

Appendix A

Sample Sizes

Table A1

Summary of Sample Sizes by Grade Levels and Gender for the Overall Sample and by School

Grade														
3			4			5			6			T		
M	F	T	M	F	T	M	F	T	M	F	T	M	F	T
Overall Sample														
85	98	183	71	81	152	85	72	157	76	74	150	317	325	642
(46)	(54)	(29)	(47)	(53)	(24)	(54)	(46)	(24)	(51)	(49)	(23)	(49)	(51)	(70)
School 1														
24	28	52	17	19	36	24	23	47	29	25	54	94	95	189
(46)	(54)	(28)	(47)	(53)	(19)	(51)	(49)	(25)	(54)	(46)	(29)	(50)	(50)	(21)
School 2														
31	36	67	24	29	53	18	22	40	15	26	41	88	113	201
(46)	(54)	(33)	(45)	(55)	(26)	(45)	(55)	(20)	(37)	(63)	(20)	(44)	(56)	(22)
School 3														
30	34	64	30	33	63	43	27	70	32	23	55	135	117	252
(47)	(53)	(25)	(48)	(52)	(25)	(61)	(39)	(28)	(58)	(42)	(22)	(54)	(46)	(28)

Note. M = male, F = female, T = total. Below the numbers the percentages are reported in brackets.

Appendix B

Effects of the Various School Settings on the Central Constructs -- A Comparison among the Three Assessed Schools

This section addresses whether differences in socialization practices that are related to the various school settings may have affected the data. The implemented sampling procedures randomly selected the schools as units of observations. In contrast, the children represented the units of the conducted analyses. The children within the schools can't be considered to represent independent observations (see Cronbach, 1976). Hence, assessment of systematic differences in children's responses related to the different school contexts were recommended.

A three-group MACS model was specified that included agency and means-ends beliefs about Self, Luck, and Adults, goal importance, goal difficulty, self-rated friendship quality (i.e., intimacy and conflict), and Direct Action, Seeking Help, and Action Omission as action strategies. Hence, the model to be tested postulated a priori 13 constructs. Each of the constructs was represented by three indicators. The analyses were based on the same indicators that were used in the analyses addressing the main research questions (see Section 4.1 and Section 4.2). The effects of gender and linear and quadratic effects of grade were controlled.

The analyses followed a three-step process. First, across the three school contexts configural invariance of the factor loadings of the indicators was specified. Second, invariance was tested for the factor loadings and the intercepts of the indicators (i.e., measurement invariance). Following the guidelines of invariance assessment outlined in Section 3.5.5, I assessed measurement invariance by employing a modeling rationale. Third, invariance of the factor variances, means, and correlations was assessed. Following the guidelines of invariance assessment outlined in Section 3.5.5, I assessed invariance of these latent parameters by employing a statistical rationale. A Type-II error protection was employed because the null hypothesis of no cross-group differences on latent parameters was tested. Following the propositions of Section 3.5.6, the significance level for accepting the alternative hypotheses of existing differences was set at $p < .20$.

The three-group MACS model testing configural invariance of the loadings of the indicators on their a priori defined factors across school contexts reproduced the variances and covariances of the data satisfactory well, as the practical fit indices indicated an acceptable fit of the proposed model ($\chi^2_{(2109)} = 2934.98$, $\text{NNFI} = .93$, $\text{IFI} = .94$, $\text{CFI} = .94$, $\text{RMSEA} = .02$). When invariance of both the loadings and the intercepts was enforced, the overall model fit was still acceptable for all models ($\chi^2_{(2213)} = 3091.82$, $\text{NNFI} = .93$, $\text{IFI} = .94$, $\text{CFI} = .94$, $\text{RMSEA} = .02$) and, in comparison to the configural model, evinced negligible differences in fit. Based on the employed modeling rationale, the assumption that each set of constructs has equivalent measurement properties across schools (i.e., metric invariance) and, consequently, are psychometrically comparable was supported. However, when comparing the configural invariant model with the measurement invariant models the resulting $\Delta \chi^2$ value was significant (i.e., $\Delta \chi^2_{(104)} = 156.84$, $p < .01$).

Testing invariance of the variances of the constructs, resulted in a nonsignificant loss in fit when compared to the metrically invariant model, $\Delta \chi^2_{(26)} = 23.74$, $p = .59$. Hence, the constructs' variances were equal across the three school contexts.

The model specifying invariance of the correlations among the constructs resulted in a significant loss in fit when compared to the metrically invariant model, $\Delta \chi^2_{(156)} = 279.84$, $p < .01$. Relaxing 22 constraints resulted in a significant increment in fit when compared to the fully constrained model, $\Delta \chi^2_{(22)} = 135.85$, $p < .01$. When the partially constrained model was compared with the metrically invariant model the difference in fit was nonsignificant, $\Delta \chi^2_{(134)} = 143.99$, $p = .26$. Specifically, two correlations could not be constrained to be equal across any of the pairings of the schools. Moreover, ten correlations in the first school, seven correlations in the second school, and four correlations in the third school of the 91 correlations (i.e., number of correlations between the 13 constructs) per school were significantly different from the corresponding correlations of the remaining schools. Binomial tests were conducted to test for each school whether the number of correlations which were significant different from the correlations evinced in the remaining schools exceeded the number of correlations that would be

expected to differ by chance on the specified alpha level ($p \leq .05$). The binomial tests were conducted using the normal distribution as an approximation of the binomial distribution (see, e.g., Bortz, Lienert, & Boehnke, 1990). In addition, Yates continuity-corrections were implemented (see, e.g., Bortz et al., 1990).

The results showed that for the second school and third school the number of significant different correlations was smaller than the number of significant differences expected by chance ($z = 0.98, p = .16$; $z = 0.94, p = .17$; one-tailed tests). However, for the first school the number of correlations which differed significantly from the correlations evinced in the remaining two schools was significantly larger than the number of significant differences expected by chance ($z = 2.38, p < .01$). However, due to the large group sizes the power of the conducted cross-group comparisons of the correlations was large. Specifically, the evinced differences in correlational strength between the first school and the remaining schools did not exceed the absolute value of twentytwo. Moreover, the evinced differences were not systematic in direction (e.g., there was no systematic tendency that there were any systematic differences in the degree children differentiated among the constructs). Finally, all evinced differences of the correlations were unsystematically distributed across the 13 constructs. For example, it was not the case that the relationships of one specific set of constructs systematically varied with another set of constructs in one of the school contexts compared to the remaining school contexts.

The multivariate test of invariance of the latent mean levels, resulted in a significant loss in fit when compared to the metrically invariant model, $\Delta \chi^2_{(26)} = 48.85, p < .01$. Relaxing three of the 39 (i.e., mean levels of the 13 constructs in each of the three groups) constrained mean levels resulted in a significant increment in fit when compared to the fully constrained model, $\Delta \chi^2_{(3)} = 21.87, p < .01$. When this model was compared with the metrically invariant model the difference in fit was nonsignificant, $\Delta \chi^2_{(23)} = 26.98, p = .26$. Moreover, the results showed that the evinced three mean-level differences were randomly distributed across the three school contexts. Specifically, in the second school children perceived their relationships significantly less close compared to the first and third school

(α ($z = -2.33$; $se = .09$) = $-.20$). In the third school, children reported to seek out help in difficult friendship situations more often than in the remaining schools (α ($z = 3.55$; $se = .09$) = $.31$). Finally, in both the second and the third school children had higher perceptions of goal difficulty than in the first school (α ($z = 2.35$; $se = .09$) = $.21$). Notably, one significant different correlation out of 13 correlations is less than the number of significant differences expected by chance ($p = .49$). The p -value of the exact binomial test is provided in Bortz et al. (1990).

In sum, the conducted comparisons addressing the psychometric comparability of the investigated constructs as well as invariance of the factor variances, means, and correlations, generally, did not yield any systematic differences across the school contexts. The single exception was that in one of the school contexts the number of significant correlations which differed from the remaining school contexts exceeded the number of significant differences that would be expected by chance. In sum, the results of the present study, generally, can be considered to be unbiased by effects that are related to differences in socialization practices across the three school contexts.

Appendix C

Effects of the Ordering of Assessments of Measures in the Study

This section addresses whether differences in the ordering of assessment of perceived control about school and perceived control about friendship and the ordering of assessment of perceived control about friendship and friendship quality may have affected the data. At two subsequent sessions alternately children's perceived control about school and perceived control about friendship were assessed. Table C1 provides an overview of the distribution of the classrooms and numbers of children under the design conditions. As seen in Table C1 the ordering of the assessment of perceived control about school and perceived control about friendship was counterbalanced. Children's perceived control about friendship and their strategies to act on friendship problems were assessed with the Multi-CAM for Friendship (Little & Wanner, 1997). Furthermore, in the same session children's perceptions of friendship quality and the sociometric questions were assessed with the Friendship Inventory (Little, Krappmann, Brendgen, & Wanner, 1997). As shown in Table C1, the ordering of the assessment of the Multi-CAM for Friendship and the Interview about Friends was counterbalanced. The classrooms were randomly assigned to both counterbalanced design conditions. Table C1 shows that the number of classrooms and children were about equally distributed across the conditions of the ordering of assessing perceived control about friendship and about schools. However, the number of classrooms and children who responded first to the Friendship Inventory before they responded to the Multi-CAM for Friendship was about 10 % higher than the number of children who responded to the instruments the other way around.

The responses of the children assessed under the four assessment conditions were compared with each other. Table C1 shows the ordering of the groups that was implemented in the specified four-group MACS model. The model included agency and means-ends beliefs about Self, Luck, and Adults, goal importance, goal difficulty, self-rated friendship quality (i.e., intimacy and conflict), and Direct Action, Seeking Help, and Action Omission as action strategies. Hence, the model to be tested postulated a priori 13 constructs. Each of the constructs

was represented by three indicators. The analyses were based on the same indicators that were used in the analyses addressing the main research questions (see Section 4.1 and Section 4.2). The effects of gender and linear and quadratic effects of grade were controlled.

Table C1

Overview of the Counterbalanced Assessment of the Multi-CAM for Friendship and the Multi-CAM for School and the Counterbalanced Assessment of the Multi-CAM for Friendship and the Inventory about Friends

Multi-CAM for Friendship before Multi-CAM for School					Multi-CAM for School before Multi-CAM for Friendship														
FI before Multi-CAM (Group 1)					Multi-CAM before FI (Group 2)					FI before Multi-CAM (Group 3)					Multi-CAM before FI (Group 4)				
S	G	C	No	%	S	G	C	No	%	S	G	C	No	%	S	G	C	No	%
1	3	1	18	10.8	1	4	1	13	8.2	1	4	2	24	11.0	1	3	2	9	9.2
1	3	3	20	12.0	1	5	3	18	11.4	1	5	4	11	5.0	1	3	4	20	20.4
1	4	4	16	9.6	1	6	1	13	8.2	1	6	2	13	5.9	1	5	2	11	11.2
1	6	3	15	9.0	4	3	2	17	10.8	4	3	1	14	6.4	4	5	2	17	17.3
4	5	1	13	7.8	4	4	1	23	14.6	4	3	3	21	9.6	9	3	2	21	21.4
4	5	3	17	10.2	4	6	2	15	9.5	4	4	2	13	5.9	9	5	4	20	20.4
9	3	1	10	6.0	4	6	4	14	8.9	4	6	3	16	7.3					
9	5	3	20	12.0	9	3	4	16	10.1	4	6	5	9	4.1					
9	6	1	20	12.0	9	4	3	20	12.7	9	3	3	17	7.8					
9	6	2	18	10.8	9	5	1	9	5.7	9	4	1	23	10.5					
										9	4	2	20	9.1					
										9	5	2	21	9.6					
										9	6	3	17	7.8					
N = 167 (26.0%)					N = 158 (24.6%)					N = 219 (34.1%)					N = 98 (15.3%)				

Note. FI = Friendship Inventory, S = school coding (different numbers refer to different schools), G = grade level, C = classroom (different numbers refer to different classrooms), No = number of children in the specific classroom, % = percentage of children under a specific condition, N = number of children under a specific condition.

The analyses followed a three-step process. First, configural invariance of the factor loadings of the indicators was specified across the four groups. Second, invariance was tested for the factor loadings and the intercepts of the indicators (i.e., measurement invariance). Following the guidelines of invariance assessment outlined in Section 3.5.5, I assessed measurement invariance by employing a modeling rationale. Third, invariance of the factor variances, means,

and correlations was assessed. Following the guidelines of invariance assessment outlined in Section 3.5.5, I assessed invariance of these latent parameters by employing a statistical rationale. A Type-II error protection was employed because the null hypothesis of no cross-group differences on latent parameters was tested. Following the propositions of Section 3.5.6, the significance level for accepting the alternative hypotheses of existing differences was set at $p < .20$.

The four-group MACS model testing configural invariance of the loadings of the indicators on their a priori defined factors across the groups yielded rather low levels of the practical fit indices of the proposed model indicated ($\chi^2_{(2812)} = 4577.81$, $\text{NNFI} = .86$, $\text{IFI} = .88$, $\text{CFI} = .89$, $\text{RMSEA} = .03$). As shown in Section 4.2 (see also Appendix G), models including fewer constructs reproduced the variances and covariances of the data satisfactory well, as the practical fit indices indicated an acceptable fit of the proposed models. In addition the model also resulted in acceptable levels of fits when specified across the three schools (see Appendix B for the results of the comparisons of school-related effects). When invariance of both the loadings and the intercepts was enforced, the overall model fit was affected to a negligible degree ($\chi^2_{(2968)} = 4824.23$, $\text{NNFI} = .86$, $\text{IFI} = .88$, $\text{CFI} = .88$, $\text{RMSEA} = .03$). Based on the employed modeling rationale, the assumption that each set of constructs has equivalent measurement properties across the assessment conditions (i.e., metric invariance) and, consequently, are psychometrically comparable was supported. However, when comparing the configural invariant model with the measurement invariant models the resulting $\Delta \chi^2$ value was significant (i.e., $\Delta \chi^2_{(104)} = 156.84$, $p < .01$).

Testing invariance of the variances of the constructs, resulted in a nonsignificant loss in fit when compared to the metrically invariant model, $\Delta \chi^2_{(39)} = 36.38$, $p = .59$. Hence, the constructs' variances were equal across the four assessment conditions.

The model specifying invariance of the correlations among the constructs resulted in a significant loss in fit when compared to the metrically invariant model, $\Delta \chi^2_{(234)} = 349.48$, $p < .01$. Relaxing 21 constraints resulted in a significant increment in fit when compared to the

fully constrained model, $\Delta X^2_{(21)} = 119.40$, $p < .01$. When the partially constrained model was compared with the metrically invariant model the difference in fit was nonsignificant, $\Delta X^2_{(213)} = 230.08$, $p = .20$. Specifically, eight correlations in the first group, two correlations in the second group, four correlations in the third group, and three correlations in the fourth group of the 91 correlations (i.e., number of correlations between the 13 constructs) per group were significantly different from the corresponding correlations of the remaining groups.

Binomial tests were conducted to test in each group whether the number of correlations which were significant different from the correlations evinced in the remaining groups exceeded the number of correlations that would be expected to differ by chance on the specified alpha level ($\alpha \leq .05$). The results showed that in none of the groups the resulting z -value was larger than the critical z -value. Consequently, the number of significant different correlations was smaller than the number of significant differences expected by chance ($z = 1.42$, $p = .08$; $z = 0.99$, $p = .16$; $z = 0.02$, $p = .49$; $z = 0.51$, $p = .31$; one-tailed tests, for the first, second, third, and fourth group, respectively).

One correlation was equal across the first and third group while it was significantly different from the remaining two groups. However, across the second and fourth group this correlation also was equal. Similarly, another correlation was equal across the first and fourth group while it was significantly different from the remaining two groups. However, across the second and third group this correlation was not significantly different. The latter findings indicate that the ordering of assessment of friendship quality and perceived control within the sessions did not affect the correlational patterns among the constructs. Six correlations were equal across the third and fourth group and different from the first and second group where, in turn, these correlations were equal.

Notably, the first and second group responded to the Multi-CAM for Friendships before they responded to the the Multi-CAM for school while the ordering was reversed for the third and fourth group. Hence, if the ordering of assessment of perceived control about the two life domains affected the correlational patterns this would have shown in differences of the first and

second group versus the third and fourth group. However, six significant different correlations of the 91 correlations that were tested across the first and second group versus the third and fourth group can be regarded to be due to chance ($z = 0.46$, $p = .32$). Moreover, the evinced differences were not systematic in direction (e.g., there was no systematic tendency that responding to the Multi-CAM for School first resulted in a systematic decrease or increase in the correlations among the constructs assessed with the Multi-CAM for Friendship).

Importantly, all evinced differences in the correlations were unsystematically distributed across the 13 constructs. For example, it was not the case that the relationships of one specific set of constructs systematically varied with another set of constructs in one of the assessment conditions compared to the remaining assessment conditions.

The multivariate test of invariance of the latent mean levels, resulted in a significant loss in fit when compared to the metrically invariant model, $\Delta \chi^2_{(39)} = 127.12$, $p < .01$. Relaxing three of the 39 constraints resulted in a significant increment in fit when compared to the fully constrained model, $\Delta \chi^2_{(3)} = 83.80$, $p < .01$. When this model was compared with the metrically invariant model the difference in fit was nonsignificant, $\Delta \chi^2_{(36)} = 43.32$, $p = .19$. Moreover, the results showed that the evinced three mean-level differences were randomly distributed across the three school contexts. Specifically, in the second group perceived the friendship goal significantly more important than the remaining groups (α ($z = 7.49$; $se = .09$) = .65). Notably, one significant different correlation out of 13 correlations is less than the number of significant differences expected by chance when testing on an alpha level of $\alpha \leq .05$ ($p = .49$). The third group of children had higher means-ends beliefs about adults (α ($z = 3.75$; $se = .06$) = .24) and lower perceptions of goal difficulty (α ($z = -3.52$; $se = .08$) = -.28) than the remaining groups. Importantly, two significant different correlations out of 13 correlations are less than the number of significant differences expected by chance ($p = .14$).

In sum, the conducted comparisons addressing the psychometric comparability of the investigated constructs as well as invariance of the factor variances, means, and correlations did not yield any systematic differences across the assessment conditions. Hence, the results of the present study can be considered to be unbiased by effects that are related to differences in the ordering of administration of the questionnaires.

Appendix D

Measurement Instruments

Table D1

Wordings of the Items, Framing Sentences, and Vignettes assessed with the Multi-CAM Questionnaire (Little & Wanner, 1997)

Agency Beliefs: Effort

agEFF1	42	When it comes to making a new friend, can YOU work hard enough at it?	Wenn es darum geht, einen neuen Freund oder eine neue Freundin zu gewinnen, kannst Du Dich genug anstrengen?
agEFF2	51	When it comes to making a new friend, even if it's difficult, can YOU work hard enough at it?	Wenn es darum geht, einen neuen Freund oder eine neue Freundin zu gewinnen, obwohl es schwierig ist, kannst Du Dich genug anstrengen?
agEFF3	106	When it comes to getting a friend to play, can YOU put enough effort into it?	Wenn es darum geht, einen Freund oder eine Freundin dazu zu bringen, mit Dir zu spielen, kannst Du genug dafür tun?
agEFF4	115	When it comes to getting a friend to play, even if it's difficult, can YOU put enough effort into it?	Wenn es darum geht, einen Freund oder eine Freundin dazu zu bringen, mit Dir zu spielen, obwohl es schwierig ist, kannst Du genug dafür tun?
agEFF5	170	When it comes to keeping a good friend, can YOU keep on trying long enough at it?	Wenn es darum geht, einen guten Freund oder eine gute Freundin zu behalten, kannst Du lange genug durchhalten, es zu versuchen?
agEFF6	180	When it comes to keeping a good friend, even if it's difficult, can YOU keep on trying long enough at it?	Wenn es darum geht, einen guten Freund oder eine gute Freundin zu behalten, obwohl es schwierig ist, kannst Du lange genug durchhalten, es zu versuchen?

Agency Beliefs: Ability

agABL1	44	When it comes to making a new friend, do YOU have enough brains for it?	Wenn es darum geht, einen neuen Freund oder eine neue Freundin zu gewinnen, bist Du klug genug dazu?
agABL2	53	When it comes to making a new friend, even if it's difficult, do YOU have enough brains for it?	Wenn es darum geht, einen neuen Freund oder eine neue Freundin zu gewinnen, obwohl es schwierig ist, bist Du klug genug dazu?
agABL3	108	When it comes to getting a friend to play, are YOU smart enough for it?	Wenn es darum geht, einen Freund oder eine Freundin dazu zu bringen, mit Dir zu spielen, bist Du schlau genug dazu?
agABL4	117	When it comes to getting a friend to play, even if it's difficult, are YOU smart enough for it?	Wenn es darum geht, einen Freund oder eine Freundin dazu zu bringen, mit Dir zu spielen, obwohl es schwierig ist, bist Du schlau genug dazu?
agABL5	172	When it comes to keeping a good friend, are YOU bright enough for it?	Wenn es darum geht, einen guten Freund oder eine gute Freundin zu behalten, bist Du clever genug dazu?
agABL6	182	When it comes to keeping a good friend, even if it's difficult, are YOU bright enough for it?	Wenn es darum geht, einen guten Freund oder eine gute Freundin zu behalten, obwohl es schwierig ist, bist Du clever genug dazu?

