking Help*, *Behavioral Avoidance* and *Doing Nothing* were identified to represent important action strategies which children use when confronted with problems in their friendships. The results of the present study showed that the latter two strategies defined *Action Omission* as a higher-order construct.

Only a single mean-level difference supported the hypothesis that children who fail to participate in mutual friendship relationships are characterized by *low* perceptions of control. Instead, the findings showed that children's perceptions of Goal Difficulty and external means-ends beliefs were inversely related to their sociometric status. This is in line with the assumption that children's sociometric status represents the developmental basis for children's friendships (e.g., Bukowski, et al., 1996).

Unexpectedly, the findings suggest that the functioning of contingency beliefs (i.e., means-ends beliefs and Goal Difficulty) in regulating action differed across groups of children who have problems in their peer relationships and children who are well-adjusted (i.e., friended-popular and friended-average children). For the friendless groups means-ends: Adults, Goal Difficulty, Action Omission, and Seeking Help were more highly correlated compared to friended-accepted groups. These patterns of relationships suggest that for many friendless children low perceived control was related to maladaptive action. Similar patterns of relationships among these constructs evinced for friended-rejected children but means-ends: Self were involved instead of means-ends: Adults. The centrality of means-ends: Self vs. means-ends: Adults in regulating action may explain why children succeeded to participate in friendships or why they did not. For friended-rejected children means-ends: Self, Goal Difficulty, Action Omission, and Seeking Help also were negatively related to the friends' views of friendship quality.

The findings supported that rejected children's illusory-high agency beliefs were indirectly through direct problem-solving strategies related to the friends' negative evaluations of friendship quality. In contrast, for accepted children both agency beliefs and direct problem-solving strategies were positively related to the friends' views of friendship quality.

Table 23

*Summary of the Hypotheses and Main Results*

<b>A: Does Children’s Sociometric Status Moderate the Relationships among Perceived Control, Action Strategies, and Friendship Outcomes (i.e., Self-rated and Friend-rated Friendship Quality, and Number of Mutual Friendships)?</b>	
<i>A1: Do Friended-Rejected Children Overestimate their Control whereas Friendless Children have Low Perceptions of Control?</i>	
<i>Prediction</i>	<i>Hypotheses supported?</i>
Main effect of friendship participation (friended vs. friendless): Friendless children have lower perceived control than friended children	NO
Friended-rejected children's perceived control does not differ from friended-accepted children's perceived control	YES
No main effects of sociometric status	NO - Goal Difficulty showed a main effect of sociometric status. Ranking according mean levels: popular > average > rejected  - Means-ends: Luck and Adults were lower in the popular group compared to the remaining groups
No interactions	NO
Agency Beliefs, Means-ends: Self, and Direct Action: friended children > friendless children	NO
Means-ends: Luck, Means-ends: Adults, Goal Difficulty, Seeking Help, Action Omission: friended children < friendless children	YES and NO - Only means-ends: Adults were higher for the group of friendless-average children compared to friendless-rejected and sociometric groups of friended children (i.e., popular, average, and rejected )
<i>A2: Correlations of Perceived Control, Action Strategies, and Self-rated Friendship Quality are invariant across sociometric groups of friended and friendless children</i>	
<i>Prediction</i>	<i>Hypotheses supported?</i>
The correlational structure of dimensions of perceived control and their correlations with action strategies and self-rated friendship quality are invariant across sociometric groups of friended and friendless children. Similarly, the correlations of action strategies and self-rated friendship quality are invariant across sociometric groups of friended and friendless children	NO Moderating effects for friendless children involved relationships of means-ends beliefs: Adults, Goal Difficulty, Action Omission, Seeking Help, and self-rated friendship quality Moderating effects for friended-rejected children involved relationships of means-ends beliefs: Self, Goal Difficulty, Action Omission, Seeking Help, and self-rated friendship quality

Table 23 continued

<i>A3: Correlations of Perceived Control, Action Strategies, and Number of Mutual Friendships are moderated by sociometric status</i>	
<i>Prediction</i>	<i>Hypotheses supported?</i>
Agency beliefs, Self-related means-ends beliefs, and Direct Action are <i>positively</i> correlated with the number of mutual friendships Rank ordering according strength of relationships: popular > average > rejected	NO no correlations
External means-ends beliefs, Goal Difficulty Seeking Help, and Action Omission are <i>negatively</i> correlated with the number of mutual friendships <u>Rank ordering according strength of relationship:</u> rejected > average > popular	NO the single significant and negative correlation of Goal Difficulty evinced in the popular group; thus, the rank ordering according strength of relationship was reversed
<i>A4: Correlations of Perceived Control, Action Strategies, and Friend-rated Friendship Quality are moderated by sociometric status</i>	
<i>Prediction</i>	<i>Hypotheses supported?</i>
Agency beliefs, Self-related means-ends beliefs, and Direct Action:	YES
<i>For Popular and Average children:</i> Positive correlations with Friend: Intimacy	NO
Negative correlations with Friend: Conflict Rank ordering according strength of relationships: popular > average	Single exception: Direct Action and Friend: Conflict
<i>For Rejected children reversed correlations:</i> Negative correlations with Friend: Intimacy Positive correlations with Friend: Conflict	YES
External means-ends beliefs, Goal Difficulty Seeking Help, and Action Omission:	NO
<i>For Popular, Average, and Rejected children:</i> Negative correlations with Friend: Intimacy	YES: Goal Difficulty, Seeking Help and Action Omission
Positive correlations with Friend: Conflict	NO: external means-ends beliefs
Rank ordering according strength of relationships: Rejected > average > popular	YES and NO Rank ordering according strength of relationships was: Rejected > average = popular exception: invariant correlation of Goal Difficulty and Friend: Conflict across rejected and average group

Table 23 continued

<b>B: Exploratory Analyses of a Possible Mechanism Underlying the Relationship between Perceived Control and Friendship: Do Friendless Children Differ in their Ascribed Importance of Friendships from Friended Children?</b>	
<i>Prediction</i>	<i>Hypotheses supported?</i>
Do friendless children have lower mean levels of Goal Importance compared to friended children?	NO
No mean level differences in Goal Importance across popular, average, and rejected groups of friended children	YES
Goal Importance is <i>positively</i> correlated with agency beliefs (self-related means-ends beliefs, Direct Action).	YES
Goal Importance is <i>negatively</i> correlated with external means-ends beliefs (Goal Difficulty, Action Omission, and Seeking Help).	NO Similar relationships as found for Agency: Self: nonsalient relationship

The findings ruled out that failure to participate in friendships was due to low motivation because friendless and friended children equally endorsed the importance of friendships. In conclusion, the findings pinpoint to the importance of contingency beliefs in the regulation of action in the domain of friendship during middle childhood.

Taken together, the findings suggest that in middle childhood contingency beliefs are a major indicator of low feelings of control in the domain of friendship. Thereby, they reflect differences in objective control conditions that are related to sociometric status. This is remarkable because children, generally, differentiated between agency and means-ends beliefs only to a low degree. Preparatory analyses showed that the degree of differentiation between agency and means-ends beliefs was low throughout the investigated age range. The findings regarding the development of perceived control and its functioning in regulating action in the friendship domain further substantiate the central conclusions of the study. Table 23 provides an overview of the investigated hypotheses and the findings of this study.

### 5.1.1 Results of Preparatory Analyses: Developmental Differences and their Implications for the Main Study

#### 5.1.1.1 Higher-Order Structures of Agency and Means-ends beliefs and Action Strategies

The results of the age-group comparisons showed that agency and means-ends beliefs, and action strategies could be invariantly represented by higher-order structures across grade levels. For both the agency and means-ends belief systems, beliefs for the means Effort, Ability, and Personal Attributes could be represented as a higher-order construct representing self-related means (i.e., agency and means-ends beliefs about Self). Beliefs about the means Parents and Teachers as Powerful Others could be represented as a higher-order construct, termed Adults as Powerful Others for both the agency and means-ends beliefs. The action strategies Doing Nothing and Avoidance could be represented as a higher-order construct, termed Action Omission.

#### 5.1.1.2 Increases in Differentiation between External and Self-related Means Dimensions of Agency and Means-ends Beliefs During Middle Childhood

The results of the age-group comparisons provided support for Skinner's (e.g., 1995) proposition that in middle childhood the major development in perceived control involves the differentiation among specific means dimensions. During middle childhood children's understanding increases that Luck and adults' help are uncontrollable causes while self-related means are more controllable (Nicholls & A. T. Miller, 1985b; Weisz, 1983, 1986). Increases in differentiation among external and self-related means dimensions were indicated by (a) an unexpected increase in beliefs about Self, (b) expected declines in mean levels of beliefs about Luck and Adults, and (c) an expected drop in correlations of beliefs about Luck and the remaining belief dimensions, although, beliefs about Adults, unexpectedly, were not involved in these developmental differences. The onset of the decline in mean levels of beliefs about external means (i.e., Luck and Adults) was found already in grade 5; that is, mean-level decline was found one grade level earlier than found in a previous study (Skinner, 1990). However, age-related differences in the correlational patterns, generally, evinced only in grade 6.

### 5.1.1.3 Low Degree of Differentiation between Agency and Means-ends Beliefs Throughout Middle Childhood

Consistent with previous findings in the friendship domain (Wanner, 1995), agency and means-ends beliefs were highly correlated. The high relationships across belief types indicate that the children differentiated only to a low degree between agency and means-ends beliefs. Importantly, in support of the theoretical distinction with age the degree of differentiation between belief types increased as indicated by a drop in correlations of beliefs about Self and Luck across belief types.

In line with a low degree of differentiation between belief types, agency and means-ends beliefs showed similar mean-level patterns and correlational patterns which also showed similar patterns of developmental differences. Specifically, similarities across agency and means-ends beliefs were observed regarding (a) decreases in mean-levels of external beliefs and increases in mean-levels of self-related beliefs, (b) decreases in correlations of beliefs about Luck and beliefs about both Self and Adults, (c) the patterns of relationships of belief dimensions with both action strategies and own views of Intimacy, and (d) age-related differences in the belief-strategy correlations.