Table D1 continued

Agency Beliefs: Personal Attributes

agNIC1	46	When it comes to making a new friend, are YOU fun enough for it?	Wenn es darum geht, einen neuen Freund oder eine neue Freundin zu gewinnen, kannst Du genug witzige Einfälle haben?
agNIC2	55	When it comes to making a new friend, even if it's difficult, are YOU fun enough for it?	Wenn es darum geht, einen neuen Freund oder eine neue Freundin zu gewinnen, obwohl es schwierig ist, kannst Du genug witzige Einfälle haben?
agNIC3	110	When it comes to getting a friend to play, are YOU likable enough for it?	Wenn es darum geht, einen Freund oder eine Freundin dazu zu bringen, mit Dir zu spielen, bist Du dazu leicht genug zu mögen?
agNIC4	119	When it comes to getting a friend to play, even if it's difficult, are YOU likable enough for it?	Wenn es darum geht, einen Freund oder eine Freundin dazu zu bringen, mit Dir zu spielen, obwohl es schwierig ist, bist Du dazu leicht genug zu mögen?
agNIC5	174	When it comes to keeping a good friend, are YOU nice enough for it?	Wenn es darum geht, einen guten Freund oder eine gute Freundin zu behalten, bist Du nett genug dazu?
agNIC6	176	When it comes to keeping a good friend, even if it's difficult, are YOU nice enough for it?	Wenn es darum geht, einen guten Freund oder eine gute Freundin zu behalten, obwohl es schwierig ist, bist Du nett genug dazu?

Agency Beliefs: Luck

agLUC1	47	When it comes to making a new friend, are YOU lucky enough for it?	Wenn es darum geht, einen neuen Freund oder eine neue Freundin zu gewinnen, kannst Du Dich auf Dein Glück verlassen?
agLUC2	56	When it comes to making a new friend, even if it's difficult, are YOU lucky enough for it?	Wenn es darum geht, einen neuen Freund oder eine neue Freundin zu gewinnen, obwohl es schwierig ist, kannst Du Dich auf Dein Glück verlassen?
agLUC3	111	When it comes to getting a friend to play, can YOU get lucky enough for it?	Wenn es darum geht, einen Freund oder eine Freundin dazu zu bringen, mit Dir zu spielen, hast Du das Glück auf Deiner Seite?
agLUC4	113	When it comes to getting a friend to play, even if it's difficult, can YOU get lucky enough for it?	Wenn es darum geht, einen Freund oder eine Freundin dazu zu bringen, mit Dir zu spielen, obwohl es schwierig ist, hast Du das Glück auf Deiner Seite?
agLUC5	168	When it comes to keeping a good friend, can YOU count on YOUR luck for it?	Wenn es darum geht, einen guten Freund oder eine gute Freundin zu behalten, kannst Du auf Dein Glück zählen?
agLUC6	178	When it comes to keeping a good friend, even if it's difficult, can YOU count on YOUR luck for it?	Wenn es darum geht, einen guten Freund oder eine gute Freundin zu behalten, obwohl es schwierig ist, kannst Du auf Dein Glück zählen?

Table D1 continued

Agency Beliefs: Teacher

agTEA1	48	When it comes to making a new friend, can YOU get YOUR teacher to help YOU?	Wenn es darum geht, einen neuen Freund oder eine neue Freundin zu gewinnen, kannst Du Deine Lehrerin oder Deinen Lehrer dazu bringen Dir zu helfen?
agTEA2	50	When it comes to making a new friend, even if it's difficult, can YOU get YOUR teacher to help YOU?	Wenn es darum geht, einen neuen Freund oder eine neue Freundin zu gewinnen, obwohl es schwierig ist, kannst Du Deine Lehrerin oder Deinen Lehrer dazu bringen Dir zu helfen?
agTEA3	105	When it comes to getting a friend to play, can YOU ask YOUR teacher to help YOU?	Wenn es darum geht, einen Freund oder eine Freundin dazu zu bringen, mit Dir zu spielen, kannst Du Deine Lehrerin oder Deinen Lehrer fragen, ob sie oder er Dir hilft?
agTEA4	114	When it comes to getting a friend to play, even if it's difficult, can YOU ask YOUR teacher to help YOU?	Wenn es darum geht, einen Freund oder eine Freundin dazu zu bringen, mit Dir zu spielen, obwohl es schwierig ist, kannst Du Deine Lehrerin oder Deinen Lehrer fragen, ob sie oder er Dir hilft?
agTEA5	169	When it comes to keeping a good friend, can YOU have YOUR teacher help YOU?	Wenn es darum geht, einen guten Freund oder eine gute Freundin zu behalten, kannst Du Deine Lehrerin oder Deinen Lehrer dazu bekommen, Dir zu helfen?
agTEA6	181	When it comes to keeping a good friend, even if it's difficult, can YOU have YOUR teacher help YOU?	Wenn es darum geht, einen guten Freund oder eine gute Freundin zu behalten, obwohl es schwierig ist, kannst Du Deine Lehrerin oder Deinen Lehrer dazu bekommen, Dir zu helfen?

Agency Beliefs: Parents

agPNT1	43	When it comes to making a new friend, can YOU have YOUR parents help YOU?	Wenn es darum geht, einen neuen Freund oder eine neue Freundin zu gewinnen, kannst Du Deine Eltern dazu bekommen, Dir zu helfen?
agPNT2	52	When it comes to making a new friend, even if it's difficult, can YOU have YOUR parents help YOU?	Wenn es darum geht, einen neuen Freund oder eine neue Freundin zu gewinnen, obwohl es schwierig ist, kannst Du Deine Eltern dazu bekommen, Dir zu helfen?
agPNT3	107	When it comes to getting a friend to play, can YOU get YOUR parents to help YOU?	Wenn es darum geht, einen Freund oder eine Freundin dazu zu bringen, etwas mit Dir zu unternehmen, kannst Du Deine Eltern dazu bringen, Dir zu helfen?
agPNT4	116	When it comes to getting a friend to play, even if it's difficult, can YOU get YOUR parents to help YOU?	Wenn es darum geht, einen Freund oder eine Freundin dazu zu bringen, mit Dir zu spielen, obwohl es schwierig ist, kannst Du Deine Eltern dazu bringen, Dir zu helfen?
agPNT5	171	When it comes to keeping a good friend, can YOU ask YOUR parents to help YOU?	Wenn es darum geht, einen guten Freund oder eine gute Freundin zu behalten, kannst Du Deine Eltern fragen, ob sie Dir helfen?
agPNT6	177	When it comes to keeping a good friend, even if it's difficult, can YOU ask YOUR parents to help YOU?	Wenn es darum geht, einen guten Freund oder eine gute Freundin zu behalten, obwohl es schwierig ist, kannst Du Deine Eltern fragen, ob sie Dir helfen?

Table D1 continued

Means-ends Beliefs: Effort

meEFF1	19	How do OTHER CHILDREN make a new friend? Is it because they work hard enough at it?	Wie gewinnen ANDERE KINDER einen neuen Freund oder eine neue Freundin? Liegt es daran, daß sie sich genug anstrengen?
meEFF2	80	How do OTHER CHILDREN get a friend to play? Is it because they put enough effort into it?	Wie bringen ANDERE KINDER einen Freund oder eine Freundin dazu, mit ihnen zu spielen? Liegt es daran, daß sie genug dafür tun?
meEFF3	144	How do OTHER CHILDREN keep a good friend? Is it because they keep on trying long enough?	Wie behalten ANDERE KINDER einen guten Freund oder eine gute Freundin? Liegt es daran, daß sie lange genug durchhalten, es zu versuchen?

Means-ends Beliefs: Ability

meABL1	21	How do OTHER CHILDREN make a new friend? Is it because they have enough brains?	Wie gewinnen ANDERE KINDER einen neuen Freund oder eine neue Freundin? Liegt es daran, daß sie klug genug sind?
meABL2	82	How do OTHER CHILDREN get a friend to play? Is it because they are smart enough?	Wie bringen ANDERE KINDER einen Freund oder eine Freundin dazu, mit ihnen zu spielen? Liegt es daran, daß sie schlaue genug sind?
meABL3	146	How do OTHER CHILDREN keep a good friend? Is it because they are bright enough?	Wie behalten ANDERE KINDER einen guten Freund oder eine gute Freundin? Liegt es daran, daß sie ihre clever genug sind?

Means-ends Beliefs: Personal attributes

meNIC1	23	How do OTHER CHILDREN make a new friend? Is it because they are fun enough?	Wie gewinnen ANDERE KINDER einen neuen Freund oder eine neue Freundin? Liegt es daran, daß sie genug witzige Einfälle haben?
meNIC2	84	How do OTHER CHILDREN get a friend to do something together with them? Is it because they are likable enough?	Wie bringen ANDERE KINDER einen Freund oder eine Freundin dazu, mit ihnen zu spielen? Liegt es daran, daß sie leicht genug zu mögen sind?
meNIC3	147	How do OTHER CHILDREN keep a good friend? Is it because they are nice enough?	Wie behalten ANDERE KINDER einen guten Freund oder eine gute Freundin? Liegt es daran, daß sie nett genug sind?

Means-ends Beliefs: Luck

meLUC1	17	How do OTHER CHILDREN make a new friend? Is it because they are lucky enough?	Wie gewinnen ANDERE KINDER einen neuen Freund oder eine neue Freundin? Liegt es daran, daß sie sich auf ihr Glück verlassen können?
meLUC2	85	How do OTHER CHILDREN get a friend to play? Is it because they get lucky enough?	Wie bringen ANDERE KINDER einen Freund oder eine Freundin dazu, mit ihnen etwas zu unternehmen? Liegt es daran, daß sie das Glück auf ihrer Seite haben?
meLUC3	149	How do OTHER CHILDREN keep a good friend? Is it because they can count on their luck?	Wie behalten ANDERE KINDER einen guten Freund oder eine gute Freundin? Liegt es daran, daß sie auf ihr Glück zählen können?

Table D1 continued

Means-ends Beliefs: Teacher

meTEA1	18	How do OTHER CHILDREN make a new friend? Is it because they get their teacher to help them?	Wie gewinnen ANDERE KINDER einen neuen Freund oder eine neue Freundin? Liegt es daran, daß sie ihre Lehrerin oder ihren Lehrer dazu bringen ihnen zu helfen?
meTEA2	87	How do OTHER CHILDREN get a friend to play? Is it because they ask their teacher to help them?	Wie bringen ANDERE KINDER einen Freund oder eine Freundin dazu, mit ihnen zu spielen? Liegt es daran, daß sie ihre Lehrerin oder ihren Lehrer fragen, ob sie oder er ihnen hilft?
meTEA3	150	How do OTHER CHILDREN keep a good friend? Is it because they have their teacher help them?	Wie behalten ANDERE KINDER einen guten Freund oder eine gute Freundin? Liegt es daran, daß sie ihre Lehrerin oder ihren Lehrer dazu bekommen, ihnen zu helfen?

Means-ends Beliefs: Parents

mePNT1	24	How do OTHER CHILDREN make a new friend? Is it because they have their parents help them?	Wie gewinnen ANDERE KINDER einen neuen Freund oder eine neue Freundin? Liegt es daran, daß sie ihre Eltern dazu bekommen, ihnen zu helfen?
mePNT2	86	How do OTHER CHILDREN get a friend to play? Is it because they get their parents to help them?	Wie bringen ANDERE KINDER einen Freund oder eine Freundin dazu, mit ihnen zu spielen? Liegt es daran, daß sie ihre Eltern dazu bringen, ihnen zu helfen?
mePNT3	143	How do OTHER CHILDREN keep a good friend? Is it because they ask their parents to help them?	Wie behalten ANDERE KINDER einen guten Freund oder eine gute Freundin? Liegt es daran, daß sie ihre Eltern fragen, ob sie ihnen helfen?

Goal Difficulty

prDIF1	28	Do YOU think that making a new friend is hard to do?	Was denkst DU darüber, einen neuen Freund oder eine neue Freundin zu gewinnen? Denkst Du, daß es schwierig ist?
prDIF2	90	Do YOU think that getting a friend to play is hard to do?	Was denkst DU darüber, einen Freund oder eine Freundin dazu zu bringen, mit Dir zu spielen? Denkst Du, daß schwierig ist?
prDIF3	151	Do YOU think that keeping a good friend is hard to do?	Was denkst DU darüber, einen guten Freund oder eine gute Freundin zu behalten? Denkst Du, daß es schwierig ist?

Goal Importance

prIMP1	25	Do YOU think that making a new friend is important to do?	Was denkst DU darüber, einen neuen Freund oder eine neue Freundin zu gewinnen? Denkst Du, daß es wichtig ist?
prIMP2	91	Do YOU think that getting a friend to play is important to do?	Was denkst DU darüber, einen Freund oder eine Freundin dazu zu bringen, mit Dir zu spielen? Denkst Du, daß wichtig ist?
prIMP3	152	Do YOU think that keeping a good friend is important to do?	Was denkst DU darüber, einen guten Freund oder eine gute Freundin zu behalten? Denkst Du, daß es wichtig ist?

Table D1 continued

Strategies to Act on Difficult Situations in Friendship Relationships

Direct action

DIRECT1	60	When I have problems making a new friend, I try to work it out.	Wenn ich Probleme habe, einen neuen Freund oder eine neue Freundin zu gewinnen, versuche ich, etwas daran zu ändern.
DIRECT2	124	When I have problems getting a friend to play, I try to solve it.	Wenn ich Probleme habe, einen Freund oder eine Freundin dazu zu bringen, mit mir zu spielen, versuche ich es, hinzubekommen
DIRECT3	184	When I have problems keeping a good friend, I try to to figure it out.	Wenn ich Probleme habe, einen guten Freund oder eine gute Freundin zu behalten, versuche ich, das Problem zu lösen.

Seeking Help

PROSOC1	62	When I have problems making a new friend, I seek out others.	Wenn ich Probleme habe, einen neuen Freund oder eine neue Freundin zu gewinnen, suche ich nach anderen.
PROSOC2	122	When I have problems getting a friend to play, I go to others.	Wenn ich Probleme habe, einen Freund oder eine Freundin dazu zu bringen, mit mir zu spielen, gehe ich zu anderen.
PROSOC3	188	When I have problems keeping a good friend, I look to others.	Wenn ich Probleme habe, einen guten Freund oder eine gute Freundin zu behalten, wende ich mich an andere.

Problem avoidance

INDRCT1	61	When I have problems making a new friend, I do something else instead.	Wenn ich Probleme habe, einen neuen Freund oder eine neue Freundin zu gewinnen, wende ich mich etwas anderem zu.
INDRCT2	125	When I have problems getting a friend to play, I do anything else instead.	Wenn ich Probleme habe, einen Freund oder eine Freundin dazu zu bringen, mit mir zu spielen, tue ich irgendetwas anderes.
INDRCT3	185	When I have problems keeping a good friend, I do other things instead.	Wenn ich Probleme habe, einen guten Freund oder eine gute Freundin zu behalten, tue ich andere Dinge.

Doing Nothing

INACTN1	59	When I have problems making a new friend, I don't do anything.	Wenn ich Probleme habe, einen neuen Freund oder eine neue Freundin zu gewinnen, tue ich nichts.
INACTN2	121	When I have problems getting a friend to play, I don't take action.	Wenn ich Probleme habe, einen Freund oder eine Freundin dazu zu bringen, mit mir zu spielen, unternehme ich nichts
INACTN3	183	When I have problems keeping a good friend, I do nothing.	Wenn ich Probleme habe, einen guten Freund oder eine gute Freundin zu behalten, mache ich nichts.

Table D2

Framing Sentences and Vignettes of the Multi-CAM Questionnaire

 Frame of the Means-ends Beliefs

Think about OTHERS YOUR AGE *attaining the goal*¹.
Denke darüber nach, wie ANDERE KINDER *das Ziel*² *erreichen*.

Frame of the Agency Beliefs, Goal Difficulty, and Goal Importance

Think about YOURSELF *attaining the goal*¹.
Denke darüber nach, wie DU selbst *das Ziel*² *erreichst*.

Frame of the Agency Beliefs and Action Strategies Referring to Difficulties in Goal Striving

Sometimes, *attaining the goal*¹ is difficult to do.
Manchmal ist es schwierig, *das Ziel*² *zu erreichen*.

Vignettes used to Induce Mindset of Low Control Conditions

FOR EXAMPLE, imagine that you are at a new school and don't have any friends!
What can you do when you want to make a new friend, even if it's difficult?

Stelle Dir ZUM BEISPIEL vor, Du bist in einer neuen Schule und hast keinen einzigen Freund oder keine einzige Freundin!

Was kannst Du tun, wenn Du einen neuen Freund oder eine neue Freundin gewinnen willst, obwohl es schwierig ist?

FOR EXAMPLE, imagine that a friend doesn't want to hang out with you but wants to do something else instead!
What can you do when you want to get a friend to do something together with you, even if it's difficult?

Stelle Dir ZUM BEISPIEL vor, daß ein Freund oder eine Freundin lieber mit jemand anderem spielen will als mit Dir!

Was kannst Du tun, wenn Du Deinen Freund oder Deine Freundin dazu bringen willst, mit Dir zu spielen, obwohl es schwierig ist?

FOR EXAMPLE, imagine that a friend doesn't want to be friends with you anymore!
What can you do when you want to keep a good friend, even if it's difficult?

Stelle Dir ZUM BEISPIEL vor, daß ein Freund oder eine Freundin nicht mehr mit Dir befreundet sein will!
Was kannst Du tun, wenn Du einen guten Freund oder eine gute Freundin behalten willst, obwohl es schwierig ist?

Note. The framing sentences stand on top of the page in the questionnaire. The table presents the German translation to the English wording. ¹The wordings of the framing sentences refer to the three subgoals (i.e., making a new friend, getting a friend to play, and keeping a friend). ²The wordings of the framing sentences refer to the three subgoals (i.e., einen neuen Freund oder eine neue Freundin gewinnen, Deinen Freund oder Deine Freundin dazu bringen, mit Dir zu spielen, and einen guten Freund oder eine gute Freundin behalten)

Table D3

The Constructs measured by the Multi-CAM: Parcelling of the Items into Indicators

Construct	Indicator 1	Indicator 2	Indicator 3
Means-ends Beliefs			
Effort (EFF)	meEFF1	meEFF2	meEFF3
Ability (ABL)	meABL1	meABL2	meABL3
Attributes (NIC)	meNIC1	meNIC2	meNIC3
Luck	meLUC1	meLUC2	meLUC3
Teachers (TEA)	meTEA1	meTEA2	meTEA3
Parents (PNT)	mePNT1	mePNT2	mePNT3
Agency Beliefs			
Parcel No	1	2	3
Effort (EFF)	agEFF1 # agEFF6	agEFF3 # agEFF2	agEFF5 # agEFF4
Ability (ABL)	agABL1 # agABL6	agABL3 # agABL2	agABL5 # agABL4
Attributes (NIC)	agNIC1 # agNIC6	agNIC3 # agNIC2	agNIC5 # agNIC4
Luck	agLUC1 # agLUC6	agLUC3 # agLUC2	agLUC5 # agLUC4
Teachers (TEA)	agTEA1 # agTEA6	agTEA3 # agTEA2	agTEA5 # agTEA4
Parents (PNT)	agPNT1 # agPNT6	agPNT3 # agPNT2	agPNT5 # agPNT4
Higher-order Constructs of Agency and Means-ends Beliefs			
SELF	EFF1 # ABL2 # NIC3	EFF2 # ABL3 # NIC1	EFF3 # ABL1 # NIC2
ADULTS	TEA1 # PNT3	TEA2 # PNT2	TEA3 # PNT1
Goal Difficulty			
	prDIF1	prDIF2	prDIF3
Goal Importance			
	prIMP1	prIMP2	prIMP3
Action Strategies			
Direct Action	DIRECT1	DIRECT2	DIRECT3
Seeking Help	PROSOC1	PROSOC2	PROSOC3
Doing nothing	inactn1	inactn2	inactn3
Avoidance	indrct1	indrct2	indrct3
Action Omission	inactn1 # indrct1	inactn2 # indrct3	inactn # indrct2

Note. # denotes the average of the two items.

Table D4

Items of the Friendship Inventory (Little, Krappmann, Brendgen, & Wanner, 1997)

	<i>Intimacy</i>	<i>Intimität</i>
INT3	After a quarrel, do you make up easily with this child?	Verträgst Du Dich nach einem Streit schnell wieder mit diesem Kind?
INT5	Does this child cheer you up when you are sad?	Muntert Dich dieses Kind auf, wenn Du traurig bist?
INT4	Do you share secrets with this child?	Vertraust Du diesem Kind Geheimnisse an?
INT2	Do you cheer up this child when he or she is sad?	Munterst Du dieses Kind auf, wenn es traurig ist?
INT1	Does this child share secrets with you?	Vertraut Dir dieses Kind Geheimnisse an?
INT6	When you have problems, do you talk about them with this child?	Wenn Du Probleme hast, redest Du mit diesem Kind darüber?
	<i>Conflict</i>	<i>Streit</i>
CNF1	Do you sometimes quarrel with this child?	Streitest Du Dich manchmal mit diesem Kind?
CNF2	Do you sometimes disagree with this child?	Kannst Du Dich manchmal mit diesem Kind nicht einigen?
CNF3	Are you sometimes angry with this friend?	Bist Du manchmal mit diesem Kind böse?

Table D5

Friendship quality: Parcelling of the items into indicators

Parcel	Items
	<i>Intimacy</i>
Intimacy1	INT1 # INT5
Intimacy2	INT2 # INT3
Intimacy3	INT6 # INT4
	<i>Conflict</i>
	CNF1
	CNF2
	CNF3

Note. # denotes the average of the two items.

Table D6

The Revised Class Play Method of Peer Assessment (Masten, Morison, & Pellegrini, 1985)

English Instructions

Imagine that your class is planning a play and you are the director of the play. First, you need to select the students who could best play each part or role. Please, try to pick students in your class who would be best at playing each part because they seem to fit each part in real life.

A person who often gets into fights is the part. Please name three children in your class who would be best at playing a person who often gets into fights. Please write the first and last name of each of the three children.

German Instructions

Stelle Dir vor, Deine Klasse will ein Theaterstück aufführen, und Du sollst die Leitung übernehmen. Als erstes sollst Du festlegen, wer welche Rolle am besten spielen kann. Es ist sehr wichtig, die richtigen Kinder für die Rollen auszuwählen. Am besten ist es daher, die Kinder für die Rollen zu nehmen, die auch im wirklichen Leben so ähnlich sind.

Bei der Rolle handelt es sich um jemanden, der oder die sich oft prügelt.

Welches Kind in Deiner Klasse ist für die Rolle, der sich oft prügelnden Person am besten geeignet?

Schreibe bitte die Vor- und Zunamen der drei Kinder auf:

Table D7

Social Desirability (Eysenck; Rost & Hartmann, 1993)

I would never be rude to my parents.	Ich würde niemals frech zu meinen Eltern sein.
I always finish my homework before I start playing.	Ich mache meine immer Hausaufgaben ganz fertig, bevor ich spielen gehe.
I'm always quiet when adults are talking.	Ich bin immer still, wenn Erwachsene sich unterhalten.
I would never say something bad or mean about anyone.	Ich würde niemals etwas Schlechtes oder Gemeines über jemanden erzählen.
I would never take more than I deserved.	Ich würde mir niemals mehr nehmen, als mir eigentlich zusteht.
I always do at once what I am told to do.	Ich mache immer sofort das, was man mir sagt.

Appendix E

Descriptive Statistics of the Indicators of the Central Constructs

Table E1

Descriptive Statistics by Grade Level

Indicator	Grade 3				Grade 4				Grade 5				Grade 6			
	Mean	Std	Skew	Kurt	Mean	Std	Skew	Kurt	Mean	Std	Skew	Kurt	Mean	Std	Skew	Kurt
Means-ends Beliefs																
SELF1	2.32	0.67	0.19	-0.49	2.56	0.75	0.09	-0.41	2.43	0.62	0.10	-0.50	2.50	0.59	-0.07	-0.03
SELF2	2.23	0.71	0.18	-0.41	2.47	0.74	0.08	-0.58	2.40	0.66	-0.01	-0.49	2.51	0.63	0.31	-0.38
SELF3	2.27	0.66	0.23	-0.44	2.30	0.70	0.21	-0.60	2.24	0.54	0.22	0.27	2.32	0.59	0.25	0.06
EFF1	2.30	0.99	0.20	-1.00	2.48	1.03	0.06	-1.14	2.33	0.91	0.23	-0.72	2.22	0.88	0.27	-0.65
EFF2	2.16	0.94	0.43	-0.70	2.50	0.93	0.05	-0.85	2.37	0.82	-0.07	-0.59	2.44	0.85	0.09	-0.60
EFF3	2.45	0.99	0.20	-1.00	2.58	0.96	0.03	-0.98	2.60	0.81	0.06	-0.54	2.71	0.85	-0.34	-0.42
ABL1	2.15	1.04	0.42	-1.03	2.17	0.99	0.40	-0.88	1.77	0.85	0.84	-0.12	1.88	0.83	0.57	-0.43
ABL2	2.19	0.94	0.29	-0.87	2.45	1.07	0.10	-1.21	2.20	0.89	0.33	-0.62	2.37	0.88	0.16	-0.66
ABL3	2.39	1.02	0.18	-1.07	2.44	1.03	0.03	-1.16	2.36	0.90	0.21	-0.68	2.57	0.90	-0.18	-0.70
NIC1	2.15	1.04	0.41	-1.05	2.46	1.04	-0.01	-1.15	2.47	0.96	0.03	-0.91	2.51	0.98	0.07	-0.99
NIC2	2.21	0.93	0.45	-0.62	2.16	0.94	0.43	-0.67	2.33	0.85	0.31	-0.42	2.37	0.90	0.26	-0.67
NIC3	2.47	1.02	0.15	-1.09	2.74	1.02	-0.13	-1.19	2.77	0.95	-0.20	-0.96	2.91	0.90	-0.41	0.66
LUC1	2.19	1.06	0.48	-0.96	2.19	0.98	0.42	-0.82	1.99	0.77	0.62	0.36	1.87	0.76	0.60	0.08
LUC2	2.25	1.04	0.34	-1.04	2.29	1.06	0.23	-1.19	2.11	0.93	0.49	-0.60	2.15	0.97	0.38	-0.88
LUC3	2.34	1.04	0.24	-1.10	2.29	0.99	0.34	-0.91	2.08	0.95	0.48	-0.74	2.16	0.96	0.52	-0.62
ADLT1	1.89	0.75	0.55	-0.36	1.98	0.77	0.50	-0.40	1.68	0.68	1.03	0.56	1.59	0.64	1.49	2.75
ADLT2	1.99	0.83	0.43	-0.79	1.94	0.83	0.52	-0.61	1.69	0.74	1.12	0.81	1.61	0.71	1.14	0.59
ADLT3	2.01	0.84	0.49	-0.66	1.91	0.87	0.70	-0.53	1.75	0.71	0.97	0.65	1.59	0.68	1.16	0.49
TEA1	1.87	0.95	0.83	-0.36	1.90	0.93	0.64	-0.63	1.65	0.85	1.06	0.06	1.51	0.74	1.39	1.35
TEA2	1.89	0.99	0.77	-0.58	1.85	0.96	0.81	-0.45	1.56	0.85	1.51	1.45	1.52	0.77	1.34	1.00
TEA3	1.90	0.96	0.76	-0.48	1.79	0.94	0.91	-0.26	1.66	0.85	1.10	0.32	1.45	0.74	1.62	1.92
PNT1	2.13	1.10	0.51	-1.08	2.02	1.07	0.61	-0.95	1.83	0.95	0.88	-0.27	1.73	0.88	1.09	0.42
PNT2	2.10	1.02	0.53	-0.88	2.03	1.06	0.62	-0.91	1.83	0.94	0.83	-0.37	1.70	0.89	1.12	0.35
PNT3	1.92	1.00	0.79	-0.52	2.06	0.97	0.59	-0.64	1.71	0.83	1.07	0.60	1.66	0.81	1.10	0.61
Goal Difficulty																
DIFF1	1.89	0.99	0.85	-0.38	2.11	1.04	0.60	-0.79	2.32	0.99	0.33	-0.88	2.35	1.02	0.29	-1.01
DIFF2	1.84	0.95	0.99	0.02	2.07	1.02	0.70	-0.59	2.26	0.96	0.41	-0.73	2.17	0.99	0.41	-0.89
DIFF3	1.86	0.91	0.86	-0.07	1.99	1.03	0.79	-0.53	2.19	0.90	0.42	-0.55	2.02	0.85	0.45	-0.51
Goal Importance																
Impo1	2.61	1.15	-0.03	-1.46	2.78	1.01	-0.21	-1.13	2.67	1.04	-0.06	-1.23	2.95	1.04	-0.54	0.94
Impo2	2.55	1.15	-0.05	-1.42	2.67	1.15	-0.20	-1.39	2.58	1.06	-0.06	-1.22	2.66	1.07	-0.17	1.23
Impo3	2.59	1.12	0.01	-1.40	2.77	1.04	-0.21	-1.18	2.75	1.03	-0.23	-1.13	2.92	1.02	-0.66	0.66
Self-rated Friendship Quality																
Intim1	2.35	0.77	0.25	-0.74	2.50	0.74	0.10	-0.80	2.49	0.71	0.19	-0.72	2.48	0.70	0.04	-0.96
Intim2	2.80	0.80	-0.11	-0.83	2.88	0.71	-0.22	-0.70	2.89	0.70	-0.42	-0.54	2.86	0.71	-0.24	0.78
Intim3	2.41	0.77	0.40	-0.57	2.36	0.66	0.17	-0.75	2.39	0.75	0.11	-0.67	2.30	0.78	-0.04	-1.20
Confl1	1.72	0.66	0.98	0.62	1.66	0.59	1.11	1.95	1.73	0.61	0.62	-0.16	1.74	0.57	0.87	1.39
Confl2	1.73	0.66	0.77	0.17	1.83	0.66	0.92	1.01	1.78	0.57	0.51	-0.20	1.88	0.60	0.97	1.90
Confl3	1.69	0.65	0.98	0.64	1.69	0.65	1.17	1.52	1.65	0.61	0.79	0.04	1.88	0.61	0.68	0.63

Table E1 continued

Indicator	Grade 3				Grade 4				Grade 5				Grade 6			
	Mean	Std	Skew	Kurt	Mean	Std	Skew	Kurt	Mean	Std	Skew	Kurt	Mean	Std	Skew	Kurt
Agency Beliefs																
SELF1	2.41	0.67	0.24	-0.60	2.54	0.72	0.07	-0.72	2.43	0.65	0.25	-0.37	2.64	0.64	0.10	-0.10
SELF2	2.33	0.68	0.26	-0.53	2.49	0.72	0.21	-0.66	2.41	0.63	0.33	0.08	2.61	0.67	0.08	-0.48
SELF3	2.39	0.68	0.19	-0.66	2.53	0.69	0.20	-0.84	2.40	0.59	0.27	-0.19	2.64	0.64	0.08	-0.68
EFF1	2.44	0.84	0.25	-0.70	2.57	0.80	0.13	-0.82	2.50	0.76	0.04	-0.63	2.69	0.74	0.12	-0.63
EFF2	2.40	0.88	0.30	-0.88	2.59	0.83	0.11	-0.81	2.64	0.75	0.02	-0.37	2.79	0.73	-0.04	-0.56
EFF3	2.46	0.85	0.16	-0.75	2.60	0.83	0.04	-0.88	2.60	0.74	0.04	-0.48	2.76	0.75	-0.14	-0.57
ABL1	2.44	0.83	0.12	-0.77	2.58	0.92	-0.08	-1.03	2.31	0.75	0.15	-0.51	2.62	0.78	0.05	-0.66
ABL2	2.37	0.87	0.15	-0.80	2.51	0.90	0.08	-0.87	2.29	0.81	0.39	-0.52	2.52	0.82	0.15	-0.56
ABL3	2.39	0.89	0.21	-0.90	2.55	0.96	0.06	-1.08	2.34	0.78	0.31	-0.28	2.55	0.82	0.06	-0.46
NIC1	2.21	0.83	0.39	-0.70	2.32	0.85	0.45	-0.62	2.24	0.75	0.24	-0.36	2.49	0.83	0.06	-0.61
NIC2	2.25	0.81	0.38	-0.66	2.41	0.77	0.43	-0.47	2.28	0.72	0.28	-0.34	2.55	0.73	0.10	-0.50
NIC3	2.42	0.87	0.21	-1.00	2.55	0.87	0.05	-0.94	2.50	0.77	0.13	-0.62	2.70	0.73	-0.13	-0.40
LUC1	2.31	0.90	0.29	-0.87	2.28	0.90	0.30	-0.81	2.02	0.90	0.67	-0.41	2.04	0.95	0.67	-0.64
LUC2	2.32	0.96	0.35	-0.97	2.23	0.94	0.45	-0.76	2.11	0.96	0.43	-0.96	2.14	0.99	0.50	-0.84
LUC3	2.20	0.91	0.46	-0.67	2.16	0.93	0.44	-0.73	1.99	0.84	0.61	-0.42	1.97	0.88	0.82	-0.12
ADLT1	2.02	0.77	0.38	-0.67	1.95	0.78	0.62	-0.39	1.81	0.78	0.90	0.02	1.75	0.75	0.98	0.18
ADLT2	1.98	0.73	0.28	-0.68	1.96	0.84	0.74	-0.27	1.82	0.75	0.85	0.11	1.89	0.78	0.80	-0.03
ADLT3	2.02	0.78	0.44	-0.49	1.93	0.79	0.90	0.24	1.86	0.74	0.72	-0.27	1.83	0.75	0.93	0.22
TEA1	1.83	0.77	0.58	-0.58	1.75	0.80	0.91	0.13	1.54	0.74	1.60	2.17	1.54	0.67	1.23	0.83
TEA2	1.84	0.76	0.61	-0.25	1.73	0.82	1.14	0.63	1.62	0.75	1.25	1.07	1.67	0.77	1.26	1.18
TEA3	1.89	0.84	0.66	-0.42	1.71	0.83	1.21	0.80	1.62	0.73	1.07	0.48	1.59	0.80	1.48	1.61
PNT1	2.16	0.94	0.45	-0.78	2.16	0.93	0.56	-0.72	2.09	1.00	0.59	-0.96	2.08	0.91	0.49	-0.74
PNT2	2.13	0.94	0.34	-0.96	2.18	1.04	0.43	-1.09	2.02	0.99	0.71	-0.65	2.12	0.96	0.46	-0.89
PNT3	2.20	0.98	0.36	-1.02	2.16	0.98	0.46	-0.97	2.08	1.04	0.64	-0.89	1.97	0.98	0.75	-0.55
Action Strategies																
DIRECT1	2.47	1.06	0.11	-1.22	2.74	1.03	-0.23	-1.14	2.79	1.01	-0.36	-0.96	2.83	0.98	-0.31	0.98
DIRECT2	2.45	1.01	0.14	-1.06	2.66	1.05	-0.11	-1.19	2.58	1.03	-0.10	-1.11	2.82	0.92	-0.36	0.66
DIRECT3	2.79	1.00	-0.22	-1.10	2.98	0.93	-0.41	-0.88	2.98	0.92	-0.41	-0.86	3.22	0.78	-0.94	0.69
Help1	2.05	1.01	0.52	-0.89	2.15	1.06	0.43	-1.07	2.01	0.97	0.66	-0.57	2.26	0.92	0.23	-0.79
Help2	1.98	0.97	0.65	-0.62	2.18	1.00	0.34	-1.00	2.14	0.89	0.37	-0.58	2.28	0.99	0.15	-1.06
Help3	1.97	0.95	0.73	-0.39	2.06	0.93	0.53	-0.61	1.87	0.84	0.65	-0.30	2.13	0.96	0.44	-0.77
Omit1	1.80	0.79	1.00	0.29	1.80	0.71	0.83	0.54	1.69	0.69	0.97	0.25	1.65	0.59	0.78	-0.01
Omit1	1.84	0.69	0.59	-0.22	1.75	0.73	0.86	0.39	1.78	0.71	0.93	0.72	1.66	0.60	0.97	0.94
Omit3	1.78	0.69	0.76	0.05	1.78	0.67	0.87	0.64	1.71	0.60	0.91	1.16	1.68	0.59	0.63	-0.44
Avoid1	1.94	0.96	0.73	-0.49	1.96	0.90	0.68	-0.30	1.88	0.95	0.84	-0.25	1.82	0.81	0.80	0.16
Avoid2	1.86	0.92	0.85	-0.19	2.05	0.95	0.60	-0.57	1.98	0.90	0.73	-0.15	1.98	0.91	0.63	-0.42
Avoid3	2.01	0.99	0.64	-0.67	1.86	0.97	0.86	-0.34	1.88	0.89	0.76	-0.20	1.76	0.78	0.80	0.11
DoNot1	1.67	0.98	1.35	0.61	1.64	0.86	1.20	0.56	1.50	0.78	1.61	2.14	1.49	0.77	1.44	1.17
DoNot2	1.68	0.82	1.02	0.27	1.64	0.83	1.22	0.88	1.68	0.87	1.15	0.46	1.57	0.79	1.35	1.25
DoNot3	1.70	0.87	1.09	0.35	1.52	0.78	1.40	1.17	1.44	0.68	1.69	2.94	1.38	0.66	1.94	3.95
Number of Mutual Friends																
N_RCP	1.40	0.98	0.11	-0.98	1.70	1.02	0.26	1.03	1.51	0.92	0.12	-0.81	1.51	0.97	0.03	-0.98

Note. All variables had an equal range with a Minimum of 1 and and Maximum of 4. Std = standard deviation, Skew = skewness, Kurt = Kurtosis, EFF = Effort, ABL = Ability, NIC = Personal Attributes, ADLT = Adults, TEA = Teacher, PNT = Parents, Direct = Direct Action, Help = Seeking Help, Omit = Action Omission, Avoid = Avoidance, DoNot = Doing nothing, Intim = Intimacy, Confl = Conflict.

Table E2
Descriptive Statistics of Friended Average, Popular, and Rejected Children

Indicator	Sociometric Group											
	Average				Popular				Rejected			
	Mean	Std	Skew	Kurt	Mean	Std	Skew	Kurt	Mean	Std	Skew	Kurt
Agency Beliefs												
SELF1	2.52	0.68	0.13	-0.41	2.46	0.65	0.01	-0.34	2.59	0.85	0.03	-1.04
SELF2	2.44	0.68	0.21	-0.43	2.42	0.65	0.11	-0.42	2.58	0.81	0.07	-0.85
SELF3	2.46	0.66	0.08	-0.66	2.50	0.64	0.25	-0.64	2.60	0.76	0.12	-0.86
LUC1	2.15	0.92	0.54	-0.68	2.06	0.83	0.53	-0.25	2.34	1.17	0.25	-1.61
LUC2	2.20	0.98	0.43	-0.90	2.09	0.83	0.61	-0.16	2.27	1.10	0.33	-1.22
LUC3	2.09	0.90	0.58	-0.55	1.99	0.76	0.53	-0.26	2.21	1.12	0.35	-1.38
ADLT1	1.90	0.80	0.63	-0.56	1.77	0.67	0.75	-0.25	1.79	0.75	0.85	0.15
ADLT2	1.88	0.77	0.76	-0.05	1.85	0.74	0.67	-0.17	1.95	0.70	0.47	0.28
ADLT3	1.89	0.77	0.72	-0.20	1.78	0.66	0.71	-0.17	1.86	0.70	0.99	1.36
Means-ends Beliefs												
SELF1	2.47	0.69	0.10	-0.43	2.30	0.64	-0.04	-0.82	2.54	0.69	0.42	-0.10
SELF2	2.40	0.71	0.09	-0.56	2.32	0.64	0.10	-0.51	2.44	0.88	0.19	-0.84
SELF3	2.27	0.64	0.12	-0.37	2.26	0.58	0.15	-0.00	2.21	0.73	0.49	-0.18
LUC1	2.09	0.94	0.67	-0.32	2.00	0.85	0.43	-0.60	2.07	1.08	0.63	-0.88
LUC2	2.25	0.99	0.34	-0.90	1.89	0.86	0.61	-0.41	2.28	1.16	0.29	-1.38
LUC3	2.23	1.01	0.43	-0.89	2.02	0.85	0.41	-0.61	2.27	1.22	0.32	-1.54
ADLT1	1.77	0.72	0.71	-0.21	1.61	0.55	1.01	1.38	1.91	0.81	0.87	0.29
ADLT2	1.80	0.81	0.83	-0.18	1.69	0.72	0.94	0.49	1.91	0.80	0.46	-0.60
ADLT3	1.79	0.82	0.96	0.05	1.69	0.68	0.80	-0.26	1.80	0.80	0.56	-0.95
Action Strategy												
DIRECT1	2.63	1.02	-0.08	-1.15	2.62	1.02	-0.18	-1.06	2.71	1.07	-0.19	-1.21
DIRECT2	2.54	0.99	-0.06	-1.01	2.53	0.98	0.06	-0.98	2.70	1.10	-0.12	-1.36
DIRECT3	3.00	0.88	-0.50	-0.56	2.97	0.90	-0.47	-0.60	3.01	0.96	-0.66	-0.51
Help1	2.11	1.03	0.46	-0.97	2.07	0.97	0.48	-0.78	2.24	1.15	0.32	-1.38
Help2	2.21	0.97	0.34	-0.89	2.05	0.98	0.44	-0.97	2.18	1.07	0.35	-1.15
Help3	2.08	0.92	0.45	-0.70	1.93	0.87	0.53	-0.61	1.84	1.00	0.93	-0.27
Omit1	1.73	0.72	1.15	1.00	1.70	0.75	1.27	1.16	1.83	0.69	0.43	-0.64
Omit2	1.75	0.67	0.90	0.72	1.72	0.67	0.91	1.01	1.90	0.79	0.73	-0.03
Omit3	1.74	0.64	0.91	0.74	1.67	0.63	1.14	1.77	1.82	0.63	-0.06	-1.22
Goal Property												
DIFF1	2.19	1.04	0.45	-0.96	1.94	0.87	0.78	0.06	2.45	1.14	0.18	-1.38
DIFF2	2.09	0.99	0.59	-0.69	1.91	0.97	0.89	-0.14	2.24	1.05	0.38	-1.05
DIFF3	2.00	0.88	0.70	-0.14	1.91	0.84	0.59	-0.36	2.47	1.04	0.08	-1.18
impo1	2.78	1.05	-0.28	-1.15	2.60	1.10	-0.02	-1.34	3.00	1.05	-0.48	-1.20
impo2	2.60	1.07	-0.11	-1.23	2.51	1.08	0.01	-1.27	2.83	1.12	-0.36	-1.29
impo3	2.73	1.07	-0.24	-1.22	2.71	1.15	-0.22	-1.40	2.98	1.04	-0.43	-1.16
Friendship Quality												
intim1	2.43	0.69	0.41	-0.48	2.69	0.75	-0.13	-0.98	2.58	0.78	-0.33	-0.85
intim2	2.85	0.71	-0.31	-0.48	3.01	0.74	-0.45	-0.79	2.93	0.75	-0.64	-0.37
intim3	2.35	0.72	0.49	-0.25	2.50	0.78	-0.08	-0.86	2.47	0.71	-0.21	-0.90
confl1	1.66	0.60	0.79	0.39	1.62	0.52	0.75	-0.04	1.84	0.71	0.71	-0.22
confl2	1.73	0.55	0.50	-0.18	1.76	0.58	0.73	0.06	1.92	0.78	0.59	-0.22
confl3	1.70	0.57	0.68	0.09	1.61	0.58	1.10	1.94	1.82	0.73	0.72	-0.15