### 5.1.1.4 Evidence for Some Degree of Differentiation between Agency and Means-ends Beliefs Throughout Middle Childhood

Despite the evidence showing a low degree of differentiation between agency and means-ends beliefs, the findings indicated that some degree of differentiation between belief types was present across the whole age range. Specifically, the relationships of perceived control and more objective measures of friendships (i.e., friend-rated friendship quality and number of mutual friendships) provided evidence for differential relationships of agency and means-ends beliefs beginning from grade 3. Specifically, with the exception of a marginally significant relationship of agency beliefs about Adults, self-related agency beliefs were the single belief dimension which was significantly related to the best friends' views of Intimacy across all ages. In contrast, external means-ends beliefs and Goal Difficulty were related to lower numbers of mutual friendships while agency beliefs and self-related means-ends beliefs were unrelated to this friendship outcome. Although, as shown in Section 4.2.2.1, the latter relationships were caused by sociometric status as a third variable, these belief-outcome

relationships provided evidence that children differentiated between agency and means-ends beliefs beginning from grade 3. Only means-ends beliefs and Goal Difficulty were influenced by sociometric status while agency beliefs were not. Regarding the interpretation of the results of the main analyses it is important to note that the relationships of beliefs and objective measures of friendship outcomes were not moderated by age.

#### 5.1.1.5 Goal Difficulty and Means-ends Beliefs Represent Beliefs about Contingencies

The relationships of agency and means-ends beliefs and Goal Difficulty provided further evidence for the assumption that children differentiated between agency and means-ends beliefs. Previous findings showed that Goal Difficulty is related to the amount of resource investment necessary to attain a goal and, hence, to the contingencies provided by the environment (e.g., Winell, 1987; see also Theory Chapter 2.2.1.6). Theoretically, means-ends beliefs also are posited to reflect children's perceptions of contingencies provided by the environment while agency beliefs are posited to reflect children's perceptions of competence. Thus, means-ends beliefs should be more highly related to Goal Difficulty compared to agency beliefs. The findings provided support for this assumption. Specifically, across age groups differences in the strengths of relationships among Goal Difficulty and means-ends beliefs when compared to the relationships of Goal Difficulty and agency beliefs supported the assumption that Goal Difficulty has more in common with means-ends beliefs than with agency beliefs (see Theory Chapter 2.2.1.6). Moreover, as further discussed below, the main analyses showed that means-ends beliefs and difficulty perceptions were positively and, in part, highly correlated. Finally, the findings of the main analyses indicated that agency beliefs and Goal Difficulty were independent across sociometric groups of friended and friendless children. Given that both agency beliefs and self-efficacy represent competence beliefs, the findings are in line with a previous study which found that Goal Difficulty and self-efficacy were independent in an adult sample (Lee & Bobko, 1992). Notably, the latter finding also shows that even in adult samples relationships which on a semantic basis could be expected to be negatively directed empirically can be different. This will be further discussed in the next paragraph. Taken together, the findings provide rather strong evidence for the assumption that both Goal Difficulty and means-ends beliefs represent children's perceptions of contingencies provided by the social context.



#### 5.1.1.6 Patterns of Salient and Nonsalient Relationships among Perceived Control, Action Strategies, and Self-rated Friendship Quality

In general, correlations among self ratings which were hypothesized to be negatively directed were either unreliable or low and positively directed. In contrast, correlations which were hypothesized to be positively directed were, indeed, positively directed and substantially high. As a consequence, beliefs, action strategies, and self-rated friendship quality showed patterns of salient and nonsalient relationships. With development these patterns of salient and nonsalient relationships became even more pronounced. However, in the vast majority of cases drops in strength of relationships only evinced for the oldest group (i.e., grade 6). For example, the hypothesized negative relationship of agency beliefs about Self and Action Omission was low and positive at younger ages. For the oldest children this relationship was unreliable, although it tended to be negatively directed.

The hypotheses of negative relationships among beliefs, strategies, and outcomes were supported by semantic analyses of these relationships. However, functional relations among beliefs, strategies, and outcomes need not mirror their semantic relations (e.g., Skinner, 1990; Skinner et al., 1988b). In fact, functional relationships should not merely mirror semantic relationships (for a further discussion of this issue see, e.g., Brandtstädter, 1998). The low and positive correlations and the correlations around zero may be explicable when seen together with the below discussed finding that on a group level and as hypothesized, friended-rejected children but, unexpectedly, also friendless children, generally, rated perceived control, action strategies, and friendship quality equally high as friended and accepted children. These positivity biases may explain why these constructs were rather independent instead of systematic and negative. However, the hypothesized functional relationships among beliefs, strategies, and outcomes, generally, were supported by the evinced patterns of salient relationships.

More specifically, agency and means-ends beliefs about specific means were differentially related to specific action strategies across age groups. Self-related beliefs were more strongly related to direct problem-solving strategies compared to beliefs about external means. Help-seeking behaviors were more highly related to beliefs about Adults compared to both beliefs about Self and Luck. For the oldest group, only beliefs about Luck were related

to Action Omission. Both self-related beliefs and Direct Action were more highly related to children's own views of Intimacy compared to the remaining beliefs. In contrast, external means-ends beliefs, Action Omission and Seeking Help were, as expected, related to higher self ratings of Conflict while self-related beliefs and Direct Action were unrelated to this friendship aspect. Finally, as discussed above, self-related agency beliefs about Self were invariantly and positively related to higher friend evaluations of Intimacy.

However, regarding help-seeking behaviors the findings were not unequivocally in support of their hypothesized negative effects on children's friendships. On the one hand, the findings showed that across all age groups children's help-seeking behaviors were related to increases in own views of Conflict. On the other hand, the finding that help seeking was also related to high self reports of Intimacy across all ages may indicate that help seeking strategies are a mixed blessing. However, there are alternative explanations that can explain the positive relationship of help-seeking behaviors and children's views of Intimacy. One possible explanation for this positive correlation is that intimate friendships represent a source for help. Thus, the more intimate children perceive their friendships the more help they can expect from their friends when confronted with difficult situations with another friend. Another possible explanation is that children's own capacities and competence represent a third variable causing this relationship. Children who have access to others' help also must have access to own capacities in order to access this means. Moreover, own capacities appear to be a major means for having intimate friendships as, for example, indicated by the high relationship of self-related beliefs and self-rated Intimacy. In general, it is likely that children who perceive that they can access social support may usually cope on their own or have to rely on others' help only to a limited degree (Schwarzer & Leppin, 1991; see also Theory Chapter 2.3.5). Thus, help-seeking behaviors may not positively contribute to intimate friendship interactions but self-related competence which also is necessary to elicit other's help.

In a similar vein, the finding of a positive relationship of agency beliefs about Adults and self-rated Intimacy may not mean that access to adults' help positively contributed to friendship intimacy. Instead, self-related competence which is related to Intimacy and also is necessary to elicit other's help may have caused this relationship. This assumption is

supported by the finding of the main analyses that when controlling for the effects of self-related agency beliefs the relationship of agency beliefs about Adults and friend-rated Intimacy vanished for the popular group of children.

#### 5.1.1.7 With Age Children Increasingly Recognized the Efficiency of Self-related Means and Direct Action and the Inefficiency of External Means, Action Omission, and Seeking Help for Friendships

Generally, the evinced age-related differences in agency and means-ends beliefs in terms of mean levels and correlations suggest that with development the influence of self-related beliefs on action regulation increased while the influence of beliefs about external means on action regulation decreased in the domain of friendship. Similarly, age-related differences in action strategies in terms of both mean levels and correlations propose that in the domain of friendship children's recognition of the efficiency of direct problem-solving strategies and the inefficiency of help seeking and passive behaviors increased with age.

#### 5.1.1.8 The Importance of Friendships Increases at the End of Middle Childhood

The findings suggest that for older children friendship relationships may be more central for their lives compared to younger children. This assumption is supported by the findings that, compared to younger children (i.e., grades 3 and 4), older children (i.e., grades 5 and 6) perceived friendship goals more important and more difficult to attain, and they reported higher levels of effort investments in order to cope with difficulties (i.e., Direct Action). In a similar vein, the unexpected finding that the oldest group of children had also higher agency and means-ends beliefs about Self than younger children may also indicate that older children invested more efforts and self-related means in friendship relationships. Taken together, these findings are in line assumption that friendships represent a developmental task at these ages (Havighurst, 1972) and that such tasks are rather challenging for children (e.g., Silbereisen & Eyferth, 1986; van Lieshout, van Aken, & van Seyen, 1990). Moreover, the findings showed that both children's own and their friends' views of Intimacy were higher at older ages compared to younger ages which replicated previous findings showing that intimate exchanges increase with age (for a review see, Rubin et al., 1998). Hence, the findings provide some support for Sullivan's (1953) proposition that in preadolescence

friendships gain in importance because the need for interpersonal intimacy gains in importance at this developmental period (see Theory Chapter 2.1.1.1).

#### 5.1.1.9 Implications of the Results of the Preparatory Cross-sectional Analyses for the Main Analyses

The findings of the cross-sectional age comparisons have implications for the interpretation of the main analyses. Firstly, beliefs and action strategies could be represented in a more parsimonious manner by their higher-order structures. Secondly, beliefs, action strategies, and friendship outcomes evinced patterns of salient and nonsalient relationships. Thirdly, children increasingly recognized that self-related means and Direct Action are adaptive while external means, Action Omission, and Seeking Help are maladaptive means for friendships. Moreover, both Goal Difficulty and means-ends beliefs target at children's perceptions of contingencies provided by the social context while agency beliefs represent children's perceptions of their competence. Children's capacities to differentiate among these belief types was present across the entire developmental period, although, the degree of differentiation between agency and means-ends beliefs was only low. For the interpretation regarding motivational differences across groups of friended and friendless children it should be kept in mind that the centrality of friendships in children's lives even increased with age.

#### 5.1.2 Does Children's Sociometric Status Moderate the Relationships among Perceived Control, Action Strategies, and Friendship Outcomes (i.e., Self-rated and Friend-rated Friendship Quality, and Number of Mutual Friendships)?

The findings of the present study replicated previous finding showing that children's sociometric status is related to friendship participation (e.g., Brendgen et al., 2000; see Theory Chapter 2.4.3). More specifically, only about half (65%) of the group of rejected children had, at least, one mutual friendship (e.g., Uhlenhorff & Krappmann, 1999). In contrast, only about 14 percent of the children of the average group nominated friends who did not reciprocate the friendship nomination. Moreover, only two children (2%) of the popular group did not succeed to establish a single mutual friendship. As a consequence, only friended popular children were investigated while in the case of average and rejected children groups of friended and friendless children could be investigated as separate groups. Thus, mean-level comparisons and comparisons of the correlational patterns of beliefs, action

strategies, and own views of friendship quality could be conducted across five groups of children: friended-popular children, friended-average children, friended-rejected children, friendless-average children, and friendless-rejected children.

Moreover, the study replicated previous findings showing that during middle childhood and preadolescence the majority of friendships are maintained with children of the same sex (e.g., Krappmann et al. 1993; see Theory Chapter 2.4.2.6). Only about 6 percent of the nominated friendships were with children of the opposite sex. Therefore, regarding the comparisons across friended and friendless children, effects due to the friends' opposite sex can be expected to be negligible. Finally, none of the mutual friendships involved a relationship with a friend of the opposite sex. As a consequence, children's own and their friends' views of their mutual friendships referred to same-sex relationships only.

#### 5.1.2.1 Do Friended-Rejected Children Overestimate their Control whereas Friendless Children have Low Perceptions of Control?

Based on (a) the action-theory model of psychological control which posits reciprocal relationships among perceived control, action, and action outcomes, and (b) previous findings showing that friendless children perceive their unilateral friendships as being less intimate than children who participate in mutual friendships (see Newcomb & Bagwell, 1995; Krappmann, et al. 1993) I hypothesized the following relationships:

Friendless children who have low perceptions of the quality of their friendships also have low feelings of control. Consequently, they seek out help and behave passively when confronted with problematic friendship situations. In turn, because both strategies are inefficient for friendships, unsolved friendship problems negatively feed back on both evaluations of friendship quality and perceived control. In contrast, friended children who evaluate their friendships to be of high quality also feel in control. Consequently, they act confidently and directly on problems in their friendships which, in turn, positively affects both evaluation of friendship quality and perceived control. Moreover, children with high perceptions of control should be less prone to seek out help or behave passively when confronted with problematic friendship situations compared to children with low perceptions of perceived control.

Hence, I assumed that friendless children differ in the mean levels of perceived control, action strategies, and own views of friendship quality compared to friended children. In contrast, I hypothesized that the relationships of these measures are invariant across groups of friended and friendless children. Based on the action-theory model of psychological control (e.g., Skinner, 1995) I assumed that the underlying self-regulatory processes and the functioning of perceived control are similar for all children. As detailed below, the findings of the present study provided only weak evidence for these assumptions.

Moreover, based on (a) the hypothesized relationships among perceived control and own views of friendship quality and (b) previous findings showing that friended-rejected children perceive the quality of their mutual friendships (e.g., Brendgen et al., 2000) and competence-related aspects of perceived control equally positive as popular and average children (e.g., Patterson et al., 1990), I hypothesized that for friended-rejected children the mean levels of own views of friendship quality, perceived control and action strategies would not be affected by their sociometric status.

5.1.2.1.1 Mean levels of children's own views of friendship quality. The present findings replicated previous findings showing that friendless children perceive their unilateral friendships as being less intimate than children who participate in mutual friendships (see Newcomb & Bagwell, 1995; Krappmann, et al. 1993). However, previous studies did not control for sociometric status. The present findings showed that only friendless-rejected children's views of intimate exchange in their unilateral friendships were lower compared to the groups of friended children. Based on this finding it was reasonable to expect that the hypothesized differences in perceived control and action strategies would evince only for this group. In contrast, friendless-average children's views of Intimacy were as positive as friended-average and friended-rejected children's views of both their unilateral and their mutual friendships. These findings suggest that friendless-average children's views of friendships were even more positively biased than friended-rejected children's views (see below) given that the previous children did not have mutual friendships while the latter children did.

The present findings shed some additional light on the somewhat inconsistent findings regarding children's own views of friendship quality across the sociometric groups of

popular, average, and rejected groups (see Theory Chapter 2.4.3.3). Popular, average, and rejected children's views of positive and negative aspects of their *mutual* friendships were found to be equal. In contrast, friended-average children's views of positive aspects of their friendships were lower compared to popular children's views of this aspect of friendship quality if both mutual and unilateral (i.e., not reciprocated friendship nominations) were included. Due to the fact that for the large group of average children the total number of unilateral friendships was larger compared to the remaining groups, this finding is in line with previous findings showing that children whose friendship nominations were not reciprocated perceived these unilateral friendships less intimate than children whose friendships were reciprocated (see Newcomb & Bagwell, 1995; Krappmann et al., 1993).

Finally, children's own views of Conflict did not differ across sociometric groups of friended and friendless children. This finding is in line with previous findings showing that friends engage in about the same amount of Conflict as pairs of nonfriends (e.g., Laursen, et al., 1996). Moreover, this finding replicates previous findings showing that friended children's own views of Conflict did not differ across sociometric status groups (Brendgen, et al. 2000).

5.1.2.1.2 Mean levels of the friends' views of friendship quality. A major assumption of the present study was that that popular children act under higher objective conditions of control than average children, while rejected children act under lower conditions of control than average children. Based on previous findings showing that sociometric status is related to children's competence (e.g., Crick & Dodge, 1994) and contingencies provided by the peers (e.g., Hymel, et al., 1990) I proposed that children's sociometric status is a proxy variable of objective control conditions. Previous findings suggest that these differences are reflected in differences in the friends' views of friendship quality. The present study replicated previous findings showing that rejected children's friends' views of Conflict were higher compared to popular and average children's friends and rejected children's own views of this friendship aspect (Brendgen et al., 2000; Rose & Asher, 1999).

However, the present findings showed that only older rejected children's friends evaluated friendship interactions more negatively compared to both popular and average children's friends and the rejected children themselves. The present findings suggest that

inconsistencies in previous findings regarding the friends' views of Intimacy across sociometric groups may be accounted for by differences in both the operationalization of Intimacy across studies (see Theory Chapter 2.4.3.3). With its focus on action and in order to avoid a possible confound with sociometric status, the present study used perceptions of mutual friendship interactions as operationalization of Intimacy but not evaluations of mutual liking. A previous study, which employed a measure of Intimacy that encompassed both mutual friendship interactions and mutual liking, found differences in rejected children's own views and their friend's views of Intimacy already at earlier ages (Brendgen et al., 2000). This finding is in line with the present finding that already at younger ages rejected children's friends' reported lower levels of mutual liking compared to the rejected children themselves.

However, contrary to previous findings (Brendgen et al., 2000) popular children's friends did not evaluate friendship quality more positively compared to average children's friends. Thus, the friends' views of friendship quality did not reflect the assumed differences in objective control across popular and average children. In contrast, the findings that (a) popular and average children did not differ in their friendship evaluations, and (b) popular and average children's friends' friendship evaluations did not differ from the children's own evaluations suggested that the differences in objective control conditions are rather small. Given that children base their perceived control on their perceptions action outcomes, based on the high degree of correspondence of children's own and their friends' evaluations of friendships it could be expected that for both popular and average children, perceived control and objective control conditions correspond to a rather high degree. As discussed below, moderating effects of sociometric status were assumed to be a function of the degree of mismatch of perceived control and objective control conditions. As a consequence, it was less likely that the relationships of perceived control, action strategies, and friend-rated friendship quality would be conditioned by popular vs. average sociometric status.

Moreover, based on the findings that rejected children's friends evaluated friendship interactions more negatively compared to accepted children's friends and the rejected children themselves, although regarding Intimacy this was only the case for older children, it was likely that the relationships of perceived control, action strategies, and friend-rated



friendship quality would be conditioned by rejected vs. accepted (i.e., popular and average) sociometric status.

5.1.2.1.3 Mean levels of perceived control and action strategies. The findings showed that the sociometric groups of friended and friendless children did not differ in the mean levels of agency beliefs, self-rated means-ends beliefs, and action strategies. Mean-level differences were found in external means-ends beliefs and Goal Difficulty, although and contrary to the hypotheses, they were not associated with friendship participation. The differences in mean levels evinced across sociometric groups but not across friended and friendless children with a single exception. The finding that friendless-average children had higher means-ends beliefs about Adults compared to the remaining groups of children, was the single finding in support of the hypothesis that friendless children have lower perceptions of control . Thus, support of the assumption that low perceived control is associated with failure to participate in mutual friendships was limited to only one of the two friendless groups.

The findings suggested that external means-ends beliefs and Goal Difficulty reflected differences in objective control conditions. Popular children had lower external (i.e. Luck and Adults) means-ends beliefs compared to the remaining groups of children. Thus, popular children's external means-ends beliefs were in accordance to the high level of objective control conditions which is assumed to be related to this sociometric status. Another possible explanation for this finding can be derived on the basis of the above discussed finding that older children had lower levels of external means-ends beliefs. Popular children's reasoning about control may be more mature compared to the remaining groups of children.

However, the finding that difficulty perceptions decreased with increasing popularity provides additional support for the assumption that differences in contingency beliefs (i.e., means-ends beliefs and Goal Difficulty) reflected differences in objective control conditions and not differences in cognitive maturity. Specifically, popular children evaluated the attainment of friendship goals to be less difficult compared to both groups of average children. Moreover, both groups of rejected children perceived goal attainment more difficult as average children. Against the assumption that the differences in difficulty perceptions reflect differences in cognitive maturity speaks the finding that older children had higher

perceptions of Goal Difficulty than younger children (see Section 4.1.2 and Appendix G). Thus, differences in children's perceptions of contingency (i.e., external means-ends beliefs and Goal Difficulty, see Theory Chapters 2.2.1.2 and 2.2.1.6) in the domain of friendship were associated with sociometric status.

The finding that beliefs about contingencies differed across sociometric groups while beliefs about competence (i.e., agency beliefs) did not is in line with Skinner et al.'s (1998) findings showing that beliefs about contingencies are more mutable compared to beliefs about competence in the academic domain (see Theory Chapter 2.2.1.8). The authors propose that children, generally, are motivated to preserve high feelings of control and positive views of the self. As a consequence, children are more likely to change perceptions of contingencies provided by the social context than to adjust perceptions of own capacities. These assumptions are further supported by the finding that withdrawn children, who represent a large part of the group of friendless-rejected children, endorse both problem-solving strategies and self-efficacy to enact these strategies as highly as children who subsequently actually implemented this strategy while the withdrawn children behave passively (Erdley & Asher, 1993).