Table E3
Descriptive Statistics of Friendless Average and Rejected Children

Indicator	Sociometric Group							
	Average				Rejected			
	Mean	Std	Skew	Kurt	Mean	Std	Skew	Kurt
	Agency Beliefs							
SELF1	2.55	0.65	0.27	-0.28	2.39	0.76	0.58	-0.64
SELF2	2.53	0.65	0.13	0.37	2.32	0.76	0.55	-0.39
SELF3	2.55	0.66	0.13	-0.03	2.34	0.75	0.60	-0.42
LUC1	2.37	0.87	0.28	-0.63	2.24	0.95	0.39	-1.10
LUC2	2.36	0.93	0.21	-1.05	2.34	1.05	0.30	-1.25
LUC3	2.31	0.93	0.38	-0.83	2.12	0.94	0.72	-0.33
ADLT1	2.12	0.77	0.44	-0.30	1.89	0.85	0.84	-0.31
ADLT2	2.08	0.76	0.39	-0.53	1.95	0.74	0.53	-0.49
ADLT3	2.21	0.76	0.56	0.09	2.02	0.83	0.55	-0.67
	Means-ends Beliefs							
SELF1	2.54	0.71	0.43	-0.64	2.52	0.74	-0.13	-0.33
SELF2	2.41	0.62	0.50	-0.62	2.37	0.81	0.11	-0.74
SELF3	2.53	0.66	0.41	-0.04	2.27	0.61	0.12	-0.73
LUC1	2.31	1.08	0.31	-1.11	2.16	0.92	0.57	-0.29
LUC2	2.35	0.98	0.24	-0.80	2.14	1.02	0.37	-1.05
LUC3	2.56	1.07	-0.03	-1.20	2.22	1.07	0.38	-1.10
ADLT1	1.96	0.79	0.43	-0.79	1.93	0.95	0.72	-0.56
ADLT2	2.22	0.80	-0.08	-0.74	1.76	0.80	1.00	0.57
ADLT3	1.91	0.86	0.93	0.25	1.96	0.90	0.56	-0.64
	Action Strategy							
DIRECT1	3.10	0.94	-0.66	-0.67	2.58	1.18	-0.04	-1.50
DIRECT2	2.80	0.95	-0.19	-0.97	2.81	1.10	-0.15	-1.50
DIRECT3	3.12	0.97	-0.46	-1.40	2.75	1.02	-0.10	-1.21
Help1	2.10	0.88	0.06	-1.19	2.16	1.08	0.62	-0.81
Help2	1.84	0.90	0.83	-0.10	2.16	1.05	0.40	-1.06
Help3	1.93	0.74	0.53	0.37	1.95	1.01	0.77	-0.49
Omit1	1.69	0.70	0.81	-0.37	1.93	0.79	0.79	-0.21
Omit2	1.89	0.61	0.06	-0.82	1.75	0.84	0.97	-0.03
Omit3	1.72	0.67	0.76	-0.28	1.91	0.78	0.43	-0.98
	Goal Property							
DIFF1	2.16	1.02	0.51	-0.81	2.16	1.13	0.51	-1.12
DIFF2	1.99	0.88	0.79	0.22	2.39	1.20	0.16	-1.51
DIFF3	1.95	0.98	0.86	-0.15	2.29	1.03	0.30	-1.00
impo1	2.79	0.99	-0.28	-0.96	2.58	1.11	0.04	-1.35
impo2	2.74	0.98	-0.36	-0.77	2.42	1.22	0.14	-1.58
impo3	2.82	0.93	-0.26	-0.76	2.59	1.08	-0.03	-1.28
	Friendship Quality							
intim1	2.43	0.79	0.29	-0.95	2.02	0.62	0.58	0.37
intim2	2.84	0.75	-0.06	-1.09	2.51	0.71	0.48	-0.01
intim3	2.31	0.81	0.20	-1.40	2.15	0.78	0.23	-0.56
confl1	1.83	0.65	0.57	-0.55	1.84	0.75	1.31	2.06
confl2	1.78	0.68	0.49	-0.59	1.92	0.82	1.15	1.25
confl3	1.86	0.84	0.82	-0.18	1.74	0.70	1.40	2.59

Table E4
Agency and Means-ends Beliefs:
Cronbach's Alpha of the Overall Sample

Dimension	Belief Type	
	Means-ends	Agency
Self	.95	.81
Effort	.86	.62
Ability	.91	.62
Personal Attributes	.87	.59
Luck	.93	.74
Adults	.95	.84
Teacher	.90	.72
Parents	.92	.74

Table E5
Friendship Quality:
Cronbach's Alpha of the Overall Sample

Feature	Self Rating	Mutual Friendships	
		Self Rating	Friends' Ratings
Intimacy	.84	.84	.86
Conflict	.75	.68	.69

Table E6
Goal Difficulty and Goal Importance:
Cronbach's Alpha of the Overall Sample

Construct	
Difficulty	.93
Importance	.78

Table E7
Action Strategies:
Cronbach's Alpha of the Overall Sample

Direct Action	.71
Seeking Help	.59
Action Omission	.74
Behavioral Avoidance	.65
Doing Nothing	.60

Table E8

Raw Correlations among Perceived Control, Action Strategies, Self-rated Friendship Quality, and Number of Mutual Friendships by Sociometric Groups of Friended and Friendless Children

Construct	1	2	3	4	5	6	7	8	9	10	11	12	
Friended-Average Children													
1 agency: Self	1.00												
2 agency: Luck	0.45	1.00											
3 agency: Adult	0.33	0.32	1.00										
4 means-e: Self	0.70	0.29	0.21	1.00									
5 means-e: Self	0.35	0.75	0.22	0.37	1.00								
6 means-e: Self	0.18	0.29	0.72	0.15	0.23	1.00							
7 Goal Difficulty	-0.04	-0.06	0.03	0.14	0.07	0.10	1.00						
8 Direct Action	0.59	0.31	0.26	0.52	0.26	0.14	0.12	1.00					
9 Seek Help	0.33	0.22	0.35	0.29	0.26	0.34	0.15	0.31	1.00				
10 Action Omission	0.14	0.08	0.12	0.18	0.17	0.18	0.29	0.02	0.41	1.00			
11 Self: Intimacy	0.36	0.07	0.13	0.22	0.08	0.06	-0.10	0.24	0.14	0.04	1.00		
12 Self: Conflict	-0.13	-0.09	-0.08	-0.11	-0.05	0.04	0.15	0.01	0.14	0.18	-0.10	1.00	
13 Importance	0.53	0.20	0.22	0.48	0.26	0.17	0.13	0.52	0.29	0.04	0.28	-0.05	1.00
Friended-Popular Children													
1 agency: Self	1.00												
2 agency: Luck	0.36	1.00											
3 agency: Adult	0.27	0.16	1.00										
4 means-e: Self	0.72	0.40	0.17	1.00									
5 means-e: Self	0.31	0.70	0.05	0.42	1.00								
6 means-e: Self	0.06	0.10	0.72	0.09	0.13	1.00							
7 Goal Difficulty	-0.08	-0.01	0.03	0.12	0.13	0.21	1.00						
8 Direct Action	0.55	0.14	0.17	0.47	0.15	0.02	0.29	1.00					
9 Seek Help	0.29	0.19	0.05	0.23	0.22	0.04	0.08	0.31	1.00				
10 Action Omission	0.02	0.19	0.05	-0.06	0.23	0.11	0.04	-0.22	0.40	1.00			
11 Self: Intimacy	0.51	0.22	0.30	0.29	0.17	0.21	0.26	0.39	0.18	0.08	1.00		
12 Self: Conflict	-0.02	0.13	0.12	0.06	0.15	0.16	0.15	0.04	0.11	0.23	0.14	1.00	
13 Importance	0.45	0.29	0.01	0.43	0.29	-0.04	0.17	0.45	0.18	-0.01	0.35	0.11	1.00
Friended-Rejected Children													
1 agency: Self	1.00												
2 agency: Luck	0.63	1.00											
3 agency: Adult	0.41	0.44	1.00										
4 means-e: Self	0.78	0.57	0.39	1.00									
5 means-e: Self	0.51	0.78	0.43	0.57	1.00								
6 means-e: Self	0.28	0.48	0.64	0.36	0.50	1.00							
7 Goal Difficulty	-0.26	0.22	0.33	0.51	0.42	0.26	1.00						
8 Direct Action	0.51	0.29	0.26	0.46	0.17	0.02	0.14	1.00					
9 Seek Help	0.33	0.23	0.32	0.52	0.29	0.46	0.47	0.31	1.00				
10 Action Omission	0.27	0.30	0.11	0.57	0.35	0.27	0.43	-0.06	0.36	1.00			
11 Self: Intimacy	0.31	0.37	0.02	0.20	0.19	-0.04	0.14	0.29	0.08	0.02	1.00		
12 Self: Conflict	-0.17	0.18	-0.13	0.39	0.09	-0.10	0.36	0.39	0.14	0.34	0.27	1.00	
13 Importance	0.38	0.33	0.18	0.52	0.30	0.21	0.38	0.43	0.40	0.19	0.29	0.26	1.00

Table E8 continued

Construct	1	2	3	4	5	6	7	8	9	10	11	12	
Friendless-Average Children													
1 agency: Self	1.00												
2 agency: Luck	0.51	1.00											
3 agency: Adult	0.30	0.40	1.00										
4 means-e: Self	0.60	0.34	0.08	1.00									
5 means-e: Self	0.25	0.66	0.29	0.27	1.00								
6 means-e: Self	0.07	0.22	0.54	0.31	0.20	1.00							
7 Goal Difficulty	-0.10	0.03	0.24	0.18	0.16	0.40	1.00						
8 Direct Action	0.49	0.16	0.18	0.47	0.11	0.00	0.16	1.00					
9 Seek Help	0.05	0.34	0.32	0.10	0.08	0.49	0.32	-0.13	1.00				
10 Action Omission	-0.13	0.19	-0.10	0.14	0.29	0.15	0.20	-0.17	0.24	1.00			
11 Self: Intimacy	0.26	0.19	0.36	0.14	0.07	0.06	-0.13	0.51	-0.12	-0.31	1.00		
12 Self: Conflict	-0.20	-0.04	-0.05	0.34	0.07	0.35	0.35	-0.05	0.21	0.43	-0.24	1.00	
13 Importance	0.23	0.28	0.21	0.36	0.27	0.04	0.22	0.38	0.10	0.09	0.28	0.13	1.00
Friendless-Rejected Children													
1 agency: Self	1.00												
2 agency: Luck	0.79	1.00											
3 agency: Adult	0.38	0.33	1.00										
4 means-e: Self	0.18	0.05	0.31	1.00									
5 means-e: Self	0.31	0.37	0.21	0.53	1.00								
6 means-e: Self	0.03	0.13	0.78	0.20	0.12	1.00							
7 Goal Difficulty	-0.05	0.06	0.32	0.60	0.47	0.39	1.00						
8 Direct Action	0.63	0.38	0.39	0.47	0.31	0.11	0.18	1.00					
9 Seek Help	0.37	0.25	0.42	0.08	-0.04	0.37	0.15	0.04	1.00				
10 Action Omission	0.09	0.19	0.45	0.34	0.29	0.46	0.50	-0.13	0.56	1.00			
11 Self: Intimacy	0.48	0.29	0.54	0.40	0.34	0.36	0.25	0.43	0.47	0.29	1.00		
12 Self: Conflict	-0.02	-0.08	0.41	0.29	0.26	0.37	0.40	0.16	0.26	0.49	0.42	1.00	
13 Importance	0.43	0.22	0.41	0.23	0.05	0.28	0.11	0.40	0.35	0.11	0.38	0.17	1.00

Table E9

Raw Correlations among Perceived Control, Action Strategies, and Friend-rated Friendship Quality by Sociometric Groups of Friended Children

Construct	1	2	3	4	5	6	7	8	9	10	11	12	
Average Children													
1 agency: Self	1.00												
2 agency: Luck	0.46	1.00											
3 agency: Adult	0.32	0.31	1.00										
4 means-e: Self	0.70	0.30	0.22	1.00									
5 means-e: Self	0.34	0.76	0.21	0.35	1.00								
6 means-e: Self	0.17	0.28	0.70	0.17	0.25	1.00							
7 Goal Difficulty	-0.02	-0.06	0.01	0.16	0.08	0.09	1.00						
8 Direct Action	0.57	0.30	0.24	0.49	0.23	0.13	0.12	1.00					
9 Seek Help	0.35	0.19	0.32	0.34	0.26	0.32	0.15	0.32	1.00				
10 Action Omission	0.12	0.12	0.12	0.19	0.19	0.18	0.30	0.01	0.45	1.00			
11 Friend: Intimacy	0.21	-0.14	0.17	0.09	-0.10	0.12	-0.10	0.11	0.02	-0.07	1.00		
12 Friend: Conflict	-0.12	0.01	-0.02	-0.11	0.06	0.01	0.23	-0.01	0.04	0.02	-0.24	1.00	
13 Importance	0.53	0.17	0.20	0.48	0.24	0.15	0.13	0.51	0.27	0.03	0.22	0.04	1.00
Popular Children													
1 agency: Self	1.00												
2 agency: Luck	0.36	1.00											
3 agency: Adult	0.27	0.16	1.00										
4 means-e: Self	0.72	0.40	0.17	1.00									
5 means-e: Self	0.31	0.70	0.05	0.42	1.00								
6 means-e: Self	0.06	0.10	0.72	0.09	0.13	1.00							
7 Goal Difficulty	0.08	-0.01	0.03	0.12	0.13	0.21	1.00						
8 Direct Action	0.55	0.14	0.17	0.47	0.15	0.02	0.29	1.00					
9 Seek Help	0.29	0.19	0.05	0.23	0.22	0.04	0.08	0.31	1.00				
10 Action Omission	0.02	0.19	0.05	-0.06	0.23	0.11	0.04	-0.22	0.40	1.00			
11 Friend: Intimacy	0.35	0.09	0.20	0.21	0.09	0.12	0.08	0.33	0.10	-0.03	1.00		
12 Friend: Conflict	-0.22	0.07	-0.18	-0.15	-0.04	-0.08	-0.13	-0.30	-0.11	-0.01	-0.23	1.00	
13 Importance	0.45	0.29	0.01	0.43	0.29	-0.04	0.17	0.45	0.18	-0.01	0.06	-0.17	1.00
Rejected Children													
1 agency: Self	1.00												
2 agency: Luck	0.64	1.00											
3 agency: Adult	0.43	0.40	1.00										
4 means-e: Self	0.77	0.57	0.37	1.00									
5 means-e: Self	0.54	0.78	0.41	0.60	1.00								
6 means-e: Self	0.34	0.51	0.65	0.38	0.52	1.00							
7 Goal Difficulty	0.24	0.16	0.25	0.49	0.42	0.25	1.00						
8 Direct Action	0.48	0.23	0.22	0.44	0.13	0.04	0.09	1.00					
9 Seek Help	0.43	0.32	0.40	0.61	0.35	0.46	0.57	0.43	1.00				
10 Action Omission	0.34	0.34	0.11	0.61	0.41	0.24	0.46	-0.01	0.35	1.00			
11 Friend: Intimacy	0.00	0.22	-0.10	-0.05	0.24	0.08	0.14	-0.31	-0.08	0.13	1.00		
12 Friend: Conflict	0.12	-0.02	0.08	0.32	0.04	0.07	0.25	0.43	0.44	0.34	-0.29	1.00	
13 Importance	0.35	0.30	0.15	0.51	0.30	0.24	0.36	0.39	0.48	0.25	-0.11	0.28	1.00

Appendix F

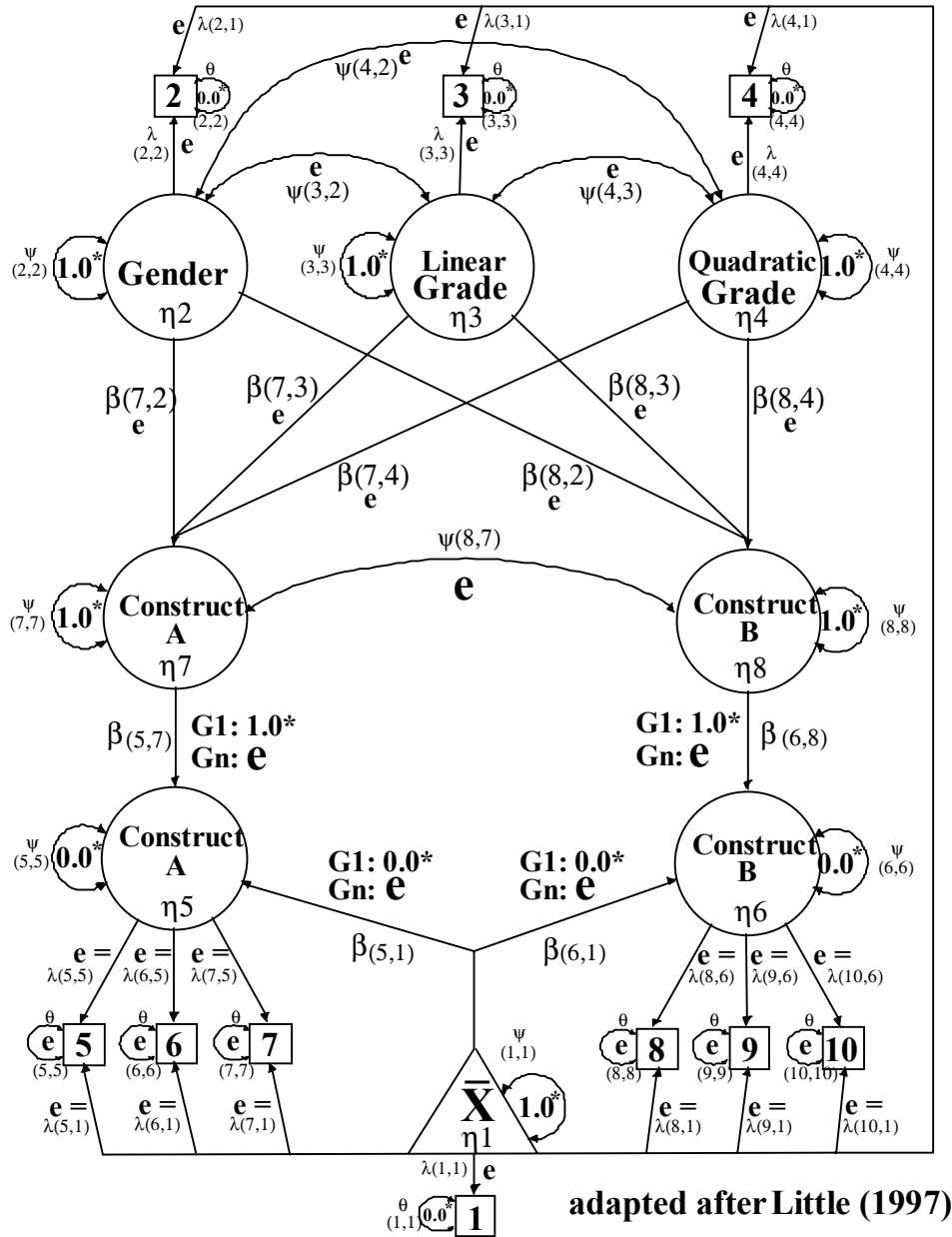
Details of the Structural Equation Modeling Procedures

Using Phantom Factors to Decompose Latent Covariances into Variances and Correlations

In order to decompose the latent covariances into variances and correlations each construct (with the exception of in the models included covariates gender, grade, and quadratic grade) was represented as yoked phantom variates in the MACS and the multiple-group covariance structure models (for a more detailed description see, Little, 1997). Figure F1 depicts the specification of such a model in reticular algebraic model (RAM) notation (McArdle & McDonald, 1984).

A given phantom construct predicts all the variance of its associated first-order representation. To do so, I fixed the variance of the phantom or second-order construct at a value of 1 and the variance of the first-order construct at 0. The variance of the second-order construct was fixed at 1 in order to identify the construct and to establish the scale of measurement. As a result the parameter (i.e., beta-path or gamma-path) that yoke the two mirrored constructs together contains the estimate of the latent construct's standard deviation. In other words, the construct's first-order representation was regressed on its second-order representation, whereby the regression coefficient represented the estimated latent standard deviation of the construct. This regression estimate must be fixed to a non-zero value in the first group (e.g., 1) as part of identifying the MACS model. In the subsequent groups, these estimates are freed. The obtained estimates of the latent standard deviations in the subsequent groups are rescaled relative to the fixed value of the construct variance of the first group. With the scaling set at unit variance, the interrelations among the various mirrored, second-order constructs are thereby estimated as correlations in each group. Note, the first-order and second-order constructs can be specified either in the PSI matrix or PHI matrix using LISREL connotations.

Figure F1
 A Mean and Covariance Structures (MACS) Representation of Measurement Equivalence



Note. In RAM notation (McArdle & McDonald, 1984), circles represent latent variables, squares represent the manifest variables, one-headed arrows represent regression weights, while two-headed arrows represent variances or covariances. e = estimate, “=” = equated estimate, * = fixed parameter, G1 = first group, Gn = each of the subsequent n groups.

Estimation of Latent Means

Similar to the latent standard deviations, the latent means of the subsequent groups can be estimated if the latent mean (i.e., ALPHA) of a specific construct is fixed at a certain value (e.g., 0) in order to partly identify the model. The latent means of the subsequent groups are estimated as a relative difference from the reference point established in the first group.

Measurement Invariance Represents the Precondition for Estimating Latent Means and Latent Standard Deviations

Importantly, cross-group invariance of the parameters of the measurement space (i.e., loadings and intercepts) represents the precondition for estimating both the latent standard deviations as well as the latent mean levels in the subsequent groups. Specifically, in order to estimate the latent standard deviations the model must be identified by establishing cross-group invariance of the factor loadings. To do so, the factor loadings in the subsequent groups are constrained to be equal to those in the first group. The latent means can be estimated when the model is identified by specifying cross-group invariance of the factor intercepts. Assessment of measurement invariance regarding to the loadings and intercepts of covariates such as gender, grade, and the quadratic effects of grade is not reasonable.

Fixing the Parameters of the Measurement Space when Testing Latent Parameters

Note, when specifying models implementing constraints of latent parameters (i.e., factor means, factor variances, and factor correlations) I fixed the parameters of the measurement space to the values obtained in the metrically invariant model. I did so in order to prevent biases due to constraining latent parameters. If the parameters of measurement models are freely estimated then implementing constraints of latent parameters can cause that variance of the latent model is squeezed into the measurement model. Such shifts of variances, although they may be rare, lead to biased estimates.

Description of the Model Specifications

I specified the first-order representations of the constructs in the PSI matrix and the second-order representations in the PHI matrix. As a consequence, I specified the yoking

regression paths (i.e., Gammas) between the first-order representations (i.e., Etas) and second-order representations (i.e., Ksis) of the factors in the GAMMA matrix. Note, these regression paths represent the estimates of the latent standard deviations. The loadings were specified in the LY matrix. The intercepts were specified in the TY matrix. The latent mean levels were specified in the ALPHA matrix. The substantive constructs were regressed on the covariates (i.e., gender, linear, and quadratic effects of grade) by specifying the regression paths in the BETA matrix.

Appendix G

Development of Means-ends and Agency Beliefs: Structural Relationships, Mean Levels, and Functioning in the Domain of Friendship During Middle Childhood

Investigating the development of perceived control about friendship during middle childhood is important for the interpretation of the results regarding the effects of sociometric status. Therefore, as preparatory analyses, I cross-sectionally examine the development of perceived control about friendship across grades 3 to 6. During middle childhood children's understanding that powerful others and luck are potentially uncontrollable represents a major development (Flammer, 1990; Skinner, 1991, 1995; Skinner et al., 1998; Weisz, 1983). This developmental change in children's understanding of these action means is reflected in children's means-ends beliefs. Empirical findings show that in the friendship domain children's means-ends beliefs about Powerful Others (i.e., Parents) and Luck show decreases in mean levels and are less highly correlated with self-related (i.e., Effort and Personal Attributes) belief dimensions at the end of the investigated age range (grades 3 - 6) (Skinner 1990b). The preparatory analyses explore whether these differences in the mean-levels and intercorrelations found in the means-ends beliefs (e.g., Skinner, 1990b) are also found in the agency belief system. The assumption, that agency and means-ends beliefs may show similar developmental differences is based on previous findings indicating that both types of beliefs are highly correlated; children of grades 3 - 5 differentiate only to a low degree among agency and means-ends beliefs (Wanner, 1995). Alternatively, it could be that the lack of developmental differences in the agency beliefs found in the academic domain generalizes into the friendship domain. However, based on assumptions of the action theory of control (e.g., Skinner, 1995), I hypothesize that with age and accumulating failure experiences children increasingly differentiate among agency and means-ends beliefs (i.e., the correlations of agency and means-ends beliefs decrease).

The action theory of psychological control posits that the developmental increases in differentiation between (a) agency and means-ends beliefs and (b) beliefs about external and self-related causes are related to their functioning. In line with theoretical assumptions of locus

of control (Rotter, 1966), children's increases in understanding that the external means Luck and Help provided by Powerful Others are less controllable than self-related means such as Effort, high means-ends beliefs about external means indicate low feelings of control. Thus, at older ages external means-ends beliefs are hypothesized to be negatively related to effort investments (i.e., Direct Action) and friendship outcomes. Moreover, at older ages external means-ends beliefs are hypothesized to be positively related to Action Omission and Seeking Help. In contrast, at earlier ages external means-ends beliefs are hypothesized to evince similar relationships with Direct Action and friendship outcomes as external agency beliefs. All dimensions of agency beliefs and self-related means-ends beliefs are hypothesized to be positively related to Direct Action and friendship outcomes, although agency beliefs about external means may evince lower relationships than beliefs about self-related means. In contrast, agency beliefs are hypothesized to be negatively related to Action Omission and Seeking Help. Moreover, I hypothesize that with increasing age the relationships among agency beliefs (and self-related means-ends beliefs), action strategies, and friendship outcomes may increase because with age and accumulating experiences, children's perceived control about friendship may become more realistic.

As preparatory analyses, I investigate whether both agency and means-ends beliefs can be invariantly represented by higher-order structures across the investigated age range. Specifically, I assume that beliefs about the means Effort, Ability, and Personal Attributes can be invariantly represented as a higher-order constructs (i.e., agency and means-ends beliefs about Self) across the investigated grade levels. I hypothesize that, contrary to findings in the academic domain, in the friendship domain children in grade 6 do not differentiate between means-ends beliefs about Effort and Ability. Thus, the finding that beliefs for self-related causes (i.e., Effort, Ability, and Personal Attributes) remain invariantly highly correlated across grade 3 to grade 5 (Wanner, 1995) is hypothesized to extend to grade 6. This hypothesis is based on findings indicating that developmental increases in differentiation among means-ends beliefs are delayed in the friendship domain compared to the academic domain (cf., Skinner, 1990b). In addition, it may be that children's understanding of the inverse relationship of effort and ability (e.g., Nicholls,

1978) may not affect beliefs about perceived control in the friendship domain, although it does so in the academic domain (e.g., Chapman & Skinner, 1989). Moreover, I assume that beliefs about Parents and Teachers as Powerful Others can be invariantly represented as a higher-order construct (i.e., agency and means-ends beliefs about Adults as Powerful Others). I expect that earlier findings indicating that means-ends beliefs about Parents and Teachers as Powerful others are invariantly highly correlated across grades 2 to 5 (Wanner, 1995) extends to grade 6.

Finally, I hypothesize that at all ages high Goal Difficulty indicates a feeling of lack of control. Generally, global perceptions of control develop at earlier ages than both agency and means-ends beliefs (for a review, see Skinner, 1995). Thus, across all age groups the relationships of Goal Difficulty, action strategies, and friendship outcomes should be reversed when compared to agency beliefs.

To summarize the expected relationships of the investigated constructs: All agency beliefs, self-related means-ends beliefs, and Direct Action are expected to be positively correlated. Moreover, these constructs are expected to correlate positively with friendship quality (inverse relationships with conflict) and the number of mutual friends. All agency beliefs, self-related means-ends beliefs are expected to be negatively related to Action Omission and Seeking Help. Generally, the relationships of self-related agency and means-ends beliefs with the remaining constructs are expected to be higher than the corresponding relationships of external agency beliefs. Action Omission and Seeking Help are assumed to be positively correlated with external means-ends beliefs and Goal Difficulty. External means-ends beliefs, Goal Difficulty, Action Omission, and Seeking Help are hypothesized to be inversely related to friendship outcomes compared to agency beliefs (and self-related means-ends beliefs, and Direct Action); that is, external means-ends beliefs, Goal Difficulty, Action Omission, and Seeking Help are hypothesized to be negatively related to friendship outcomes. Importantly, the hypothesized relationships of external means-ends beliefs with the remaining constructs are assumed to evince only at older ages. At younger ages, external means-ends beliefs may evince similar relationships as external agency beliefs with the remaining constructs. Generally, it is expected that with increasing age the relationships of perceived control, action strategies, and friendship

outcomes increase. The exception represent the relationships of Goal Difficulty, action strategies, and friendship outcomes which are assumed to be invariant across the investigated age groups.

Internal Validity and Measurement Invariance of the Investigated Constructs

This section presents first the assessment of internal validity and measurement invariance of the lower-order constructs of agency and means-ends beliefs, and action strategies. Results addressing the higher-order structures of these constructs follow. Then internal validity and measurement invariance of the latter representation of the agency and means-ends beliefs, action strategies as well as Goal Difficulty, Goal Importance, and self-rated friendship quality is reported. Finally, the results addressing measurement invariance of all possible combinations of two or three of these constructs are given.

Development of the Structural Relationships of Agency and Means-ends Beliefs

This section deals with the analyses that address the lower-order and higher-order structures of children's agency and means-ends beliefs across grade levels. Based on previous findings (Wanner, 1996) it was expected that beliefs about the various self-related means (i.e., effort, ability, and personal attributes) remain invariantly highly correlated across childhood. Similarly, beliefs about parents and teachers as powerful others were expected to remain invariantly highly correlated across this age range. More specifically, I assumed that beliefs about self-related means can be represented by a single higher-order construct assessing more global beliefs about "Self" as a means. Beliefs about help provided by parents and teachers also were also assumed to represent a single higher-order construct assessing more global beliefs about Adults as powerful others.

The analyses were conducted for agency and means-ends beliefs separately. Accordingly, the presentation of the results will be in parallel. As outlined in section 3.5.4.1, the analyses followed a three-step process. First, invariance of the measurement model was specified but no constraints were placed on the structural model components. Invariance was tested for the factor loadings of the indicators. Second, assuming an acceptable fit for this model, it was tested whether the factor covariations can be represented by the hypothesized higher-order structure.

Third, cross-group invariance of the loadings of the the lower-order constructs on their respective higher-order constructs was tested. In each of the analyses the effects of gender were controlled.

Lower-order Structure of Agency and Means-ends Beliefs Across Grade Levels

The model to be tested postulated a priori that both agency and means-ends beliefs systems represent each a six-factor structure consisting of beliefs about effort, ability, personal attributes, luck, parents, and teachers as powerful-others. As can be seen in Table D5 of Appendix D each of these lower-order factors was represented by three indicators. Each lower-order factor of the agency beliefs was measured by six items that were combined into the three parcel indicators entering the model (see Table D5 of Appendix D). Each lower-order factor of the means-ends beliefs was indicated by three items.

Testing Measurement Invariance of Agency and Means-ends Beliefs across Grade Levels

In Table G1, I present the model testing procedure for testing measurement invariance across the four grade levels (grades 3 - 6) separately for both the agency and means-ends beliefs. I specified a freely estimated four-group covariance structures model (Model 1) testing the configural invariance of the loadings of the indicators on their a priori defined factors (effort, ability, personal attributes, luck, parents, and teachers as powerful-others) across the age groups. Table G1 shows that these models were tenable for both the agency and means-ends beliefs. The models reproduced the variances and covariances of the data satisfactory well, as all fit indices uniformly indicated an acceptable fit of the proposed model. The configural invariant model of the means-ends beliefs evinced a rather low $\text{NNFI} = .86$. The model was accepted because (a) the χ^2/df was lower than 2, (b) the Incremental Fit Index of .89 was approaching the .90-level, (c) the Comparative Fit Index of .90 reached the critical .90-level, (d) the Root Mean Square Error of Approximation, $\text{RMSEA} = .03$, was below the .05-level, (e) no alterations to the measurement model were suggested by the data, and (f) the proposed factorial structure is based on a strong theory. Furthermore, the relative contribution to the χ^2 - value provided by the four groups was approximately equal (26% for the grade 3, 22% for grade 4, 27% for grade 5, and 24% for grade 6). This suggests, that no misfit of the proposed factorial structure existed in a specific group.

Following the guidelines of invariance assessment outlined in section 3.5.5, I assessed measurement invariance by employing a modeling rationale. As seen in Table G1, when invariance of the loadings was enforced (Model 2), the overall model fit was still acceptable for both the agency and the means-ends beliefs. Moreover, this model yielded nonsignificant ΔX^2 values when compared with the configural model (Model 1) for both belief systems. Thus, the assumption that the first-order constructs of both belief systems have equivalent measurement properties (i.e., metric invariance) and, consequently, are comparable across grade levels was supported.

Table G1
Testing measurement invariance of agency and means-ends beliefs across grade levels

Models	Global Fit Indices						Comparison of Models		
	X^2	df	X^2/df	NNFI	IFI	CFI	ΔX^2	df	p
Agency Beliefs									
1) Configural	795.21	528	1.51	.96	.97	.97			
2) Metric invariance	852.73	582	1.47	.96	.97	.97			
Model 1 versus 2							57.52	54	.35
Means-ends Beliefs									
1) Configural	844.91	528	1.60	.86	.89	.90			
2) Metric invariance	911.10	582	1.57	.87	.89	.89			
Model 1 versus 2							66.19	54	.12

Note. The RMSEA obtained with all models was $\leq .03$.

Testing the Proposed Higher-Order Structure of Agency and Means-ends Beliefs across Grade Levels

In the next step, after having established measurement invariance, I tested whether the proposed higher-order structure was tenable for both the agency and means-ends beliefs-systems in the four age groups. Again, I implemented the modeling procedures for the agency and the means-ends beliefs in parallel. In order to specify the higher-order models, two additional latent factors were included in the measurement invariant model of each belief system. Because a

higher-order structure assumes that the pattern of covariances among a set of lower-order factors is due to the presence of higher-order processes, the residual covariances among the set of lower-order factors are fixed to zero and a directed path from the higher-order latent factor to each of the lower-order factors is specified in their place (Jöreskog & Sörbom, 1989).

For the higher-order models, two higher-order factors were specified. The first higher-order factor, termed Self, was hypothesized to explain the common relations among the three lower-order factors, Effort, Ability, and Personal Attributes. The second higher-order factor, termed Adults, was hypothesized to explain the common covariation among the two lower-order factors, Parents and Teachers. Accordingly, the residual covariances among the three lower-order factors subsumed by the Self higher-order factor and the two lower-order factors represented by the Adults higher-order factor were constrained to be zero. Further, all residual covariances between the sets of lower-order factors were also fixed at zero; in their place, a single covariance between the two higher-order factors was estimated (see Jöreskog & Sörbom, 1989). This form of restriction assumes that the covariances among the sets of lower-order factors were due to the covariation between the processes represented by the higher-order control constructs and, further, the residual covariances among the lower-order factors will be orthogonal once the common covariance represented by the higher-order factors is partialled from them. Similarly, the covariances between the sets of lower-order factors and the beliefs about Luck were also fixed to zero. Instead, covariances between Luck and the higher-order factors were estimated. Moreover, gender as a covariate was assumed to affect the higher-order factors and not the lower-order factors. The two higher-order factors had fixed variances of 1.0 in order to identify the factors and establish the scale of measurement at this higher-order level. The adequacy of the fit of the higher-order structure was tested in the form of a nested comparison between the less restrictive measurement invariant model and the more restrictive higher-order model. Following the guidelines of section 3.5.5, for testing constraints of latent parameters a statistical rationale was employed. A Type-II error protection was taken into account by specifying the Type I error level at $p < .20$.

As shown in Table G2, for both the agency and the means-ends beliefs the comparison of the less restrictive measurement invariant model (Model 1) and the more restrictive higher-order model (Model 2) resulted in $\Delta \chi^2$ values indicating a significant loss in fit for both the agency and the means-ends beliefs.

After inspecting the residual correlation matrix of the higher-order model of the agency beliefs, thirteen covariations among residuals were allowed to be freely estimated. Note, the freed residual covariances did not cross the first-order factor-boundaries and, in addition, were distributed across the four groups.

Specifically, in the higher-order model of the agency beliefs the following covariations among residuals were allowed to be freely estimated: First and third indicator of Ability ($\text{cov} (z = -3.17; se = .04) = -.11$), and first and third indicator of Personal Attributes ($\text{cov} (z = 2.70; se = .06) = .15$) in grade 3; first and second indicator of Teacher ($\text{cov} (z = 1.90; se = .04) = .08$), first and third indicator of Parents ($\text{cov} (z = -1.36; se = .03) = -.04$), first and third indicator of Personal Attributes ($\text{cov} (z = 1.83; se = .05) = .09$), and first and second indicator of Teacher ($\text{cov} (z = 1.94; se = .04) = .08$) in grade 4; first and second indicator of Teacher ($\text{cov} (z = 2.92; se = .08) = .24$), first and third indicator of Teacher ($\text{cov} (z = 2.22; se = .08) = .22$), second and third indicator of Teacher ($\text{cov} (z = 2.14; se = .08) = .17$), and first and second indicator of Parents in Grade 5 ($\text{cov} (z = 1.52; se = .04) = .06$); second and third indicator of Personal Attributes ($\text{cov} (z = -2.25; se = .03) = -.07$), first and second indicator of Teacher ($\text{cov} (z = -2.98; se = .03) = -.11$), and first and third indicator of Teacher ($\text{cov} (z = 1.05; se = .04) = -.05$) in grade 6.

After inspecting the residual correlation matrix of the higher-order model of the means-ends beliefs, one covariation between residuals was allowed to be freely estimated. The covariation between the residuals of the first and third indicator of Ability ($\text{cov} (z = -4.38; se = .06) = -.25$) was allowed to be freely estimated in grade 5.

Freeing these covariations among residuals (Model 2a) resulted in a significant increment in fit compared to the previous model (Model 2) for both the agency and the means-ends beliefs. Moreover, comparing the model with the relaxed constraints (Model 2a) with the metrically invariant model (Model 1) showed that the fit of the two models was not significantly different

for both the agency and the means-ends beliefs. Thus, the more restricted higher-order model did not significantly reduce the level of fit for both belief systems. Given the parsimony gained and the important theoretical meaning represented by the greater number of constraints of the higher-order models over the simple measurement model, I accepted the higher-order models for both the agency and the means-ends beliefs.

For the agency beliefs, the model testing invariance of the directed paths from the higher-order latent factors to each of the lower-order factors (i.e., loadings of the lower-order factors on the higher-order factors) across age groups (Model 3) evinced a nonsignificant loss in fit when compared with the previous model (Model 2a). In contrast, for the means-ends beliefs, this model (Model 3) evinced a significant loss in fit when compared with the previous model (Model 2a) for the means-ends beliefs beliefs, $\Delta \chi^2_{(15)} = 20.48, p = .15$. Relaxing the constraint of the directed path from the higher-order factor Self to the lower-order factor Effort in grade 4 (Model 3a) resulted in a significant increment in fit compared to the fully invariant model (Model 3) and a nonsignificant difference in fit when compared to the model without invariance constraints (Model 2a). Hence, in grade 4 the loading of means-ends beliefs for effort on the higher-order construct Self differed significantly from the corresponding loadings in the other age groups (grades 3, 5 and 6). In contrast, the loadings of means-ends beliefs for Effort on Self in grades 3, 5, and 6 were not significantly different. Moreover, the loadings of both means-ends beliefs for Ability and Personal Attributes did not differ across age groups.

For both the agency and the means-ends beliefs, the model testing equality of the loadings of the sets of lower-order factors on the respective higher-order factor (Model 4) resulted in a significant loss in fit when compared to the previous model (Model 3 for the agency beliefs, and Model 3a for the means-ends beliefs). Relaxing the constraint that the loading of the lower-order factor Personal Attributes on the higher-order factor Self is of equal size as the loadings of Effort and Ability on Self resulted in a significant increment in fit when compared to the model specifying equality of all three loadings (see comparison of Model 4 versus Model 4a) for both the agency and means-ends beliefs. The comparison of the latter model (Model 4a) with the model testing cross-group invariance of the directed paths without equality constraints

within a set of lower-order constructs (Model 3 for the agency beliefs and Model 3a for the means-ends beliefs) resulted in a nonsignificant difference in fit for both belief systems. Consequently, in all age groups the loading of the lower-order factor Personal Attributes on the higher order-factor Self differed significantly from the loadings of the lower-order factors Effort and Ability on Self. However, the loadings of Effort and Ability on Self did not differ.