In fact, preserving positive views of own capacities may be even easier in the domain of friendship compared to the academic domain. Generally, while the academic domain is highly structured by adult intervention this is much less the case in the friendship domain (e.g., Skinner, 1995; see Theory Chapter 2.2.1.9). For example, adults provide less translations of action-outcome contingencies in the friendship domain compared to the academic domain. It may be that in the school domain children are "forced" to adjust their agency beliefs by adults' feedback while in the friendship domain this influence, generally, is lacking. As a consequence, the accuracy of perceived control and, in particular, of agency beliefs is rather low in the friendship domain.

An alternative explanation for the finding of a general lack of mean-level differences in perceived control across groups of friended and friendless children could be that friendless children had friendship experiences outside the school context which may have had a compensatory effect on their perceived control. In particular, this explanation could apply for friendless-rejected children who, on the one hand, reported high agency beliefs and, on the

other hand, reported low friendship Intimacy in school friendships. Hence, their high agency beliefs may have been based on mutual and intimate friendships with children who did not attend the same school. Indeed previous findings show that rejected children name more friends outside school than accepted children (e.g., George & Hartmann, 1997; Uhlendorff & Krappmann, 1999). However, the fact, that the study was conducted in primary schools which usually are attended by nearly all children living in a neighborhood may to a large extent rule out that this explanation applies. During middle childhood children typically are friended with with peers from the same school or neighborhood (Furman & Bierman, 1983; Spurgeon, Hicks, & Terry, 1983).

#### 5.1.2.2 Perceived Control and Action Strategies are uncorrelated with the Number of Mutual Friendships

The findings regarding the relationships of perceived control, action strategies, and the number of mutual friendships across sociometric groups replicated the finding of the, above discussed, mean-level comparisons which indicated a general lack thereof. When partialling the effects of sociometric status the relationships of both external means-ends beliefs and Goal Difficulty and the number of mutual friendships were unreliable with a single exception. In the popular group Goal Difficulty was negatively related to the number of mutual friendships, although this correlation was only marginally significantly different from the unreliable correlations which evinced across the rejected and average group.

The finding that sociometric status is the major predictor of both contingency beliefs and the number of friendships replicated in the cross-sectional age-group comparisons. Goal Difficulty and external means-ends beliefs were significantly and negatively correlated with the number of mutual friendships across age groups. After controlling for the effects of sociometric status these relationships dropped to nonsignificant levels.

As a consequence, the hypothesis that low perceived control has a detrimental effect on the number of mutual friendships which is enhanced by a rejected sociometric status was empirically not supported. However, (a) the finding of a higher mean level in means-ends beliefs about Adults in the group of friendless-average children, and (b) the finding of a negative relationship between Goal Difficulty and the number of mutual friendships in the

popular group provided some evidence for the hypothesis that children who have low feelings of control have lower numbers of mutual friendships or even are friendless.

Moreover, the findings of a negative relationship between Goal Difficulty and the number of mutual friendships in the popular group and unreliable relationships across both the average and rejected groups did not support the hypothesized moderating effect of sociometric status. The relationship of Goal Difficulty and the number of mutual friendships was predicted to be lower for popular children compared to both average and rejected children. The peers' tendencies to interpret popular children's actions more positively than other children's actions was assumed to attenuate the negative impact of low control for popular children to a higher degree compared to less popular children.

This finding suggests that popular children whose feelings of control underestimated objective control conditions for having friendships had lower numbers of mutual friendships. In contrast for average and rejected children, objective control conditions (i.e., sociometric status) were the main predictor for the number of mutual friendships while the degree of overestimation of their perceived control did not influence their success to establish mutual friendships. Importantly, differences in variability of the number of mutual friendships did not affect the present results. Specifically, although the variance of this measure was larger for the average group, the variances were equal across the popular and rejected group.

Finally, low statistical power can reconcile the contradictory findings that friendless-average children had significantly higher means-ends beliefs about Adults while the corresponding relationship of the number of mutual friendships and this means-ends beliefs was not significant for the overall group of average children. The number of average children who did not participate in mutual friendships, presumably, was too small to yield a negative correlation between the number of mutual friendships and means-ends beliefs about Adults which, in addition, was significantly higher when compared to the corresponding relationships across the groups of rejected and popular children.

In sum, the findings did not provide support for the assumption that rejected children who have illusory high perceptions of control succeed in participating in mutual friendships while rejected children who have low and, presumably more realistic, perceptions of control would fail to establish mutual friendships. However, the finding that average children who

had high means-ends beliefs about Adults failed to participate in mutual friendships provided support that low perceptions of control have a negative impact on friendship participation even if objective control can be assumed to be rather high. This assumption is further supported by the finding that popular children who had high perceptions of Goal Difficulty had lower numbers of mutual friendships. However, it appears that sociometric status represented the major predictor of both low perceptions of control and a higher likelihood to fail to participate in mutual friendships. This finding supports the notion that sociometric status represents a developmental context for children's friendship experiences (e.g., Bukowski et al., 1996).

#### 5.1.2.3 Correlations of Agency Beliefs, Direct Action, and Children's Own Views of Friendship Quality are Invariant Across Sociometric Groups of Friended and Friendless Children

In general, the correlational patterns of dimensions of agency beliefs, action strategies, and children's own views of friendship quality were equal across sociometric groups of friended and friendless children. This finding provides support for the assumption that the functioning of these constituents of action regulation is similar for all children. Consistent with the findings of the cross-sectional age comparisons, patterns of salient and nonsalient correlations among agency beliefs, strategies, and friendship outcomes evinced.

More specifically, agency beliefs about Self evinced the strongest relationships with Direct Action followed by agency beliefs about Luck and Adults. In line with the low degree of differentiation between belief types, means-ends beliefs evinced a similar pattern of relationship with this strategy, although children's beliefs about the usefulness of adults' help was unrelated to their problem-solving attempts. Importantly, when controlling for agency beliefs about Self, the relationship of means-ends beliefs about Self and Direct Action dropped to nonsignificant levels. Similarly, when controlling for agency beliefs about Self, the relationships of agency beliefs about Luck and Adults were unreliable. Thus, agency beliefs about Self were the strongest predictor of children's active problem-solving.

#### 5.1.2.4 Correlations of Contingency Beliefs, Action Omission, Seeking Help, and Children's Own Views of Friendship Quality are Moderated by Sociometric Status and Friendship Participation

The patterns of salient and nonsalient relationships showed that external means-ends beliefs were more highly related to Action Omission than the remaining beliefs. In support of the proposition that the multiplicative effect of agency and means-ends beliefs is larger than their simple or even their additive effect (e.g., Skinner, 1995; Weisz, 1983), these beliefs interacted in the prediction of Action Omission. For children who believed that they lack access to luck, high beliefs about the usefulness of luck were related to passive behaviors. In contrast, for children who believed that they have access to luck, high beliefs about the usefulness of luck were not very likely to result in passive behaviors. Finally, each of the agency and means-ends beliefs dimensions were about equally highly correlated with help-seeking behaviors.

However, unexpected differences in the correlational patterns of salient and nonsalient relationships evinced among contingency beliefs (i.e., means-ends beliefs and Goal Difficulty), Action Omission, Seeking Help, and self-rated friendship quality across groups of children who are socially maladjusted (i.e., friendless-average, friendless-rejected, and friended-rejected children) and children who are socially well-adjusted (i.e., popular and friended-average children).

The assumption that, at least, some of these interactive effects are meaningful is supported by (a) the finding that the number of correlations which were significantly different from the corresponding correlations across the remaining groups exceeded the number of correlations that would be expected to differ by chance on the specified alpha level, (b) the likelihood of chance-related significant results was reduced by the conducted multivariate tests, (c) the effect sizes of the evinced cross-group differences in correlations were rather large, and (d) the largest number of interactive effects evinced for the small group of friendless-rejected children. The latter is remarkable because the statistical power to detect significant differences is rather low for small groups. Moreover, the finding that these interactive effects mainly involved contingency beliefs shows that they were systematic. This argument is strengthened by the finding that the majority of the children differentiated only to

a low degree between agency and means-ends beliefs. As discussed below, only friended-rejected children differentiated to a high degree between belief types. Before providing some tentative interpretations of the unexpected findings, I want to pinpoint to the fact that, at least, some of these interactive effects are due to chance cannot be ruled out. Therefore, these findings need to be replicated by future research.

The finding that for each of the socially-maladjusted groups own views of Conflict were positively correlated with self-related means-ends beliefs while this relationship was unreliable for the friended-accepted groups provided evidence for the assumption that many children of the maladjusted groups had low perceptions of control. Frequent failure experiences in friendship interactions, as indicated by high perceptions of Conflict, were related to high beliefs about the usefulness of self-related means. The finding that failure experiences and experiences of noncontingency were related to attributions that self-related means are lacking is in line with assumptions of the action-theory model of psychological control (e.g., Skinner, 1995). However, during middle childhood perceptions of low control are typically associated with external means-ends beliefs.

As described below, only for friended-rejected children means-ends beliefs about Self were also involved in the prediction of both perceptions of Goal Difficulty and action strategies which demand low amounts of own competence (i.e., Action Omission and Seeking Help). In contrast, for friendless children there was a switch from the attribution that self-related means and competence are needed for good friendships to the belief that adults' help is necessary to attain friendship goals. For friendless children means-ends beliefs about Adults were related to the employment of help-seeking and passive behaviors.

One can speculate that this switch from beliefs about the self to beliefs about Adults may represent a self-protective mechanism. However, it appears that a strong belief in the usefulness of adults' help, which objectively represents a rather inefficient means for friendships, was related to children's failure to participate in mutual friendships. In contrast, rejected children who believed strongly in the usefulness of self-related beliefs which objectively represents a rather effective means for having friendships succeeded in participating in mutual friendships.

Thus, the findings suggest that contingency beliefs influenced whether children acted on their competence beliefs or not. Rejected children who believed that friendship outcomes are contingent on own competence acted on their illusory-high beliefs about competence. As a result, they succeeded in participating in mutual friendships. In contrast, both rejected and average children who strongly believed in the usefulness of adults' support didn't test the validity of their competence beliefs by employing active problem-solving strategies. Instead, they relied on ineffective action strategies which afford low amounts of own competence. As a consequence, they failed to participate in mutual friendships.