Table G2
Testing of the Higher-Order Structure of Agency and Means-ends Beliefs

Model	Model Description	Comparison	X ²	df	ΔX ²	df	p
Agency Beliefs							
1)	Metrically invariant model (i.e., baseline)		852.73	582			
2)	Higher-Order Structure	1:2	951.63	622	98.90	40	.00
2a)	relaxed constraints of residual covariances	1:2a	885.44	609	32.71	27	.21
		2:2a			66.19	13	.00
3)	Invariance of higher-order Structure across grade levels	2a:3	903.15	624	17.71	15	.28
4)	Equality of factor loadings within sets of lower-order factors	3:4	908.20	627	5.05	3	.17
4a)	relaxed constraint (Personal Attributes on Self)	4:4a	903.66	626	4.54	1	.03
		3:4a			0.51	2	.77
Means-ends Beliefs							
1)	Metrically invariant model (i.e., baseline)		911.10	582			
2)	Higher-Order Structure	1:2	967.15	622	56.05	40	.05
2a)	relaxed constraint of residual covariance	1:2a	948.38	621	37.28	39	.55
		2:2a			18.77	1	.00
3)	Invariance of higher-order Structure across grade levels	2a:3	968.865	636	20.48	15	.15
3a)	relaxed constraint (Effort on Self in grade 4)	3:3a	959.72	635	9.14	1	.00
		2a:3a			11.34	14	.66
4)	Equality of factor loadings within sets of lower-order factors	3a:4	969.12	638	9.40	3	.02
4a)	relaxed constraint (Personal Attributes on Self)	4:4a	961.20	637	7.92	1	.00
		3a:4a			1.48	2	.48

In sum, for both the agency and the means-ends beliefs the hypothesized higher-order structure was tenable and, in addition, invariant across age groups. More specifically, across all age groups (grades 3 - 6) the lower-order constructs Effort, Ability, and Personal Attributes can be represented by the higher-order construct Self and the lower-order constructs Parents and Teachers can be represented by the higher-order construct Adults. In addition, the relationships among the sets of lower-order constructs as indicated by the strengths of their loadings on the specific higher-order construct were invariant across grade levels. Moreover, the loadings of the lower-order construct Effort and the lower-order construct Ability on the higher-order construct Self were equal for both the agency and the means-ends beliefs (β ($z = 16.80$; $se = .11$) = 1.83; β ($z = 10.20$; $se = .13$) = 1.31, respectively). The single exception was means-ends beliefs about Effort, which evinced a higher relationship (β ($z = 7.53$; $se = .25$) = 1.89) with Ability and Personal Attributes in grade 4 compared to the other age groups. Compared to the loadings of Effort and Ability, for both the agency and means-ends belief systems, the loading of the lower-order construct Personal Attributes on the higher-order construct Self was significantly lower (β ($z = 12.31$; $se = .11$) = 1.44; β ($z = 2.28$; $se = 1.35$) = 3.07, respectively). Finally, the loadings of the lower-order constructs Teacher and Parents on the higher-order construct Adults were of equal size for both the agency and the means-ends beliefs (β ($z = 16.15$; $se = .17$) = 1.60; β ($z = 11.11$; $se = .17$) = 1.84, respectively).

Development of the Structural Relationships of Action Strategies

This section deals with the analyses that address the higher-order structure of children's action strategies to cope with difficult situations in peer relationships during middle childhood. Based on previous findings (e.g., Losoya et al., 1998) it was predicted that the two nonaction strategies Doing Nothing and Avoidance would be highly correlated. In this section it is assessed whether the non-action strategies Doing Nothing and Avoidance can be represented by a single higher-order construct assessing the general tendency to omit actions. In addition, I examined whether the loadings of the strategies Doing Nothing and Avoidance on the higher-order construct Action Omission remain invariant across grade levels (i.e., measurement invariance).

The modeling procedure followed the procedures implemented when testing the higher-order structures for both agency and means-ends beliefs, as described above. As it was the case for the analyses of agency and means-ends beliefs, the analyses followed a three-step process. First, invariance of the measurement model was specified but no constraints were placed on the structural model components. Invariance was tested for the factor loadings of the indicators. Second, assuming an acceptable fit for this model, it was tested whether the factor covariations can be represented by the hypothesized higher-order structure. Third, cross-group invariance of the loadings of the lower-order constructs on the higher-order construct was tested. The effects of gender were controlled.

Lower-order Structure of Action Strategies Across Grade Levels

The model to be tested in Prediction 1d postulates a priori that the strategies to cope with difficult situations in friendships represent a four-factor structure consisting of Doing Nothing, Avoidance, Direct Action, and Seeking Help. As can be seen in Table D1 of Appendix D each of the factors was represented by three items.

Testing Measurement Invariance of Action Strategies across Grade Levels

In Table G3, I present the model testing procedure for testing measurement invariance of the action strategies across the four grade levels (grades 3 - 6). I specified a freely estimated four-group covariance structures model (Model 1) testing the configural invariance of the loadings of the indicators on their a priori defined factors (Doing Nothing, Avoidance, Direct Action, and Seeking Help) across the age groups. Table G3 shows that this model was tenable.

Table G3
Testing measurement invariance of action strategies across grade levels

Models	Global Fit Indices						Comparison of Models		
	χ^2	df	χ^2/df	NNFI	IFI	CFI	$\Delta\chi^2$	df	p
1) Configural	304.27	224	1.36	.92	.94	.95			
2) Metric invariance Model 1 versus 2	355.69	268	1.37	.92	.93	.93	51.42	36	.05

Note. The RMSEA obtained with all models was $\leq .02$.

Following the guidelines of invariance assessment outlined in section 3.5.5, I assessed measurement invariance by employing a modeling rationale. When invariance of the loadings was enforced (Model 2), the overall model fit was still acceptable ($\underline{\text{NNFI}} = .92$; $\underline{\text{IFI}} = .93$; $\underline{\text{CFI}} = .93$). Moreover, enforcing invariance of the loadings yielded a nonsignificant $\Delta \chi^2$ value when compared with the configural model (see comparison of Model 1 versus Model 2). Thus, the assumption that the constructs have equivalent measurement properties (i.e., metric invariance) and, consequently, are comparable across grade levels was supported.

Testing the Proposed Higher-Order Structure of Action Strategies across Grade Levels

In the next step, after having established measurement invariance, I tested whether the proposed higher-order structure was tenable. In order to specify the higher-order model, an additional latent factor was included in the measurement invariant model of action strategies.

For the higher-order model, the higher-order factor, termed Action Omission, was hypothesized to explain the common relations among the two lower-order factors, Doing Nothing and Avoidance. Accordingly, the residual covariances among the two lower-order factors subsumed by the Action Omission higher-order factor were constrained to be zero. Further, all residual covariances between the two lower-order factors and the remaining factors in the model (i.e., Direct action and Help Seeking) were also fixed at zero; in their place, covariances between the higher-order factor Action Omission and Direct action and Help Seeking were estimated (see Jöreskog & Sörbom, 1989). Accordingly, gender as a covariate was assumed to affect the higher-order factors and not the lower-order factors. The higher-order factor had a fixed variance of 1.0 in order to identify the factor and establish the scale of measurement at this higher-order level. The adequacy of the fit of the higher-order structure was tested in the form of a nested comparison between the less restrictive measurement invariant model and the more restrictive higher-order model. A Type-II error protection was taken into account by specifying the Type I error level at $p < .20$. As shown in Table G4, the comparison of the less restrictive measurement invariant model (Model 1) and the more restrictive higher-order model (Model 2) resulted in a $\Delta \chi^2$ value indicating a significant loss in fit.

After inspecting the residual correlation matrix of the higher-order model of the action strategies, one covariation between residuals was allowed to be freely estimated. The covariation between the residuals of the second and third indicator of Avoidance ($\text{COV} (z = 2.59; se = .07) = .18$) was allowed to be freely estimated in grade 6.

Freeing the covariation between residuals (Model 2a) resulted in a significant increment in fit compared to the previous model (Model 2). Moreover, comparing the model with the relaxed constraint (Model 2a) with the metrically invariant model (Model 1) showed that the fit of the two models was not significantly different. Thus, the more restricted higher-order models did not significantly reduce the level of fit. Given the parsimony gained and the important theoretical meaning represented by the greater number of constraints of the higher-order models over the simple measurement model, I accepted the higher-order model of action strategies. Both Doing Nothing and Avoidance refer both to the higher-order strategy of omitting action.

The model testing invariance of the directed paths from the higher-order latent factor to the lower-order factor (i.e., loadings of the lower-order factors on the higher-order factor) across age groups (Model 3) evinced a significant loss in fit when compared with the previous model (Model 2a). Relaxing the constraint of the directed path from the higher-order factor Action Omission to the lower-order factor Doing Nothing in grade 6 (Model 3a) resulted in a significant increment in fit compared to the fully invariant model (Model 3), and a nonsignificant difference in fit when compared to the model without invariance constraints (Model 2a). Hence, the loadings of both Avoidance and Doing Nothing on Action Omission were invariant across age groups. The single exception was the loading of Doing Nothing on Action Omission in grade 6 which differed from the corresponding loading in the remaining age groups.

The model testing equality of the loadings of the two lower-order factors on the higher-order factor (Model 4) resulted in a significant loss in fit when compared to the previous model (Model 3). This result indicated that the loadings of Doing Nothing and Avoidance on Action Omission were significantly different in all age groups.

In sum, the hypothesized higher-order structure of action strategies was tenable and, in addition, invariant across age groups. In all age groups (grades 3 - 6) the lower order constructs

Doing Nothing and Avoidance can be represented by the higher-order construct Action Omission. In addition, the relationship among the lower-order constructs Avoidance and Doing Nothing as indicated by the strengths of the loadings on the higher-order construct Action Omission was invariant across grade levels (β ($z = 2.06$; $se = 1.29$) = 2.67; β ($z = 6.81$; $se = .17$) = 1.14, respectively). The exception was the loading of Doing Nothing (β ($z = 3.01$; $se = .16$) = 0.50) on Action Omission in grade 6 which differed significantly from the corresponding loadings in the remaining grade levels (i.e., grades 3 - 5). Generally, the loading of Avoidance on Action Omission was significantly lower than the loading of Doing Nothing on this higher-order construct.

Table G4
Testing of the Higher-Order Structure of Action Strategies

Model	Model Description	Comparison	χ^2	df	$\Delta\chi^2$	df	p
1)	Metrically invariant model (i.e., baseline)		355.69	260			
2)	Higher-Order Structure	1:2	367.54	268	11.85	8	.16
2a)	relaxed constraint of residual covariance	1:2a	360.01	267	4.32	7	.74
		2:2a			7.53	1	.01
3)	Invariance of higher-order Structure across grade levels	2a:3	375.77	273	15.76	6	.02
3a)	relaxed constraint (Doing nothing in grade 4)	3:3a	365.36	272	10.41	1	.00
		2a:3a			5.35	5	.37
4)	Equality of factor loadings within sets of lower-order factors	3a:4	370.19	273	4.83	1	.03

Representation of the Higher-order Constructs of Agency and Means-ends Beliefs, and Action Strategies by Domain-Representative Parcels

Based on the previous analyses providing evidence of higher-order structures of agency and means-ends beliefs and action strategies, these sets of constructs were represented by the higher-order structures in the subsequent analyses. The higher-order factors were represented by domain representative parcels (Kishton & Widaman, 1994). As a consequence, the number of variables used in structural modeling was reduced and a more defensible ratio of persons over variables was achieved. The rationale and the computation of domain-representative parcels is

described in Section 4.1.2. The parceling procedures for both the present and the main analyses were identical.

Testing Measurement Invariance of the Final Sets of Constructs across Grade Levels

This section addresses the internal validity and measurement equivalence of the various sets of constructs (i.e., agency beliefs, means-ends beliefs, Goal Difficulty, Goal Importance, action strategies, and self-rated friendship quality) across grade levels. For these analyses, I separately specified for each set of constructs four-group MACS models. As in the models reported above, grade level (i.e., grades 3 - 6) represented the blocking variable in ascending order.

Each of the configural models of agency beliefs, means-ends beliefs, and action strategies postulated a priori that each of the sets of constructs represents a three-factor structure. Both agency and means-ends beliefs were comprised of the two higher-order constructs Self and Adults and the lower-order construct Luck. Action strategies were comprised of the higher-order construct Action Omission and the two lower-order constructs Direct Action and Seeking Help. As described above, each of the higher-order constructs Self, Adults, and Action Omission were represented by three domain-representative parcels. As can be seen in Table D4 of Appendix D the agency beliefs for Luck were represented by three parcel indicators while the means-ends beliefs for Luck were represented by three item indicators. Each of the action strategies Direct Action and Seeking Help were also measured by three item indicators (see Table D1 of Appendix D). Moreover, I specified a configural model postulating that Goal Difficulty and Goal Importance represent two factors each measured by three item indicators (see Table D1 of Appendix D).

The configural model of children's own views of friendship quality postulated a priori that friendship quality represents a two-factor structure consisting of Intimacy and Conflict. Intimacy and Conflict represented the child's views of the nominated three best friendships. Friendship conflict was indicated by three items. Intimacy was measured by six items that were combined into the three parcels entering the model. As detailed in Section 3.4.4.4, in a first step, I calculated the unit-weight composites of each of the items across the nominated friendships. In a second step, I parceled the mean scores of children's ratings of Intimacy.

In Table G5, I present the model testing procedure for testing measurement invariance across the four grade levels separately for each set of constructs. For each set of constructs, assessing measurement equivalence was a three-step process. First, I specified a freely estimated four-group covariance structures model (Model 1) testing the configural invariance of the salient and nonsalient loadings of the indicators on their a priori defined factors across the age groups. Second, I specified a model testing cross-group invariance of the salient factor loadings and another model testing cross-group invariance of the salient factor intercepts. Third, I specified the measurement invariant model which combined the constraints of the previous models (i.e., cross-group constraints of the factor loadings *and* the constraints of the intercepts). In each model the effects of gender were controlled.

Table G5 shows that the configural models of each set of constructs (i.e., agency beliefs, means-ends beliefs, action strategies, Goal Difficulty and Importance, and self-rated friendship quality) were tenable. The models reproduced the variances and covariances of the data satisfactory well, as all fit indices uniformly indicated an acceptable fit of the proposed model.

Table G5
Testing Measurement Invariance of Agency and Means-ends Beliefs, Action Strategies, Goal Difficulty, Goal Importance, and Children's Typical Views of Friendship Quality across Grade Levels

Models	Global Fit Indices							Comparison of Models			
	X ²	df	p	X ² /df	NNFI	IFI	CFI	Comparison	ΔX ²	df	p
Agency Beliefs ^a											
1) Configural	142.45	124	.10	1.15	.99	1.00	1.00				
2) Loadings invariant	170.01	142	.05	1.20	.99	.99	.99	1 : 2	27.57	18	.07
3) Intercepts invariant	173.67	142	.04	1.22	.99	.99	.99	1 : 3	31.22	18	.03
4) Metric invariance	202.47	160	.01	1.27	.99	.99	.99	1 : 4	60.02	36	.01
Means-ends Beliefs ^a											
1) Configural	139.03	124	.17	1.12	1.00	1.00	1.00				
2) Loadings invariant	159.38	142	.15	1.12	1.00	1.00	1.00	1 : 2	20.34	18	.31
3) Intercepts invariant	174.99	142	.03	1.23	.99	.99	.99	1 : 3	35.96	18	.01
4) Metric invariance	197.32	160	.02	1.23	.99	.99	.99	1 : 4	58.29	36	.01

Table G5 continued

Models	Global Fit Indices						Comparison of Models				
	χ^2	df	p	χ^2/df	NNFI	IFI	CFI	Comparison	$\Delta \chi^2$	df	p
Action Strategies ^a											
1) Configural	157.52	124	.02	1.27	.99	.99	.99				
2) Loadings invariant	183.53	142	.01	1.29	.99	.99	.99	1 : 2	26.01	18	.10
3) Intercepts invariant	184.60	142	.01	1.30	.99	.99	.99	1 : 3	27.09	18	.08
4) Metric invariance	212.95	160	<.01	1.33	.99	.99	.99	1 : 4	55.43	36	.02
Goal Difficulty and Goal Importance ^b											
1) Configural	86.54	52	<.01	1.66	.95	.97	.97				
2) Loadings invariant	96.76	64	.01	1.51	.96	.97	.97	1 : 2	10.22	12	.60
3) Intercepts invariant	100.58	64	<.01	1.57	.95	.96	.96	1 : 3	14.04	12	.30
4) Metric invariance	115.15	76	<.01	1.52	.96	.96	.96	1 : 4	28.61	24	.24
Self-rated Friendship Quality ^a											
1) Configural	72.75	52	.03	1.40	.97	.98	.98				
2) Loadings invariant	89.13	64	.02	1.39	.97	.98	.98	1 : 2	16.38	12	.17
3) Intercepts invariant	86.98	64	.03	1.36	.97	.98	.98	1 : 3	14.23	12	.29
4) Metric invariance	105.76	76	.01	1.39	.97	.97	.97	1 : 4	33.01	24	.10

Note. ^aThe RMSEA obtained with all models of this set of constructs was <=.02. ^bThe RMSEA obtained with all models of this set of constructs was <=.03.

Following the guidelines of invariance assessment outlined in Section 3.5.5, I assessed measurement invariance by employing a statistical rationale. For each set of constructs, enforcing invariance of the loadings (Model 2) yielded a nonsignificant $\Delta \chi^2$ value ($p \geq .01$) when compared with the configural model (Model 1). Similarly, for each set of constructs, enforcing invariance of the intercepts (Model 3) yielded a nonsignificant $\Delta \chi^2$ value ($p \geq .01$) when compared with the configural model (Model 1). Finally, for each set of constructs, enforcing invariance of both the loadings and the intercepts combined (metrically invariant model, Model 4) yielded a nonsignificant $\Delta \chi^2$ value ($p \geq .01$) when compared with the configural model (Model 1). Thus, the assumption that each set of constructs has equivalent measurement properties across grade levels (i.e., metric invariance) and, consequently, are comparable across grade levels, was supported.

Information about the reliable parameters (i.e., intercepts and loadings) and the uniqueness of the indicators for agency and means-ends beliefs, action strategies, self-rated friendship quality, Goal Difficulty and Goal Importance is provided in Table G28, Table G29,

Table G30, Table G31, and Table G32, respectively. Moreover, Table G33 reports the raw correlations and Table E1 of Appendix E reports the raw means and standard deviations.

Measurement Invariance of Models Combining Two or Three Sets of the Constructs across Grade Levels

Covariance structures models combining two or three sets of constructs were specified in order to assess invariance of the cross-correlations among the sets of constructs across age groups. By means of restricting the specified models to include no more than six factors, a more defensible ratio of persons over factors was achieved than if larger models would have been specified. Each set of constructs was, at least, one times combined with each of the other sets of constructs. In a first step, models combining children's agency beliefs, means-ends beliefs, action strategies, Goal Difficulty, and Goal Importance were specified. In a second step, models combining each of the previous sets of constructs with one of the measures of friendship outcomes were specified. Specifically, the sets of constructs were combined with (a) self-rated friendship quality, (b) a variable measuring the Number of Mutual Friends, and (c) the children's first best friends' views of friendship quality.

Table G6
Testing Measurement Invariance of the Models Combining Agency Beliefs, Means-ends beliefs, Action Strategies, Goal Difficulty, and Goal Importance across Grade Levels

Models	Global Fit Indices							Comparison of Models		
	χ^2	df	χ^2/df	NNFI	IFI	CFI	RMSEA	$\Delta \chi^2$	df	p
Agency Beliefs and Means-ends Beliefs										
Configural	706.58	532	1.33	.98	.98	.98	.02			
Metric invariance	822.30	604	1.36	.96	.98	.98	.02	115.72	72	<.01
Agency Beliefs and Action Strategies										
Configural	694.81	532	1.31	.97	.98	.98	.02			
Metric invariance	797.60	604	1.32	.97	.97	.97	.02	102.79	72	.01
Means-ends Beliefs and Action Strategies										
Configural	702.99	532	1.32	.97	.97	.97	.02			
Metric invariance	803.44	604	1.33	.97	.97	.97	.02	100.45	72	.02
Agency Beliefs, Goal Difficulty, and Goal Importance										
Configural	440.47	364	1.21	.99	.99	.99	.02			
Metric invariance	528.20	424	1.25	.98	.98	.98	.02	87.72	60	.01

Table G6 continued

Models	Global Fit Indices							Comparison of Models		
	χ^2	df	χ^2/df	NNFI	IFI	CFI	RMSEA	$\Delta \chi^2$	df	p
Means-ends Beliefs, Goal Difficulty, and Goal Importance										
Configural	464.59	364	1.28	.98	.98	.98	.02			
Metric invariance	548.58	424	1.29	.98	.98	.98	.02	83.99	60	.02
Action Strategies, Goal Difficulty, and Goal Importance										
Configural	509.01	364	1.40	.92	.94	.94	.02			
Metric invariance	577.92	424	1.36	.93	.94	.94	.02	68.91	60	.20

Table G6 shows the global fit indices and the results of the assessment of measurement invariance across age groups of the models that combined two or three of the sets of agency beliefs, means-ends beliefs, action strategies, Goal Difficulty, and Goal Importance. All models evinced satisfactory levels of overall model fit. Specifically, none of the practical fit indices (i.e., NNFI, IFI, and CFI) of the models was smaller than .93 and the RMSEA was consistently .02. Following the guidelines of invariance assessment outlined in section 3.5.5, I assessed measurement invariance by employing a modeling rationale. When invariance of the loadings was enforced, the overall model fit was still acceptable for all models combining two or three sets of constructs.

Table G7 shows the global fit indices and the results of the assessment of measurement invariance across age groups of the models that combined each of the previous sets of constructs with self-rated friendship quality. Specifically, models combining the following sets of constructs were specified: (a) agency beliefs, Goal Importance, and self-rated friendship quality, (b) means-ends beliefs, Goal Difficulty, and self-rated friendship quality, and (c) action strategies and self-rated friendship quality. As seen in the table, each of the models evinced satisfactory levels of overall model fit. Specifically, none of the practical fit indices (i.e., NNFI, IFI, and CFI) of the models was smaller than .96 and the RMSEA consistently did not exceed .02. Employing a modeling rationale, when invariance of the loadings was enforced, the overall model fit was still acceptable for all models. Thus, the assumption that the constructs have

equivalent measurement properties (i.e., metric invariance) and, consequently, are comparable across grade levels was supported.

Table G7

Testing Measurement Invariance of the Models Combining Self-rated Friendship Quality with Agency Beliefs, Means-ends beliefs, Action Strategies, Goal Difficulty, and Goal Importance across Grade Levels

Models	Global Fit Indices							Comparison of Models		
	χ^2	df	χ^2/df	NNFI	IFI	CFI	RMSEA	$\Delta \chi^2$	df	p
Agency Beliefs, Goal Importance, and Self-rated Friendship Quality										
Configural	700.43	532	1.32	.97	.98	.98	.02			
Metric invariance	819.93	604	1.36	.97	.97	.97	.02	119.50	72	<.01
Means-ends Beliefs, Goal Difficulty, and Self-rated Friendship Quality										
Configural	678.65	532	1.28	.97	.98	.98	.02			
Metric invariance	834.50	604	1.32	.96	.97	.97	.02	155.85	72	<.01
Action Strategies and Self-rated Friendship Quality										
Configural	476.93	364	1.31	.94	.96	.96	.02			
Metric invariance	571.01	424	1.35	.94	.95	.95	.02	94.09	60	<.01

Another set of models used the same combinations of constructs but they included the Number of Mutual Friendships instead of self-rated friendship quality. The Number of Mutual Friendships was represented by a single indicator in each of the specified SEM¹ models and, hence, it was represented as an error-free variable. At each grade level, the Number of Mutual Friendships ranged from 0 to 3. Table E1 of Appendix E provides the descriptive statistics of the Number of Mutual Friendships separately for each grade level. As seen in this table, the distributional characteristics of this variable did not violate assumptions of normality across grade levels, although it was somewhat kurtotic (e.g., Tabachnick & Fidell, 1989). As seen in Table G8 the global fit indices of these models indicate acceptable levels of fit. Specifically, none of the practical fit indices (i.e., NNFI, IFI, and CFI) of the models was smaller than .95 and

¹ All models specified to include combinations of sets of constructs represented covariance structures models with the exception of the model combining action strategies and Number of Mutual Friendships. In the latter model I included parameters estimating the mean levels in order to test mean level differences in the Number of Mutual Friendships across age groups. Importantly, such differences in model specification do not affect estimates of remaining parameters such as correlations and factor loadings.

the RMSEA consistently did not exceed .02. Testing measurement invariance of this single indicator was not appropriate.

Table G8

Global Fit Indices of the Models Combining the Number of Mutual Friendships with Agency and Means-ends Beliefs, Action Strategies, Goal Difficulty, and Goal Importance across Age Groups

Models	Global Fit Indices							
	χ^2	df	p	χ^2/df	NNFI	IFI	CFI	RMSEA
Agency Beliefs, Goal Importance ^a	310.11	280	.10	1.11	.99	.99	.99	.01
Means-ends Beliefs, Goal Difficulty ^a	347.63	280	<.01	1.24	.97	.97	.97	.02
Action Strategies ^b	231.18	184	.01	1.26	.95	.96	.96	.02

Note. ^a = covariance structures analyses were specified, ^b = Mean and covariance structures analyses were specified.

Table G9 shows the global fit indices of the specified models combining agency beliefs, means-ends beliefs, action strategies, Goal Difficulty, and Goal Importance with the first best friends' views of friendship quality. As seen in the tables, each of the models evinced satisfactory levels of overall model fit. Specifically, none of the practical fit indices (i.e., NNFI, IFI, and CFI) of the models was smaller than .96 and the RMSEA consistently did not exceed .02. Employing a modeling rationale, when invariance of the loadings was enforced, the overall model fit was still perfect for all models. In addition, for each combination of constructs, with the exception of the model combining action strategies and self-rated friendship quality, when comparing the configural invariant model with the measurement invariant models the resulting $\Delta \chi^2$ value was nonsignificant. Thus, the assumption that each combination of constructs has equivalent measurement properties across the age groups (i.e., metric invariance) and, consequently, are comparable across grade levels, was supported.

Table G9

Testing Measurement Invariance of the Models Combining Best Friends' Ratings of Friendship Quality with Agency and Means-ends Beliefs, Action Strategies, Goal Difficulty, and Goal Importance across Age Groups

Models	Global Fit Indices			Comparison of Models		
	χ^2	df	p	χ^2	df	p
	Agency Beliefs, Goal Importance, and Friendship Quality					
Configural	362.41	532	1.00			
Metric invariance	437.02	604	1.00	74.61	72	.39
	Means-ends Beliefs, Goal Difficulty, and Friendship Quality					
Configural	379.99	532	1.00			
Metric invariance	466.94	466	1.00	86.95	72	.11
	Action Strategies and Friendship Quality					
Configural	254.65	364	1.00			
Metric invariance	311.45	382	1.00	114.25	60	.00

Note. Each dyad was represented two times in the data set; hence, the number of cases was 2N. The number of observations in LISREL was specified to be N.

Homogeneity of Latent Variances of the Constructs across Grade Levels

In the first set of models, I equated the variances across grade groups by constraining the latent standard deviations of all three subsequent groups (i.e., grades 4 - 6) to be equal to the latent standard deviations of the first group (grade 3). As depicted in Table G10, the factor variances of the agency beliefs, Goal Difficulty, Goal Importance, self-rated and friend-rated friendship quality, and number of mutual friendships were invariant across age groups.

In contrast, the factor variances of the means-ends beliefs were not invariant across age groups (see comparison of Model 1 versus Model 2). In order to free the variances of grade 3, the variances of grade 4 – grade 6 were freely estimated but constrained to be of equal size. Freeing the variances of all three dimensions of means-ends beliefs (i.e., Self, Luck, and Adults) in grade 3 resulted in a significant increment in fit compared to the previous model (see comparison of Model 2 versus Model 2a). Moreover, comparing the model with the relaxed constraints (Model 2a) with the metrically invariant model (Model 1) showed that the fit of the two models was not significantly different. The results showed that in grades 4 to 6 the variances of means-ends beliefs about Self (β ($z = 29.01$; $se = .04$) = 1.16), means-ends beliefs about Luck (β ($z = 28.64$; $se = .04$) = 1.18), and means-ends beliefs about Adults (β ($z = 28.93$; $se = .04$) = 1.16) were

larger compared to the respective variances evinced in grade 3 (i.e., comparison group) where the variances were fixed at 1.

Similarly, the factor variances of the action strategies were not invariant across age groups (see comparison of Model 1 versus Model 2). Freeing the variances of all three constructs (i.e., Direct Action, Seeking Help, and Action Omission) in grade 3 resulted in a significant increment in fit compared to the previous model (see comparison of Model 2 versus Model 2a). Moreover, comparing the model with the relaxed constraints (Model 2a) with the metrically invariant model (Model 1) showed that the fit of the two models was not significantly different. The results showed that in grades 4 to 6 the variances of Direct Action (β ($z = 29.02$; $se = .05$) = 1.51), Seeking Help (β ($z = 28.63$; $se = .06$) = 1.58), and Action Omission (β ($z = 28.93$; $se = .04$) = 1.21) were larger compared to the corresponding variances evinced in grade 3 where the variances were fixed at 1.

Table G10
Testing Invariance of Latent Variances of Agency and Means-ends Beliefs, Action-Strategies, Goal Difficulty and Importance, and Friendship Quality Across Age Groups

Metrically inv. (i.e., Baseline)		Test	Δ					
χ^2	df	Model Description	χ^2	df	Comp.	$\Delta\chi^2$	df	p
Agency Beliefs								
1) 202.47	205a	2) Variances inv.	213.23	214	1 : 2	10.75	9	.29
Means-ends Beliefs								
1) 197.32	205a	2) Variances inv.	254.34	214	1 : 2	57.02	9	<.01
		2a) Grade 3: all three variances free	201.90	211	1 : 3	4.58	6	.60
					2 : 3	52.44	3	<.01
Action Strategies								
1) 212.95	205a	2) Variances inv.	588.85	214	1 : 2	375.90	9	<.01
		2a) Grade 3: all three variances free	217.56	211	1 : 3	4.61	6	.59
					2 : 3	371.29	3	<.01
Goal Difficulty and Goal Importance								
1) 115.15	76	2) Variances inv.	117.30	82	1 : 2	2.15	6	.91
Self-rated Friendship Quality								
1) 105.76	76	2) Variances inv.	113.42	82	1 : 2	2.15	6	.91
Friend-rated Friendship Quality								
1) 437.02	712b	2) Variances inv.	439.70	718	1 : 2	2.68	6	.85

Table G10 continued

Metrically inv. (i.e., Baseline)		Test			Δ			
χ^2	df	Model Description	χ^2	df	Comp.	$\Delta\chi^2$	df	p
Number of Mutual Friendships								
1)	310.11	2) Variances inv.	311.53	300	1 : 2	1.42	3	.70

Note. inv. = invariant, a = The degrees of freedom of the here reported measurement invariant model differs from the degrees of freedom of the measurement invariant model reported in Table G5. The here reported models gained 45 df by fixing the parameters of the measurement model. b = the metric invariant model combining this friendship outcome with agency beliefs and Goal Importance represents the baseline model.

Gender Effects on the Constructs across Grade Levels

The next set of analyses tested whether the findings reported by Brendgen et al. (2000) would replicate that gender does not significantly influence children's perceptions of friendship quality and the number of mutual friendships. In a similar vein, no gender differences with regard to the friends' views of friendship quality were to be expected. Moreover, with regard to perceived control (i.e., agency and means-ends beliefs, and goal difficulty), action strategies, and goal importance no specific gender effects were to be expected.

As seen in Table G11, on the specified alpha level of $p < .20$, across all age groups the gender effects could be constrained to zero for agency and means-ends beliefs, action strategies, goal difficulty, goal importance, friend-rated friendship quality, and number of mutual friendships without a significant loss in fit when compared to the respective measurement invariant model. With regard to children's perceptions of friendship quality, gender significantly interacted with grade (see comparison of Model 1 versus Model 2). Relaxing the constraint of gender on conflict in grade 3 resulted in a significant increment in fit, when compared to the previous model (see comparison of Model 2 versus Model 2a), and a nonsignificant difference in fit when compared to the metrically invariant model (see comparison of Model 1 versus Model 2a). In the youngest age group (i.e., grade 3), girls perceived the relationships significantly more conflictual than boys (β ($z = 1.96$; $se = .09$) = .17).

Table G11
Testing Invariance of Gender Effects on Agency and Means-ends Beliefs, Action-Strategies, Goal Difficulty and Importance, and Friendship Quality across Grade Level

Metrically inv. (i.e., Baseline)		Test	Δ						
X ²	df	Model Description	X ²	df	Comp.	Δ X ²	df	p	
Agency Beliefs									
1) 202.47	205a	2) Gender effects fixed at 0	215.67	217	1 : 2	13.20	12	.35	
Means-ends Beliefs									
1) 197.32	205a	2) Gender effects fixed at 0	210.82	217	1 : 2	13.50	12	.33	
Action Strategies									
1) 212.95	205a	2) Gender effects fixed at 0	228.04	217	1 : 2	15.10	12	.24	
Goal Difficulty and Goal Importance									
1) 115.15	76	2) Gender effects fixed at 0	124.39	84	1 : 2	9.24	8	.32	
Friendship Quality									
1) 105.76	76	2) Gender effects fixed at 0	118.79	84	1 : 2	13.03	8	.11	
		2a) Grade 3: Conflict free	114.88	83	1 : 3	9.12	7	.24	
					2 : 3	3.91	1	.05	
Friend-rated Friendship Quality									
1) 437.02	712b	2) Gender effects fixed at 0	453.68	726	1 : 2	16.66	14	.28	
Number of Mutual Friendships									
1) 310.11	297b	2) Gender effects fixed at 0	317.78	301	1 : 2	7.67	4	.10	

Note. inv. = invariant, a = The degrees of freedom of the here reported measurement invariant model differs from the degrees of freedom of the measurement invariant model reported in Table G5. The here reported models gained 45 df by fixing the parameters of the measurement model. b = the metric invariant model combining this friendship outcome with agency beliefs and Goal Importance represents the baseline model.

Development of Agency and Means-ends Beliefs

Following the guidelines of invariance assessment outlined in section 3.5.5, I assessed invariance of the latent parameters across age groups by employing a statistical rationale. Following the propositions of section 3.5.6, the significance level for accepting the alternative hypotheses of existing differences in the latent correlations and mean levels was set at $p \leq .05$.

In the first set of models I tested the hypothesized age-related differences in the mean levels of agency and means-ends beliefs. Moreover, I assessed mean-level differences of Goal Difficulty, action strategies, and self-rated friendship quality across age groups, although they were not target of the present dissertation. Then the age-related differences in the

intercorrelations of the dimensions of agency and means-ends beliefs were investigated separately for each belief system. That is, the structural relationships of agency and means-ends beliefs were assessed in a first step. In a second step, the hypothesized decreases in relationships of agency and means-ends beliefs were assessed across belief systems. Another set of analyses tested the age-related differences in the intercorrelations of action strategies, and friendship Intimacy and Conflict. However, the present study does not focus on the latter developmental differences. Therefore, no hypotheses were explicated for these analyses (see Hypotheses).

Differences in Mean Levels of Agency and Means-ends Beliefs Across Grade Levels

The mean level comparisons are reported in Table G12. The tests were conducted in parallel for both the agency and the means-ends belief systems. As shown in Table G12, the multivariate tests of invariance of the mean levels of the three belief dimensions (i.e., Self, Luck, and Adults) evinced a significant loss in fit when compared with the metrically invariant model for both agency and means-ends beliefs (see Model 1 vs. 2). The conducted univariate tests showed that all three belief dimensions accounted for the significant loss in fit of the multivariate test.

Unexpectedly, for both the agency and the means-ends beliefs systems the evinced mean levels of Self were significantly higher in grade 4 (α ($z = 2.00$; $se = .11$) = .21; α ($z = 2.11$; $se = .12$) = .25, for agency and the means-ends beliefs respectively) and grade 6 (α ($z = 3.87$; $se = .10$) = .39; α ($z = 3.98$; $se = .11$) = .45, for agency and the means-ends beliefs respectively) compared to grades 3 and 5. The mean levels of Self in grade 4 and 6 could not be forced to be of equal magnitude (see comparison of Model 3a vs. Model 3b). Thus, thus the rank ordering according to mean levels of agency and means-ends beliefs about Self was: Grade 3 = grade 5 < grade 4 < grade 6.

The results indicated that age-related mean level differences of beliefs about Luck evinced in both the agency and means-ends beliefs (see Hypotheses). As hypothesized, the mean levels of beliefs about Luck declined in grades 5 and 6. However, the decrease in the mean levels of beliefs about Luck evinced one grade level earlier than expected. For both the agency and the means-ends beliefs systems the evinced mean levels of Luck were not significantly

different across grades 5 and 6 (α ($z = -3.10$; $se = .09$) = $-.27$; α ($z = -2.80$; $se = .10$) = $-.27$, for agency and means-ends beliefs respectively); the mean levels of Luck in grade 5 and 6 could be forced to be of equal magnitude (see comparison of Model 4a vs. Model 4b).

As found for beliefs about Luck, the results indicate that age-related mean level differences of beliefs about Adults evinced in both the agency and means-ends beliefs (see Hypotheses). Also as found for beliefs about Luck, the mean levels of beliefs about Adults decreased one grade level earlier than expected. In both the agency and the means-ends beliefs systems the evinced mean levels of Adults were not significantly different across grades 5 and 6 (α ($z = -2.77$; $se = .08$) = $-.23$; α ($z = -3.30$; $se = .09$) = $-.30$, for agency and means-ends beliefs respectively).

Table G12
Testing Latent Mean- Level Differences in Agency and Means-ends Beliefs across Grade Levels

Metrically inv. (i.e., Baseline)		Test	Δ							
χ^2	df	Model Description	χ^2	df	Comp.	$\Delta \chi^2$	df	p		
Agency Beliefs										
1)	202.47	205a	2)	All three dimensions inv.	250.02	214	1 : 2	47.55	9	<.01
			3)	Dimension Self inv.	218.36	208	1 : 3	15.88	3	<.01
			3a)	Grades 4 and 6: Self free	202.76	206	1 : 3a	0.29	1	.59
							3 : 3a	15.60	2	<.01
			3b)	Self inv. across grades 4 and 6	204.77	207	3a : 3b	2.01	1	.16
			4)	Dimension Luck inv.	212.40	208	1 : 4	9.93	3	.02
			4a)	Grades 5 and 6: Luck free	202.81	206	1 : 4a	0.34	1	.56
							4 : 4a	9.59	2	.01
			4b)	Grades 5 and 6: Luck inv.	202.81	207	4a : 4b	0.00	1	1.00
			5)	Dimension Adults inv.	210.84	208	1 : 5	8.37	3	.04
			5a)	Grades 5 and 6: Adults free	203.13	206	1 : 5a	0.66	1	.42
							5 : 5a	7.71	2	.02
			5b)	Grades 5 and 6: Adults inv.	203.17	207	5a : 5b	0.04	1	.84
Means-ends Beliefs										
1)	197.32	205a	2)	All three dimensions inv.	246.82	214	1 : 2	49.50	9	<.01
			3)	Dimension Self inv.	214.48	208	1 : 3	17.16	3	<.01
			3a)	Grades 4 and 6: Self free	197.76	206	1 : 3a	0.44	1	.51
							3 : 3a	16.72	2	<.01
			3b)	Grades 4 and 6: Self inv.	199.73	207	3a : 3b	1.97	1	.16

Table G12 continued

Metrically inv. (i.e., Baseline)		Test	Δ					
X^2	df	Model Description	X^2	df	Comp.	ΔX^2	df	p
		4) Dimension Luck inv.	205.16	208	1 : 4	7.83	3	<.05
		4a) Grades 5 and 6: Luck free	197.35	206	1 : 4a	0.03	1	.86
					4 : 4a	7.80	2	.02
		4b) Grades 5 and 6: Luck inv.	197.36	207	4a : 4b	0.01	1	.92
		5) Dimension Adults inv.	210.31	208	1 : 5	12.99	3	<.01
		5a) Grades 5 and 6: Adults free	199.45	206	1 : 5a	2.13	1	.14
					5 : 5a	10.86	2	<.01
		5b) Grades 5 and 6: Adults inv.	199.48	207	5a : 5b	0.03	1	.86

Note. Comp. = Comparison, inv. = invariant, a = The degrees of freedom of the here reported measurement invariant model differs from the degrees of freedom of the measurement invariant model reported in Table G5. The here reported models gained 45 df by fixing the parameters of the measurement model.

Importantly, the estimates of the age-related mean-level differences and their corresponding standard errors show that there were no significant differences across the agency and means-ends belief systems. However, a conducted a series of t-tests for dependent samples showed that the mean levels of agency and means-ends beliefs about Self ($M = 2.38$, $SD = 0.64$ and $M = 2.27$, $SD = 0.58$, respectively) were significantly different in grade 3; $t_{(182)} = 2.94$, $p < .01$, two-tailed test.. Thus, the baseline values of the latent estimates of the age-related mean-level differences were significantly different across belief systems. However, agency and means-ends beliefs about Luck ($M = 2.28$, $SD = 0.83$ and $M = 2.26$, $SD = 0.85$, respectively) did not significantly differ in grade 3; $t_{(182)} = 0.31$, $p = .76$, two-tailed test. Similarly, the baseline values of agency and means-ends beliefs about Adults ($M = 2.01$, $SD = 0.71$ and $M = 1.97$, $SD = 0.69$, respectively) were also not significantly different; $t_{(182)} = 1.09$, $p = .28$, two-tailed test.

Additional Analyses: Mean-level Differences of Goal Difficulty, Action Strategies, and Self-rated Friendship Quality Across Grade Levels

Although no hypotheses for age-related mean level differences in action strategies, Goal Difficulty, Goal Importance, and self-rated Friendship Quality were explicated, in the following I describe the modeling procedures and results with regard to these constructs.