5.1.2.4.1 Moderating effects: friendless-rejected children. For friendless-rejected children, the finding that each dimension of means-ends beliefs was highly related to perceptions of Goal Difficulty indicates that the more they believed that they need a large amount of each action means the less they felt in control. The meaning of these findings is emphasized by the finding that rejected children had higher perceptions of Goal Difficulty compared to the remaining groups of children. However, only Goal Difficulty and means-ends beliefs about Adults were related to heightened tendencies to omit action when confronted with friendship problems. Moreover, in difficult friendship situations friendless-rejected children who had high means-ends beliefs about Adults also tended to seek help. Thus, the patterns of relationships among Goal Difficulty, agency and means-ends beliefs, and action strategies suggest that many friendless-rejected children felt low in control, although on a group level this assumption was only supported by a higher mean level of Goal Difficulty when compared to friended-accepted (i.e., popular and average) children.

For friendless-rejected children a set of findings provided evidence that they considered social support to be a useful action means in the domain of friendship. Specifically, the finding of a strong and positive relationship between Seeking Help and self-rated Intimacy suggests that they considered this action strategy to be an effective means for having good friendships. Against the interpretation that they perceived friendships as a source of help speaks that they perceived the friendships to be low in quality. In a similar vein, the positive and high relationship between agency beliefs about Adults and self-rated Intimacy suggests that they considered the employment of adults' help to result in positive friendship outcomes. Similarly, the finding of a positive correlation of agency beliefs about Adults and self-rated



Conflict may reflect that employing adults' help resulted in increased amounts of perceived Conflict in their unilateral friendships. The alternative interpretation of this correlation, that high conflict perceptions increased friendless-rejected children's perceptions of having access to adults' help appears less compelling.

Generally, there are two alternative explanations why friendless-rejected children believed in the usefulness of social support. Firstly, the hypothesis that friendless-rejected children were lagging in social-cognitive skills relative to their peers (Garber, 1984) may explain why these children felt dependent on others' support. Secondly, it can be hypothesized that friendless-rejected children used adults' help in order to compensate for low perceptions of personal control as indicated by (a) high difficulty perceptions and (b) the high relationship between conflict and self-related means-ends beliefs.

The finding that for friendless-rejected children agency beliefs about Luck and Self were more highly correlated compared to the remaining groups provides evidence for both explanations. Given these children recognized that luck is rather uncontrollable this finding suggests that they perceived self-related capacities as being similarly uncontrollable as luck. In this case, the finding would provide further evidence that these children had low perceptions of personal control. Another possible explanation for this finding would be that they lacked the cognitive capacities to recognize that luck is a rather uncontrollable means. As a consequence, this finding would provide evidence for the hypothesis that these children were lagging in the social-cognitive skills relative to their peers.

However, the finding that friendless-rejected children differentiated more between belief types regarding agency and means-ends beliefs about Self and Luck than the remaining groups provides evidence against the developmental-lag hypothesis. These findings indicate that friendless-rejected children were highly aware about the difference between having these means *available* and *needing* these means for having good friendships. The high degree of independence among agency and means-ends beliefs about these means may be due to frequent failure experiences when attempting to make friends (see Theory Chapter 2.2.1.7). Frequent failure experiences may be the consequence of rejected peer-status. Thus, the high degree of differentiation of belief types may indicate that friendless-rejected children had even more mature perceptions of control than the remaining groups of children, although this

was not the case for beliefs about Adults. Agency and means-ends beliefs about Adults were as highly associated for this group as for the remaining groups.

Finally, the positive relationships of both means-ends beliefs about Self and Luck and self-rated Intimacy are puzzling. A possible explanation is that friended-rejected children perceived their friendships to be relatively intimate under the circumstance that in order to have really intimate friendships a lot of these action means would be necessary. This interpretation would be in line with the assumption that individuals evaluate outcomes more positively if they are difficult to attain (e.g., Heckhausen, 1991). This interpretation may also apply for the finding of a positive relationship of Goal Difficulty and self-rated Intimacy across sociometric groups of friended and friendless children, with the exception of a nonsignificant relationship between these constructs in the friendless-average group.

5.1.2.4.2 Moderating effects: friendless-average children. The assumption that for the group of friendless-accepted children means-ends beliefs about Adults were the central indicators of low feelings of control is supported by the finding that they had higher levels of these beliefs compared to the remaining children. Moreover, these beliefs were equally highly and positively correlated with perceptions of Goal Difficulty as for the group of friendless-rejected children. In turn, both beliefs were highly related to help seeking behaviors in challenging friendship situations. Both Seeking Help and Action Omission were negatively related to lower views of Intimacy. These findings suggest that friendless-average children expected that implementing these strategies results in negative friendship outcomes. The finding that means-ends beliefs about Adults only was correlated with Seeking Help but not with Action Omission may indicate that friendless-average children more frequently implemented Seeking Help than Action Omission. Taken together, these findings suggest that friendless-average children perceived adults' help and social support as rather inefficient action means in the domain of friendship which they implemented because they felt low in control. Given that Seeking Help, in fact, represents a rather inefficient means for successful friendship actions this may explain why they failed to establish mutual friendship relationships.

The finding that the positive association between Direct Action and own views of Intimacy was stronger compared to the remaining groups of children indicates that friendless-

average children expected that active problem-solving have a strong and positive impact on friendships. This may be related to the finding that they perceived the quality of their friendships equally positive as friended children. Moreover, the findings suggest that their low feelings of control were unrelated to their positive views of friendship quality. Specifically, none of the dimensions of perceived control was related to their views of friendship quality. As discussed above, the single exception was the positive correlation of self-related means-ends own views of Conflict. Taken together, these findings suggest that friendless-average children had positively biased views of their friendships which, generally, were unrelated to their low feelings of control.

5.1.2.4.3 Moderating effects: friended-rejected children. For the group of friended-rejected children means-ends beliefs about Self were the central indicators of low feelings of control. Specifically, these beliefs were more positively related to perceptions of Goal Difficulty when compared to the remaining groups of children. As it was the case for friendless-rejected children, the importance of this finding is emphasized by the finding that rejected children had higher perceptions of Goal Difficulty than the remaining groups of children. Moreover, both means-ends beliefs about Self and Goal Difficulty were more highly associated with both types of maladaptive action strategies (i.e., Seeking Help and Action Omission) compared to the remaining groups of children.

Importantly, for the friended-rejected group when controlling for the effects of the corresponding agency beliefs, the relationship of means-ends beliefs about Self and Action Omission remained significant. Moreover, when controlling for the effects of the corresponding means-ends beliefs, for this group the partial relationship of agency beliefs about Self and Action Omission was reliably and negatively directed. Thus, the residual variance of means-ends beliefs about Self which can be interpreted as representing the difference between agency and means-ends beliefs about this means was related to passive behaviors. If friended-rejected children felt that they would need more self-related means than they had available in order to solve friendship problems, then, they tended to omit action. In contrast, they did not omit action if they felt that they have more self-related means available than they needed. These findings are in line with Heider's (1958; see Theory Chapter 2.2.1.8)

proposition that the subtractive relationship of personal competence and contingencies provided by the environment result in the subjective experience of personal control.

In general, these findings shed additional light on the notion that the aggressive subgroup of rejected children overestimate their social competencies (e.g., Erdley & Asher, 1996). The aggressive subgroup may have a large overlap with the group of friended-rejected children because this subgroup of rejected children tends to have relationships (e.g., Cairns & Cairns, 1991; Zakriski et al., 1997). On the one hand, the findings supported that friended-rejected children's agency beliefs did not differ from friended-accepted children's agency beliefs in terms of both mean levels and relationships with action strategies and own views of friendships. However, the present findings suggest that friendless and nonaggressive groups of children also have positively biased competence beliefs. On the other hand, their contingency beliefs (i.e., means-ends beliefs and Goal Difficulty) differed from friended-accepted children's contingency beliefs in terms of relationships with both action strategies and own views of friendships. The finding that they perceived the goal of having friends more difficult than accepted children provides further evidence that these children were aware that the friends' responses were not necessarily contingent to their actions.

Previous studies employing measures of children's perceptions of contingencies such as locus of control consistently also provide evidence of both concurrent and longitudinal relationships of these measures with popularity, aggression, and peer interaction (e.g., Ferrer & Krantz, 1987; see Theory Chapter 2.4.4.2), although none of these studies has measured children's contingency perception in the domain of friendship. On a more methodological level, the present findings provide evidence for the usefulness of employing rather comprehensive measures of children's perceived control in the domain of friendship.

How, then, it is to explain that rejected children who have high means-ends beliefs about Self have mutual friendships? The finding that means-ends beliefs about Self was the major indicator of low feelings of control indicates that friended-rejected children perceived self-related means as being most useful for friendship actions. As a consequence, they may prefer to implement self-related means and Direct Action as a highly related problem-solving strategy unless they perceive a situation as being too demanding. For example, during friendship interactions they may employ Direct Action until failure experiences accumulate

to a certain amount. Then, they may switch to less adaptive strategies such as Seeking Help and Action Omission. Thus, these children may be highly active when it comes to establish friendships and, therefore, they may have succeeded to participate in mutual friendships.

Taken together, on the one hand, the findings provide support for the assumption that the functioning of competence beliefs on action regulation is similar for all children. On the other hand, systematic differences in the correlational patterns of Goal Difficulty and means-ends beliefs about Adults, action strategies, and children's own perceptions of friendship quality for the groups of friendless children when compared to friended-accepted children indicated that their lack of mutual friendships may be related to their feelings of control. Similar patterns of relationships were found for friended-rejected children. Importantly, for this group the patterns of relationships differed regarding the involved dimension of means-ends beliefs. Specifically, for friended-rejected children means-ends beliefs about Self were involved instead of means-ends beliefs about Adults. Although the present study cannot explain the specific mechanisms involved, these findings may explain the differences in success or failure of participating in mutual friendship relationships.

#### 5.1.2.5 Correlations of Perceived Control, Action Strategies, and Friend-rated Friendship Quality are Moderated by Sociometric Status

The findings, generally, provided support for the hypothesized moderating effects of sociometric status on the relationships of perceived control, action strategies, and friend-rated friendship quality. Thus, the findings supported the assumption that differences in the correspondence of perceived control and objective control affect the relationships of perceived control and friendships. Moreover, in line with the above described patterns of salient and nonsalient relationships among perceived control and action strategies, the findings suggest that the effects of agency beliefs were mediated by Direct Action while the effects of means-ends beliefs were mediated by Action Omission.

As discussed above, the friends' views of friendship quality reflected differences in objective control conditions across sociometric status. The present findings replicated previous findings (e.g., Brendgen et al., 2000) showing that rejected children's friends' views of friendship quality were less positive than rejected children's own views of their friendships and accepted children's friends' views of friendship quality. Thus, rejected children

overestimated the quality of their friendships. In relation to the latter finding, the present findings provided support for the assumption that friended-rejected children overestimate objective control conditions. This was indicated by the finding that rejected children's perceived control and action strategies were equally high as accepted children's perceived control and action strategies.

Moreover, as discussed above, based on the findings that the friends' views of friendship quality did not differ across the groups of popular and average children, moderating effects of sociometric status on the relationships of perceived control, action strategies, and friend-rated friendship quality could not be expected. In fact, the findings showed that the correlations of perceived control, action strategies, and friend-rated friendship quality did not differ across these groups of accepted children with two exceptions. In each case, the exceptions indicated that popular children act under higher conditions of control compared to average children.

5.1.2.5.1 Moderating effects: Popular and average children. Specifically, popular children's attempts to directly solve problematic friendship situations were related to lower friend-rated Conflict while average children's direct problem-solving attempts were unrelated to their friends' views of Conflict. This finding is in line with the assumption that compared to average children for popular children objective and perceived control correspond to a higher degree. Hence, popular children's actions are more likely to succeed and, thus, may affect the friends' perceptions of friendship quality more positively.

Moreover, the finding that Goal Difficulty and friend-rated Conflict were uncorrelated in the popular group while they were invariantly and positively correlated across the average and rejected groups also indicates that average children act under lower conditions of objective control compared to popular children. This finding was line with the assumption that the strength of negative relationships of contingency beliefs such as Goal Difficulty on the friends' views of friendship quality are inversely related to sociometric status. Unexpectedly, this correlation was invariant across the average and the rejected group. However, this was the single finding suggesting that objective control conditions may be equal across the latter two groups.

For both accepted groups the findings supported the hypothesis that agency beliefs and direct problem-solving attempts were related to positive views of Intimacy by their friends. Thereby, as expected, self-related agency beliefs and direct problem-solving evinced higher relationships with friend-rated Intimacy compared to agency beliefs about Adults. In contrast, agency beliefs about Luck were unrelated to the friends' views of friendship quality. Thus, given that for these groups perceived control overestimated objective control conditions to a lower degree compared to rejected children, their direct problem-solving attempts were less likely to fail and, thus, action failure may have affected the friends' perceptions of friendship quality less systematically. In contrast, due to both their social competence (e.g., Crick & Dodge, 1994) and the friends' positive interpretational biases (e.g., Hymel, et al., 1990) their direct problem-solving attempts were likely to succeed and, thus, they were positively related to the friends' perceptions of friendship quality.

Moreover, the findings regarding the multivariate relationships of perceived control, action strategies, and friends' views of friendship quality provided some evidence that Direct Action mediated the relationships of agency beliefs and friend-rated friendship quality in the group of popular children. However, a longitudinal design would have been required to test the mediating role of action strategies (Baltes et al., 1988; Baron & Kenny, 1986). In contrast, for average children agency beliefs were more highly related to the friends' views of friendship than this action strategy. Regarding the latter finding, differences in the operationalization of beliefs and strategies may provide a possible explanation for the higher relationship of agency beliefs and friend-rated friendship quality compared to the relationship of Direct Action. Beliefs were operationalized to encompass both typical and difficult friendship situations while strategies were operationalized to encompass only difficult situations. Thus, differences in the scope of situations may explain why agency beliefs can be stronger predictors than strategies.

Similarly, the findings showed that accepted children's means-ends beliefs about Self were positively related to the friends' views of Intimacy and negatively related to the friends' views of Conflict. However, when controlling for the effects of agency beliefs about Self these relationships dropped to nonsignificant levels. Thus, these relationships were due to the low degree of differentiation between agency and means-ends beliefs.

5.1.2.5.2 Moderating effects: Rejected children. The finding that rejected children's problem-solving attempts were negatively related to the friends' views of Intimacy and positively related to the friends' views of Conflict provided support for the hypothesized effect of a low degree of correspondence of objective control and perceived control. More specifically, the findings supported the assumption that the more rejected children's perceived control is higher than their objective control, the more they feel encouraged to engage in direct problem-solving attempts when confronted with problematic friendship situations. However, due to both deficits in social competence (e.g., Crick & Dodge, 1994) and the friends' negative interpretational biases (e.g., Hymel, et al., 1990), rejected children's direct problem-solving attempts are likely to fail. In turn, the more often their direct problem-solving attempts fail, the more these action failures may negatively affect the friends' evaluation of friendship quality. Consequently, the higher rejected children's illusory perceived control, the more their problem-solving attempts systematically and negatively affect the friends' evaluation of friendship quality.

Of course, these correlational results can also be interpreted to mean that rejected children employed direct problem-solving in order to counteract their friends' negative evaluations of their friendships. However, this explanation requires that rejected children knew about their friends' negative friendship evaluations. The finding that they themselves regarded their friendships as positively as accepted children did suggests that they did not know about their friends' negative views. This assumption is further supported by the fact, that the employed measure of friendship quality assessed the children's views of mutual friendship interactions. The operationalization of Intimacy encompassed the children's views of both own and the friends' intimate friendship actions.

However, rejected children's agency beliefs were unrelated to their friends' views of friendship quality. The finding of a lack of relationships among these measures of perceived control and the friends' views of friendships is in line with the assumption that the effects of perceived control are mediated through action. As a consequence, the indirect effects of agency beliefs can be assumed to be lower than the direct effects of problem-solving attempts. Hence, rejected children's agency beliefs about Self were through Direct Action indirectly and negatively related to their friends' views of friendship quality.



While accepted children's help-seeking behaviors and tendencies to omit action were unrelated to their friends' views of both positive and negative aspects of friendship for rejected children these strategies were related to increased perceptions of Conflict of their friends. Thereby, Action Omission was more strongly related to the friends' views of Conflict than Seeking Help. Moreover, the assumption that the positive relationship of rejected children's means-ends beliefs about Self and friend-rated Conflict is mediated by their tendencies to omit action was supported in terms of differential strengths of the concurrent relationships.

Generally, rejected children's negative reputation and their deficits in social competence may have enhanced the negative relationships of these action strategies and the friends' evaluations of friendship quality. In contrast, the friends' tendencies to positively interpret accepted children's action strategies may have attenuated the negative relationships of both Seeking Help and Action Omission and friend-rated friendship quality. In addition, accepted children's social competence further may have attenuated these negative relationships because they may have used them in appropriate situations.

Generally, rejected children's perceptions of Goal Difficulty evinced similar patterns of relationships with both action strategies and the friends' views of Conflict as means-ends beliefs about Self did. However, when controlling for the effects of the latter the relationships of Goal Difficulty, action strategies, and the friends' views of Conflict vanished. Thus, rejected children's beliefs about the usefulness of self-related means was the strongest indicator of low feelings of control.

Moreover, the finding that in the rejected group means-ends beliefs about Luck evinced a positive relationship with friend-rated Intimacy when controlling for the effects of the remaining means-ends beliefs and action strategies suggests that low perceived control can have a positive effect on friendship outcomes. Moreover, the findings suggest that the positive relationship of rejected children's means-ends beliefs about Luck friend-rated Intimacy was, in part, mediated by Action Omission. Before interpreting these unexpected findings, I want to pinpoint to the fact that they need to be replicated in future research. These findings can be interpreted to mean that high means-ends beliefs about Luck may have corresponded to some extent to the objectively low conditions of control. Hence, it appears

that low perceptions of control when they correspond to objective control conditions can have positive effects on outcomes in the domain of friendship. However, these positive effects of low perceived control pale when its negative effects on friendships are considered.

#### 5.1.2.6 Suggestions for Future Research

Generally, it would be important that future studies extend the investigated age range. It may be that with accumulating failure experiences adolescents' perceived control may become more accurate (see Theory Chapter 2.2.1.7). As a consequence, mean-level differences in contingency beliefs may larger across sociometric groups of friended and friendless adolescents. In addition, with age agency beliefs may also increasingly be affected by differential friendship experiences which are related to sociometric status. It is conceivable that friendless children preserved their high agency beliefs by not acting on them. This assumption is supported by the interactive effects of contingency beliefs and both Action Omission and Seeking Help across groups of friended and friendless children which suggest that friendless children may use these strategies more frequently than friended children.

However, for friendless children it may be that over time their passive and help-seeking behaviors take their toll by negatively affecting their beliefs about having own capacities available. On a long run it may be that agency beliefs which are not verified by successful enactments show time-related decreases. Over time, children who never employ specific strategies may increasingly doubt that they can employ these strategies. A possible mechanism underlying such a disuse-effect may be that with age children increasingly realize that specific skills need practice in order to increase and to prevent a decrease of such skills. Thus, children's implicit theories (e.g., Dweck, 1991; Dweck, Chiu, & Hong, 1995; Elliott & Dweck, 1988) whether a specific attribute or skill can be changed by own efforts or is stable may affect agency beliefs. However, in the case of disuse-effects the predictions regarding the effects of children's beliefs about the mutability and fixedness of causes are reversed compared to the predictions regarding children's beliefs about ability.

Generally, future research should examine the longitudinal relationships of perceived control, action strategies, and both children's own as well as their friends' views of friendship quality. Using a longitudinal design research could address the question whether these

constituents of self-regulatory processes are, in fact, reciprocally related in the domain of friendship.

Moreover, it would be important to investigate the relationships of children's perceived control and action strategies under the perspective of short-term time sequences across various typical friendship situations. It has been shown that the quality of behavioral strategies that accepted and nonaccepted children generated in response to hypothetical conflict situations showed initially no difference. Over time and under stress nonaccepted children gave higher percentages of aggressive and inept responses such as adult intervention (Putallaz & Sheppard 1992; see also Richard & Dodge, 1982). It may be that agency beliefs are initially the stronger predictors of children's responses while means-ends beliefs gain in predictive power when difficulties arise. However, the switch regarding the importance of means-ends beliefs in regulating children's action may occur earlier for friendless children compared to friended children. Hence, sociometric groups of friended and friendless children may differ in time-sequential patterns of relationships among agency and means-ends beliefs, and action strategies. Alternatively, it may be that children's perceived control undergoes short-term changes during such experiences which recover shortly thereafter. More specifically, it may be that perceived control of children with problems in peer relationships show stronger and faster time-related decreases in perceived control when confronted with friendship problems than well-adjusted children.

Moreover, it would be of great importance to investigate the relationships of perceived control, *observed* behaviors, and friendship outcomes. I would expect that the relationships of observed behaviors and the number of mutual friendships are stronger compared to children's self-reports of behaviors. The lack of mean-level differences across groups of friended and friendless children indicates that self-reported behaviors may not necessarily reflect what children really do (see, e.g., Erdley & Asher, 1993). Therefore, the relationships of self-reported behaviors and the number of mutual friendships may be attenuated. Moreover, it may be interesting to investigate more fine-grained behavioral strategies. For example, popular and rejected children may subsume rather different behaviors under the more general category of direct problem-attempts.

Similarly, it would be important to investigate children's help-seeking behaviors in more detail. A shortcoming of the present study was that children's general tendencies to seek help was examined. Thus, the employed measure did not differentiate between different kinds of social support such as emotional support and direct intervention that may be provided by various possible sources such as friends, peers, and adults providing help. It may be that the expected mean level differences across friended and friendless children would have been found if children's tendencies to seek for direct intervention provided by adults would have been investigated. However, the findings provided evidence that scrutinizing children's help-seeking behaviors in the domain of friendship is a worthwhile issue for future research. Such research should also address developmental changes of both employment and social acceptance of various types and sources of social support. Finally, it is still an open question whether these developmental changes of social support differ across domains of functioning such as the academic and the friendship domain (see Theory Chapter 2.3.5).

### 5.1.3 Exploratory Analyses of a Possible Mechanism Underlying the Relationship between Perceived Control and Friendship: Do Friendless Children Differ in their Ascribed Importance of Friendships from Friended Children?

The findings showed that across each sociometric group of friended and friendless, children evaluated the goal of having good friendships to be very important. This finding is important because theories of goal striving and the literature on peer relationships propose two alternative explanations of children's failure to establish satisfying and mutual friendships. These explanations are based on the premise that, in addition to perceived control, goal importance determines whether efforts are invested in goal pursuit (e.g., Atkinson, 1964). Given the general lack of mean-level differences in perceived control across friended and friendless children, ruling out the possibility that friendless children evaluate the goal of having friends as rather unimportant for their lives was even more important for the present study. An alternative explanation for the similarity in profiles of perceived control could have been that friendless children felt that they would have the capacities for having good friendships if they wanted to but they simply don't want to have good friends. In a similar vein, the similarity of friendless and friended children's action strategies could have

been interpreted that friendless children reported what they would do if they wanted to engage in attempts to have good friendships.

The finding that Goal Importance evinced high and positive relationships with agency beliefs and, in particular, with the self-related dimension provided support for the assumption that both perceived control and Goal Importance are related to goal selection. Moreover, the patterns of relationships of Goal Importance with both action strategies and friendship outcomes, generally, resembled the corresponding patterns of relationships of agency about Self. Importantly, the finding also suggest that evaluations of the importance of friendship goals and perceived control in this domain have different functional relevance. Specifically, Goal Importance and self-related agency beliefs explained unique variances of action strategies and friend-rated friendship quality.

However, the importance of controlling for the effects of goal importance and commitment may increase when investigating the effects of perceived control at older ages. Decreasing the importance of an unattainable goal is one strategy used to cope with low control conditions (e.g., Heckhausen & Schulz, 1995, see Theory Chapter 2.3.1.1.1). The capacities to employ such a strategy appear to develop in later childhood and adolescence (e.g., Band & Weisz, 1988). In addition, as discussed above, in the domain of friendship it may be that with age differences in perceived control increase across friended and friendless groups of children. As consequence, friendless children may show an age-related increase in the proneness to employ this coping strategy.

## **5.2 Strengths and Limitations of the Present Study**

This section aims at describing the present study's strengths and limitations in a more systematic way and on a more general level than has already been done in the discussion of the main findings. In general, the study can be characterized as field research (Bickman & Henchey, 1972) because participants were assessed in real-life settings (Stroebe, et al., 1992). As such, the study met several criteria of well-designed studies. However, there were also certain caveats which have to be considered when interpreting the present study's findings.

(a) The sample. Both a limitation and a strength of this study is that a cluster sampling approach was employed. On the one hand, children within the schools can't be considered to represent independent observations (see Cronbach, 1976). On the other hand, sampling

within schools provided a rather representative assessment of children's best friendships both within and outside the school context. However, the data were collected in three randomly sampled primary schools. The schools were located in inner-city areas which were comparable regarding social structure. In addition, the finding that there were no systematic differences in children's responses to the instruments across the three school contexts suggests that the schools were also comparable regarding socialization practices. Based on the rather high participation rate of children in the study (77.1%) it can be assumed that the assessed friendships were representative for both children's friendships within school context and, in large parts, for their friendships outside the school context. The latter assumption is supported by the fact, that the participants represent almost the entire child population of the investigated age groups living in the neighborhood around the three schools because in Berlin all children living in a neighborhood usually attend the same primary school. In the investigated age range children become friends with peers from the same school or neighborhood (Furman & Bierman, 1983; Spurgeon et al., 1983).

(b) Identification of sociometric status and participation in mutual friendships. The acceptable high participation rate allowed to reliably classify children according to their sociometric status (Crick & Ladd, 1989) and according to participation in mutual friendships or lack thereof. Importantly, children who did not participate in mutual friendships did not differ in the number of nominated friends who participated in the study from children who participated in mutual friendships.

Children's sociometric status was assessed using a well-established method developed by Coie et al. (1982). The present findings regarding age and gender compositions and the distribution of friends' sociometric status across sociometric groups were similar as reported in previous studies (e.g., Brendgen, et al., 2000) and, thus, supported the reliability of this classification in the present study. Moreover, sociometric-group differences in the number of mutual friendships and peer nominations of aggression were in line with previous findings (e.g., French, 1988) More specifically, the findings supported the assumption that friended-rejected children overlap with the group of aggressive-rejected children which has been frequently investigated in previous studies (e.g., Zakriski et al., 1997). However, the findings did not support the assumption that friendless-rejected children are less aggressive than the

remaining groups of children. The failure to find significant differences regarding this group may be accounted by the heterogeneity of this group regarding their levels of aggression and most importantly, due to the small sample size of this group.

Controlling for the effects of both sociometric status and friendship participation, in fact, represents a further strength of the study. Previous findings are often difficult to interpret because they confound the effects of sociometric status, friendship participation, and friendship quality (c.f., Hartup, 1996b; Newcomb & Bagwell, 1998; see Theory Chapter 2.4.3). Furthermore, the study adds to the scarce research on friendless children by providing first insights whether children's integration into the peer group affects friended and friendless children's profiles of perceived control about friendship, behavioral strategies to cope with problems in friendship relationships, and the relationships of both with children's friendship relationships.

(c) Small effect sizes, small group sizes, and dependencies in the data. Theoretically it was to be expected that the effect sizes are low when investigating hypothesized differences in mean-levels and correlations across both age groups and sociometric groups of friended and friendless children (see Theory Chapter 2.2.1.9). In addition, the comparisons across sociometric groups of friended and friendless children suffered from low sizes of the friended-rejected, friendless-rejected, and friendless-average children. Hence, both small effect sizes and small group sizes affected the statistical power to detect differences. In order to overcome this caveat, I employed mean and covariance structures analyses as a major method. Among other advantages, this method corrects for measurement errors and, thus, provides rather high levels of statistical power for hypothesis testing (see Method Chapter 3.5.1). Its feature to compensate for the differences in reliability was useful when comparing the friends' responses across sociometric groups. Due to the inverse relationship of the number of mutual friendships and sociometric status the reliability of friend-rated friendship quality differed across sociometric groups. The finding that, in general, the mean and covariance structures were similar across the groups provides support that using this method was appropriate, although the sizes of three of the five groups were rather small. Specifically, this was supported by the finding of measurement invariance and the finding of only few differences in the latent correlations across sociometric groups of friended and friendless

children. I took the sensitivity of the  $\chi^2$  likelihood ratio test to model size (see, e.g., Bollen, 1989) into account by including only small numbers of constructs in each model. Other limitations of this method such as its sensitivity regarding multi-collinearity I overcame by using alternative methods such as regression techniques. Finally, having an 'empty cell' such as the lack of a group of friendless-popular children represents no problem for this method.

The issue of dependence between observations (e.g., Kenny & Judd, 1996) I took into account by averaging the child's and the friends' evaluations of friendship quality across the three best friendships in the comparisons of sociometric groups of friended and friendless children. In the preparatory analyses comparing the views of the friendship dyad members across age groups there was no class variable that allowed to distinguish the dyad members. Hence, pairwise intraclass correlations between the children's own views of perceived control, action strategies, and their first best friends' views of friendship quality were computed using SEM procedures (Gonzales & Griffin, 1997).

(d) Cross-sectional design. A central theoretical assumption of the study was that perceived control, action strategies, and friendship outcomes are reciprocally related. Although, the evinced concurrent relationships provided some evidence supporting that these constructs are possibly reciprocally related, only on the basis of longitudinal data it is feasible to make causal inferences about covariations between constructs (e.g., Baltes et al., 1978). Moreover, a clear limitation of the study is that the hypotheses regarding developmental differences in children's perceived control and its relationships with children's friendships which were investigated in preparatory analyses were based on cross-sectional age-group comparisons.

(e) Lack of experimental control. A problem of the employed quasi-experimental field-research is that it lacks experimental control over alternative variables (e.g., Bortz, 1984). Children cannot randomly be assigned to one of the investigated sociometric groups of friended and friendless children. In order to rule out the possibility that the hypothesized effects were influenced by alternative variables, variables of potential influence were controlled. Specifically, age, gender, RAVEN intelligence, school achievement, aggressive behaviors, and behaving in normatively and socially desirable ways have been demonstrated to be related to peer relationships (see Theory Section 2.4.3.2). Because age and gender were



assumed to be most influential on children's friendships their effects were controlled throughout each of the conducted analyses. Moreover, conducted control analyses showed that across sociometric groups the relationships of perceived control, and action strategies, and the friends' views of friendship quality basically remained unchanged when controlling for the remaining four alternative predictors of friendship quality. The exception was that for popular children the relationship of agency beliefs about Self and friend-rated Intimacy was lower when controlling for Social Desirability, although it remained substantial.

(f) Instruments. A strength of the present study was the indept-assessment of various aspects of perceived control. The used Multi-CAM instrument (Little & Wanner, 1997) was based on an integrative and multi-dimensional conceptualization of perceived control based on action theory (e.g., Skinner, 1995; Skinner et al., 1988). In contrast, the majority of previous studies focused on one single aspect of control. This integrative theoretical framework of perceived control allowed to reconcile seemingly contradictory previous findings regarding this construct (see Theory Chapter 2.4.4). Moreover, the comprehensive assessment of domain-specific perceived control allowed the investigation of developmental changes in the functional significance of various types of perceived control on action-regulation.

Friendship quality and action strategies were measured with reliable and valid instruments. Children's own and their friends' perceptions of friendship quality were measured with the Friendship Inventory (Little, et al., 1997). The measured actions strategies were identified on the basis of the literature on children's coping . They were measured using the Behavioral Instrument of Strategic Coping (BISC; Lopez and Little, 1996). However, as discussed above, a caveat using this instrument was that help seeking behaviors were not differentiated according sources and types of help.

In sum, a number of caveats must be considered in interpreting the present study's findings such as (a) in part, small effect sizes, small sample sizes, and dependencies in the data, (b) lack of experimental control, and (c) cross-sectional design. However, the study has also a number of features characterizing its strengths such as (a) a representative assessment of children's friendships within and, in large parts, outside the school context, (b) it disentangles effects related to sociometric status and friendship participation on children's

own and their friends' views of friendship quality, perceived control, and action strategies to cope with difficult friendship situations, (c) strong and comprehensive measures, (d) methodological attempts to overcome limitations such as controlling for relevant variables and using methods with high statistical power, and, finally, (e) it integrates assumptions of a multi-dimensional model of perceived control based on action theory, the literature on developmental tasks and goals, and peer relations.

### 5.3 Summary and Conclusions

Employing an action-theory model of perceived control (e.g., Skinner, 1995; Skinner et al. 1988b) as a major theoretical framework, the central purpose of this study was to investigate the effects of sociometric peer-status on the relationships of perceived control, action strategies, and friendship outcomes. Thereby, the present study focused on the most stable classifications of sociometric status: Popular, average, and rejected children. The theory differentiates among agency beliefs, means-ends beliefs, and global perceptions of control. Firstly, agency beliefs represent children's perceptions of their access to specific action means. Secondly, means-ends beliefs represent children's perceptions of the usefulness of the specific action means. Thirdly, as a global and means-unspecific perception of control children's perceptions of the difficulty of friendship goals (i.e., Goal Difficulty) were measured. Importantly, the present findings provided support for the assumption that Goal Difficulty is more highly related to means-ends beliefs than agency beliefs. Goal Difficulty and means-ends beliefs have in common that they target at the contingencies provided by the social context. In other words, these beliefs reflect the responsiveness of the environment. In contrast, agency beliefs target at children's perceptions of their competence.

Moreover, it was investigated whether perceived control is related to different types of action strategies which are theoretically assumed to mediate the effects of perceived control on friendship outcomes. Based on the literature of children's coping (see Theory Chapter, Section 2.3.3) *Direct Action*, *Seeking Help*, *Behavioral Avoidance* and *Doing Nothing* were identified to represent important action strategies which children use when confronted with problems in their friendships. The results of preparatory conducted cross-sectional age comparisons showed that the latter two strategies invariantly defined *Action Omission* as a higher-order construct. Importantly, the findings showed that Action Omission and Direct

Action did not represent opposite poles of a unidimensional construct which varies between low and high degrees of engagement. Both the correlations between these strategies as well as their differential relationships to both perceived control and friendship outcomes suggest that they were rather independent strategies.

The central goal of the present study was to investigate the effects of sociometric peer-status on the relationships of perceived control and friendship outcomes. Thereby, the present study focused on the most stable classifications of sociometric status: Popular, average, and rejected children. The findings provided only weak evidence for the hypothesis that children who failed to establish mutual friendship relationships are characterized by *low* perceptions of control and, consequently, by high maladaptive action strategies such as omitting action and help-seeking behaviors and low Direct Action. Only a single mean-level difference supported this assumption. Specifically, friendless-average children had higher means-ends beliefs about Adults than the remaining groups of children. Thus, friendless children had equally optimistic agency beliefs and equal levels of action strategies as friended children, even if they perceived their friendships to be less intimate than the remaining groups of children, as it was the case for friendless-rejected children. Instead, the findings showed that children's perceptions of Goal Difficulty, external means-ends beliefs, and the number of mutual friendships were inversely related to their sociometric status. These findings are in line with the assumption that children's sociometric status represents the developmental basis for children's friendships (e.g., Bukowski, et al., 1996) and, consequently, for their perceived control about friendship.

Moreover, contrary to the hypotheses, the findings suggest that the functioning of perceived control in regulating action differed across groups of children who have problems in their peer relationships and children who are well-adjusted (i.e., friended-popular and friended-average children). For the groups of children who have problems in their peer relationships own views of Conflict were related to increases in self-related means-ends beliefs while there was no such relationships for the groups of well-adjusted children. Moreover, the findings showed that compared to the popular and average groups of friended children, for friended-rejected and friendless children (a) contingency beliefs (i.e., means-ends beliefs and Goal Difficulty) were more highly correlated, (b) contingency beliefs were

more highly related to action strategies that afford smaller amounts of own action means or capacities (i.e., Seeking Help and Action Omission), and (c) contingency beliefs and these action strategies were more highly related to their views of friendship quality. These relationships suggest that low feelings of control were related to inefficient action strategies which, in turn, influence children's perceptions of friendship.

Importantly, the groups differed in the specific dimensions of means-ends beliefs which were involved in these patterns of relationships. For both the average and the rejected group of friendless children means-ends beliefs about Adults were involved in these patterns of relationships. For friended-rejected children means-ends belief about Self were involved in these patterns of relationships. Thus, contrary to the expectation that only external means-ends beliefs indicate low feelings of control, self-related means-ends beliefs also did so. The differences in the patterns of relationships of rejected children's contingency beliefs, action strategies, and friendship evaluations suggest that the specific mechanisms differ across groups. However, the present study can't provide clear answers regarding involved mechanisms. To address this question, future research, in a first step, may investigate the relationships of perceived control and actually implemented strategies when confronted with challenging friendship situations from a time-course perspective.

In general, the finding that contingency beliefs were indicative for low feelings of control but not agency beliefs is in line with Skinner et al.'s (1998) findings showing that beliefs about contingencies are more mutable compared to beliefs about competence in the academic domain. The authors propose that children, generally, are motivated to preserve high feelings of control and positive views of the self. As a consequence, children are more likely to change perceptions of contingencies provided by the social context than to adjust perceptions of own competence. In fact, preserving positive views of own capacities may be even easier in the domain of friendship compared to the academic domain because adult intervention rarely forces children to accept that friendship problems are due to their own fault (e.g., Skinner, 1995). A lack of instructions provided by adult care-takers may also explain why friendless children differed from friended-rejected children regarding the specific means dimensions which was central for their feelings of low control.

Importantly, for friended-rejected children each of the constructs involved in these patterns of relationships (i.e., means-ends beliefs about Self, Goal Difficulty, Action Omission, and Seeking Help) was negatively related to the friends' views of friendship quality. Generally, these findings and the finding that rejected children had higher perceptions of Goal Difficulty are in line with previous studies using measures of contingency beliefs such as locus of control which consistently found relationships between perceived control and sociometric status (e.g., Ferrer & Krantz, 1987). However, the latter studies did not investigate domain-specific perceived control in the domain of friendship.

Moreover, the study replicated previous findings showing that friended-rejected children have equally optimistic views of both own competence (i.e., agency beliefs) and the quality of their friendships as friended-average children, although rejected children's friends evaluate the quality of the friendships lower than average children's friends and the rejected children themselves (e.g., Brendgen, et al., 2000). The findings supported the hypothesis that rejected children's illusory-high agency beliefs are related to friends' negative evaluations of friendship quality. However, this relationship was indirect through their relationship with direct problem-solving strategies. In contrast, for both popular and average children both agency beliefs and direct problem-solving strategies were positively related to the friends' views of friendship quality. Thus, for rejected children illusory-high agency beliefs about Self and their more realistic contingency beliefs (i.e., means-ends beliefs about Self and Goal Difficulty) were related to friends' negative evaluations of friendship quality.

What do these findings mean for the hypothesis that the effects of illusory-high perceived control may be positive or negative depending on which of the possible action outcomes are considered which was derived on the basis of the literature on positive illusions (e.g., Taylor & Brown, 1988) and assumptions of life span theory (P. Baltes, 1987)?

Specifically, it was hypothesized that illusory-high perceived control may be positive for friendship participation but negative for the friends' evaluations of friendship quality. The underlying assumption was that when undertaking action positive and negative consequences may outweigh each other to different degrees according to the specific outcome domain. In contrast, when omitting action or using ineffective means such as adults' help negative consequences are more likely than positive consequences independent of the specific

friendship outcome. The present findings supported the latter assumptions regarding the effects of specific action strategies. However, the present findings showed that only competence beliefs were illusory-high while contingency beliefs reflected objective control conditions associated with sociometric status.

Moreover, the findings suggest that contingency beliefs influenced whether children acted on their competence beliefs or not. Rejected children who believed that friendship outcomes are contingent on own competence acted on their illusory-high beliefs about competence. As a result, they succeeded in participating in mutual friendships, although their friends' regarded these friendships to be low in quality. In contrast, both rejected and average children who strongly believed in the usefulness of adults' support didn't test the validity of their illusory competence beliefs by employing active problem-solving strategies. Instead, they relied on ineffective action strategies which afford low amounts of own competence. As a consequence, they failed to participate in mutual friendships.

Taken together, the findings suggest that in middle childhood contingency beliefs are a major indicator of low feelings of control in the domain of friendship. Thereby, they reflect differences in objective control conditions that are related to sociometric status. This is remarkable because children, generally, differentiated between agency and means-ends beliefs only to a low degree. Preparatory analyses showed that the degree of differentiation between agency and means-ends beliefs was low throughout the investigated age range, although with age the degree of differentiation increased. Generally, the findings of preparatory analyses investigating the development of perceived control and its functioning in regulating action in the friendship domain further substantiate the central conclusions of the study.

Finally, the present findings showed that friended and friendless children equally emphasized the importance of solving the developmental task of having good friendships in middle childhood (Havighurst, 1972). Thus, low motivation does not explain why some children miss the opportunity to participate in this important developmental context (e.g., Hartup, 1996).