Action Strategies. As shown in Table G13, the multivariate test of invariance of the mean levels of the three action strategies across age groups (i.e., Direct Action, Seeking Help, and Action Omission) evinced a significant loss in fit when compared with the metrically invariant model, (see comparison of Model 1 versus Model 2), indicating that children's action strategies differ across age groups. Table G13 details the subsequently conducted univariate tests.

The evinced mean levels of Direct Action were significantly higher in grade 4 (α ($z = 2.40$; $se = .15$) = .37) and grade 6 (α ($z = 4.33$; $se = .15$) = .63) compared to grades 3 and 5. The evinced mean levels of Direct Action were significantly lower in grade 4 than in grade 6. Thus, the rank ordering according mean levels of Direct Action was the following: Grade 3 = grade 5 < grade 4 < grade 6. Direct Action evinced a similar nonlinear age-related trend in the mean levels as has been found for both agency and means-ends beliefs about Self.

The mean levels of both Seeking Help (see comparison of Model 1 versus Model 4) and Action Omission (see comparison of Model 1 versus Model 5) did not significantly differ across the age groups.

Goal Difficulty and Goal Importance. As seen in Table G13, the multivariate test of invariance of the mean levels of Goal Difficulty and Goal Importance across grade levels evinced a significant loss in fit when compared with the metrically invariant model, (see comparison of Model 1 versus Model 2).

The mean level of Goal Difficulty was significantly lower in grade 4 (α ($z = 2.21$; $se = .14$) = .30) than in grades 5 and 6 (α ($z = 4.68$; $se = .12$) = .55). Thus, the rank ordering according to the mean levels of Goal Difficulty was Grade 3 < Grade 4 < Grade 5 = Grade 6. There were no age-related differences in children's ratings of the importance of having high-quality friendships.

Table G13
Testing Mean-Level Differences in Action-Strategies, Goal Difficulty and Importance, and Friendship Quality across Grade Levels

Metrically inv. (i.e., Baseline)		Test		Δ					
χ^2	df	Model Description	χ^2	df	Comp.	$\Delta \chi^2$	df	p	
Action Strategies									
1)	212.95	205a	2) All three strategies inv.	247.27	214	1 : 2	34.31	9	<.01
			3) Direct Action inv.	234.29	208	1 : 3	21.34	3	<.01
			3a) Grades 4 and 6: Direct Action free	214.04	206	1 : 3a	1.09	1	.30
						3 : 3a	20.25	2	<.01
			3b) Grades 4 and 6: Direct Action inv.	216.02	207	3a : 3b	1.98	1	.16
			4) Seeking Help inv.	217.64	208	1 : 4	4.96	3	.20
			5) Action Omission inv.	218.81	208	1 : 5	5.85	3	.12
Goal Difficulty and Goal Importance									
1)	115.15	76	2) Both constructs inv.	145.86	82	1 : 2	30.71	6	<.01
			3) Difficulty inv.	140.15	79	1 : 3	25.00	3	<.01
			3a) Difficulty inv. across grades 5 and 6	116.07	77	1 : 3a	0.92	1	.34
			3b) Difficulty inv. across grades 4,5 and 6	120.00	78	3a : 3b	3.93	1	<.05
			4) Importance inv.	122.22	79	1 : 4	7.07	3	.07
Friendship Quality									
1)	105.76	76	2) Both constructs inv.	119.91	82	1 : 2	14.15	6	.03
			3) Intimacy inv.	114.63	79	1 : 3	8.87	3	.03
			3a) Grades 5 and 6: Intimacy free	105.91	77	1 : 3a	0.15	1	.70
						3 : 3a	8.72	2	.01
			3b) Grades 5 and 6: Intimacy inv.	106.73	78	3a : 3b	0.82	1	.37
			4) Conflict inv.	110.29	79	1 : 4	4.53	3	.21

Note. Comp. = Comparison, inv. = invariant, a = The degrees of freedom of the here reported measurement invariant model differs from the degrees of freedom of the measurement invariant model reported in Table G5. The here reported models gained 45 df by fixing the parameters of the measurement model.

Self-rated friendship quality. As shown in Table G13, the multivariate test of invariance of the mean levels of self-rated friendship quality (i.e., intimacy and conflict) evinced a significant loss in fit when compared with the metrically invariant model, (see comparison of Model 1 versus Model 2).

The mean levels of children’s conflict perceptions were invariant across grade level. The evinced mean levels of Intimacy did not significantly differ between grades 5 and 6 (α ($z = 2.80$; $se = .08$) = .23). Hence, the results replicate previous findings (e.g., Buhrmester & Furman, 1987) showing that older children perceive their friendships as being more intimate than younger children.

Correlational Differentiation of Agency and Means-ends Beliefs Across Grade Levels

This section presents the analyses testing the hypothesized age-related correlational differentiation of agency and means-ends beliefs (see Hypotheses).

Age-related structural differentiation within belief systems. The results of the multivariate tests and the univariate follow-up tests are reported in Table G15. As above, the tests were conducted in parallel for agency and means-ends beliefs. As shown in Table G15, the multivariate tests of invariance of the correlational structure of the three belief dimensions (i.e., Self, Luck, and Adults) evinced a significant loss in fit when compared with the metrically-invariant model for both agency and means-ends beliefs, (see comparison of Model 1 versus Model 2 for both belief systems, respectively). Thus, grade level moderated the strength of the relationships among the three dimensions of each of the two belief systems.

The latent correlation between the dimensions Self and Luck was lower in grade 6 ($\underline{r} (z = 3.87; se = .08) = .30$; $\underline{r} (z = 3.85; se = .08) = .30$, for agency and means-ends beliefs, respectively) than in the younger age groups ($\underline{r} (z = 17.07; se = .03) = .57$; $\underline{r} (z = 15.50; se = .04) = .57$, for agency and means-ends beliefs, respectively).

The latent correlation between Self and Adult ($\underline{r} (z = 9.70; se = .04) = .35$; $\underline{r} (z = 9.04; se = .04) = .34$, for agency and means-ends beliefs, respectively) did not show an age-related decline.

In grade 6 Luck and Adults were nonsignificantly correlated ($\underline{r} (z = 1.49; se = .08) = .13$; $\underline{r} (z = 1.48; se = .08) = .13$, for agency and means-ends beliefs, respectively) while in the younger age groups the dimensions Luck and Adults were reliably and moderately highly correlated in both the agency and the means-ends belief-systems ($\underline{r} (z = 9.71; se = .04) = .40$; $\underline{r} (z = 9.42; se = .04) = .40$, respectively).

Importantly, the estimates of the correlations within belief systems and their corresponding standard errors show that there were no significant differences across the agency and means-ends belief systems.

Table G14
Correlations between Agency and Means-ends Beliefs across Grade Levels

		Agency Beliefs					
		Grades 3 and 4			Grades 5 and 6		
Means-ends Beliefs	\underline{e}	Self	Luck	Adults	Self	Luck	Adults
Self	\underline{r}	<i>.81 (.03)</i>	<i>.51 (.05)</i>	<i>.24 (.04)</i>	.67 (.04)	.19 (.06)	<i>.24 (.04)</i>
	\underline{z}	31.88	10.98	5.64	16.74	3.09	5.64
Luck	\underline{r}	<i>.52 (.05)</i>	<i>.84 (.02)</i>	<i>.23 (.04)</i>	.23 (.06)	<i>.84 (.02)</i>	<i>.23 (.04)</i>
	\underline{z}	10.84	42.18	5.22	3.77	42.18	5.22
Adults	\underline{r}	<i>.20 (.04)</i>	<i>.27 (.04)</i>	<i>.85 (.02)</i>	<i>.20 (.04)</i>	<i>.27 (.04)</i>	.63b (.06)
	\underline{z}	4.53	6.41	46.57	4.53	6.41	10.80

Note. \underline{e} = estimate, \underline{r} = correlation, \underline{se} = standard error, \underline{z} = z-value. For grades 5 and 6 bold values indicate that the estimates differ from the estimates of grades 3 and 4. Standard errors are reported in brackets. Italics denote correlations of agency and means-ends beliefs about corresponding means. b = The correlation between agency and means-ends beliefs for adults differed only in grade 6 from grades 3 and 4; that is, the corresponding correlation in grade 5 did not differ from grades 3 and 4.

Age-related structural differentiation across belief systems. As shown in Table G15, the multivariate test of invariance of the correlations between agency and means-ends beliefs about corresponding causes resulted in a significant decrement in fit when compared with the metrically invariant model, (see comparison of Model 1 versus Model 2), indicating that grade level moderated these relationships.

Table G15
Testing Invariance of Latent Correlations of Agency and Means-ends Beliefs

Metrically inv. (i.e., Baseline)		Test			Δ			
X^2	\underline{df}	Model Description	X^2	\underline{df}	Comp.	ΔX^2	\underline{df}	p
Agency Beliefs								
1)	202.47	205a	2) All three correlations inv.	227.79	214	1 : 2	25.32	9 .00
			3) Self - Luck inv.	216.58	208	1 : 3	14.10	3 .00
			3a) Grade 6: Self - Luck free	205.65	207	1 : 3a	3.18	2 .20
						3 : 3a	10.93	1 .00
			4) Self - Adults inv.	203.55	208	1 : 4	1.08	3 .78
			5) Luck - Adults inv.	212.01	208	1 : 5	9.54	3 .02
			5a) Grade 6: Luck - Adults free	203.37	207	1 : 5a	0.90	2 .64
						5 : 5a	8.64	1 .00

Table G15 continued

Metrically inv. (i.e., Baseline)		Test	Δ					
X^2	df	Model Description	X^2	df	Comp.	ΔX^2	df	p
Means-ends Beliefs								
1) 197.32	205a	2) All three correlations inv.	221.80	214	1 : 2	24.48	9	.00
		3) Self - Luck inv.	210.66	208	1 : 3	13.33	3	.00
		3a) Grade 6: Self - Luck free	200.41	207	1 : 3a	3.09	2	.21
					3 : 3a	10.25	1	.00
		4) Self - Adults inv.	198.09	208	1 : 4	0.77	3	.86
		5) Luck - Adults inv.	207.03	208	1 : 5	9.71	3	.02
		5a) Grade 6: Luck - Adults free	197.93	207	1 : 5a	0.61	2	.74
					5 : 5a	9.10	1	.00
Agency Beliefs and Means-ends Beliefs								
1) 822.30	712a	2) Cross-belief correlations of <u>corresponding</u> dimensions inv.	859.79	721	1 : 2	37.49	9	<.01
		2a) Grades 5 and 6: Self free, Grade 6: Adults free	830.66	718	1 : 2a	8.36	6	.21
					2 : 2a	29.13	3	<.01
		2b) Grades 5 and 6: Self inv.	830.69	719	2a : 2b	0.03	1	.86
		3) Cross-belief correlations of <u>noncorresponding</u> dimensions inv.	860.75	730	1 : 3	38.45	18	<.01
		3a) Grades 5 and 6: 2 correlations free	836.69	726	1 : 3a	14.39	14	.42
					3 : 3a	24.06	4	<.01
		3b) Grades 5 and 6: freed correlations inv.	838.07	728	3a : 3b	1.38	2	.50

Note. Comp. = Comparison, inv. = invariant, a = The degrees of freedom of the here reported measurement invariant model differs from the degrees of freedom of the measurement invariant model reported in Table G5. The here reported models gained 45 df by fixing the parameters of the measurement model.

As depicted in Table G14, in grades 3 and 4 the correlation between agency and means-ends beliefs about Self ($r(z = 31.88; se = .03) = .81$) was higher than the corresponding correlation in grades 5 and 6 ($r(z = 16.74; se = .04) = .67$). The correlation between agency and means-ends beliefs about Adults was higher in the lower grade levels ($r(z = 46.57; se = .02) = .85$) than in grade 6 ($r(z = 10.80; se = .06) = .63$). While the latter results supported the hypothesized increase in differentiation between agency and means-ends beliefs, agency and means-ends beliefs about Luck were invariantly and highly correlated across all age groups ($r(z = 42.18; se = .02) = .84$).

As shown in Table G15, the multivariate test of invariance of the correlations between agency and means-ends beliefs with noncorresponding causes (e.g., agency beliefs about the cause Self with means-ends beliefs about the cause Luck) resulted in a significant decrement in fit when compared with the metrically invariant model, (see comparison of Model 1 versus Model 2), indicating that grade level moderated the strengths of these relationships.

As seen in Table G14, the correlations between agency beliefs about Self and means-ends beliefs about Luck ($r(z = 10.84; se = .05) = .52$ versus $r(z = 5.22; se = .04) = .23$ for grades 3 and 4 and grades 5 and 6, respectively) and agency beliefs about Luck and means-ends beliefs about Self ($r(z = 10.98; se = .05) = .51$ versus $r(z = 3.09; se = .06) = .19$ for grades 3 and 4 and grades 5 and 6, respectively) were significantly lower in the older age groups (i.e., grades 5 and 6) than in the younger age groups (i.e., grades 3 and 4). As hypothesized, these results indicate an age-related increase in structural differentiation between the two belief systems. Specifically, they show that with age children increasingly more differentiate between Luck as an uncontrollable cause and self-related means as controllable causes. In contrast, agency and means-ends beliefs about Adults were only lowly to moderately highly correlated with beliefs about Self and Luck and, unexpectedly, these relationships remained invariant across middle childhood.

Additional Analyses: Invariance of the Correlational Structure of Action Strategies, Self-rated Friendship Quality Across Grade Levels

The next set of analyses tested the age-related differences in the intercorrelations of action strategies, friendship intimacy and conflict, as well as differences in the relationships between Goal Difficulty and Importance. However, the present study does not focus on these developmental differences. Therefore, no hypotheses for these additional analyses were explicated (see Hypotheses).

Action Strategies. The multivariate tests and the univariate follow-up tests are reported in Table G16. As shown in the table, the multivariate test of invariance of the correlations among the three action strategies (i.e., Direct Action, Seeking Help, and Action Omission) evinced a significant loss in fit when compared with the metrically invariant model, (see Model 1 versus

Model 2), indicating that grade level moderated the strengths of relationships among the action strategies.

The correlation between Direct Action and Seeking help was significantly higher in grade 4 ($r(z = 10.99; se = .06) = .61$) compared to the remaining grade levels (i.e., grades 3, 5 and 6; $r(z = 8.15; se = .05) = .38$).

In grade 3 the strategies Direct Action and Action Omission were uncorrelated ($r(z = -0.32; se = .11) = -.03$) while they were reliably and moderately highly correlated ($r(z = 7.69; se = .04) = .34$) in the higher grade levels (i.e., grades 4 - 6). These findings are consistent with previous findings (Losoya, et al. 1996) indicating that older children use the strategy of omitting actions in a more controlled way compared to younger children.

With age the strategies Seeking Help and Action Omission became increasingly more independent. While in grade 3 the strategies Seeking Help and Action Omission were rather highly correlated ($r(z = 8.94; se = .08) = .69$), in grades 4 and 5 the correlation between these strategies was only of moderate size ($r(z = 8.23; se = .05) = .42$). At the end of middle childhood, in grade 6, the strategies Seeking Help and Action Omission were no more significantly correlated ($r(z = 1.49; se = .08) = .13$).

Goal Difficulty and Goal Importance. As seen in Table G16, the univariate test of invariance of the correlations between Goal Difficulty and Goal Importance across age groups resulted in a nonsignificant decrement in fit when compared to the metrically invariant model (comparison of Model 1 vs. Model 2), indicating that grade level did not moderate the moderately high and positive correlation ($r(z = 6.17; se = .05) = .30$) between these constructs. This finding may indicate that children tend to reactively increase the importance of friendship goals the more difficult they perceive its attainment. In line with the assumption that individuals downgrade the importance of unattainable and difficult goals, previous research on adult samples found that Goal Difficulty and Goal Importance were negatively correlated (e.g., Emmons, 1986). Thus, the positive relationships found in the present study may indicate that in the investigated age range children have not acquired this accommodative strategy. However, the most plausible interpretation may be that children regard friendship goals to be difficult but still obtainable.

Table G16
Testing Invariance of Latent Correlations of Action-Strategies, Goal Difficulty and Importance, and Friendship Quality Across Grade Levels

Metrically inv. (i.e., Baseline)		Test	Δ						
χ^2	df	Model Description	χ^2	df	Comp.	$\Delta \chi^2$	df	p	
Action Strategies									
1)	212.95	205a	2) All three correlations inv.	265.81	214	1 : 2	52.86	9	.00
			3) Direct Action – Seek Help inv.	224.42	208	1 : 3	11.47	3	.01
			3a) Grade 4: Direct Action – Seek Help free	215.82	207	1 : 3a 3 : 3a	2.87 8.60	2 1	.24 .00
			4) Direct Action – Omission inv.	224.42	208	1 : 4	11.47	3	.01
			4a) Grade 3: Direct Action – Omission free	213.56	207	1 : 4a 4 : 4a	0.61 10.86	2 1	.74 .00
			5) Seek Help - Omission inv.	235.31	208	1 : 5	22.36	3	.00
			5a) Grades 3 and 6: Seek Help - Omission free	213.42	206	1 : 5a 5 : 5a	0.47 21.89	1 2	.49 .00
Goal Difficulty and Goal Importance									
1)	115.15	76	2) Correlation inv.	118.46	79	1 : 2	3.31	3	.35
Friendship Quality									
1)	105.76	76	2) Correlation inv.	111.37	79	1 : 2	5.61	6	.13

Note. Comp. = Comparison, inv. = invariant, a = The degrees of freedom of the here reported measurement invariant model differs from the degrees of freedom of the measurement invariant model reported in Table G5. The here reported models gained 45 df by fixing the parameters of the measurement model.

Self-rated friendship quality. The univariate test of invariance of the correlations between children's perceptions of Intimacy and Conflict in their friendship relationships across age groups resulted in a nonsignificant decrement in fit when compared to the metrically invariant model (see Table G16, comparison of Model 1 vs. Model 2), indicating that grade level did not moderate the moderately high and positive correlation ($r(z = 5.45; se = .05) = .26$) between these constructs.

Development of the Relationships of Means-ends and Agency Beliefs, Goal Difficulty, and Action Strategies

This section presents the analyses testing the hypothesized age-related differences in the relationships of both agency and means-ends beliefs with action strategies and Goal Difficulty (see Hypotheses). As above, the tests were conducted in parallel for both the agency and the means-ends belief-systems.

Relationships of Agency and Means-ends Beliefs with Action Strategies

Direct Action. The multivariate tests and the univariate follow-up tests are reported in Table G17. As shown in the table, for both agency and means-ends beliefs, a conducted multivariate test of invariance of the correlations of the three belief dimensions and Direct Action across age groups resulted in a significant decrement in fit when compared to the metrically invariant model (see comparison of Model 1 vs. Model 2).

Across grades 3 to 5 both agency and means-ends beliefs for Luck were invariantly moderately highly correlated with Direct Action (\underline{r} ($z = 6.38$; $se = .05$) = .32; \underline{r} ($z = 6.36$; $se = .05$) = .33, for agency and means-ends beliefs, respectively). In grade 6 these correlations were significantly lower compared to the lower grade levels and did not reliably differ from zero (\underline{r} ($z = 1.26$; $se = .11$) = .12; \underline{r} ($z = 1.20$; $se = .09$) = .11, for agency and means-ends beliefs, respectively).

For both the agency and means-ends beliefs the correlation of the dimension Adults with Direct Action was of moderate strength (\underline{r} ($z = 7.72$; $se = .05$) = .37; \underline{r} ($z = 6.84$; $se = .05$) = .35, respectively) in grades 3, 5, and 6. However, this correlation was nonsignificantly different from zero (\underline{r} ($z = 1.18$; $se = .11$) = .11; \underline{r} ($z = 1.21$; $se = .09$) = .11, for agency and means-ends beliefs, respectively) in grade 4.

As expected, across all age groups both agency and means-ends beliefs for Self correlated invariantly highly (\underline{r} ($z = 24.27$; $se = .03$) = .70; \underline{r} ($z = 22.73$; $se = .03$) = .69, respectively) with Direct Action as a strategy. As hypothesized, this correlation was significantly stronger than the correlations of the dimensions Luck and Adult with this action strategy.

Seeking Help. As seen in Table G17, for both the agency and the means-ends beliefs the multivariate test of invariance of the correlations of the three belief dimensions with Seeking Help as a strategy across age groups resulted in a nonsignificant decrement in fit when compared to the metrically invariant model (comparison of Model 1 vs. Model 3), indicating that grade level did not moderate these relationships.

Across all age groups for both agency and means-ends beliefs the correlations of the dimensions Self (\underline{r} ($z = 7.74$; $se = .05$) = .37; \underline{r} ($z = 6.93$; $se = .05$) = .34, respectively) and Luck

($r(z = 5.82; se = .05) = .29$; $r(z = 5.84; se = .05) = .30$, respectively) with Seeking Help were of moderate size. For both agency and means-ends beliefs the dimension Adults correlated, on average, significantly higher with Seeking Help ($r(z = 9.91; se = .05) = .44$; $r(z = 9.91; se = .05) = .45$, respectively) than the dimensions Self and Luck (Self and Luck versus Adults, $z = 3.26$, $p < .01$; $z = 3.88$, $p < .01$, for agency and means-ends beliefs, respectively) across all age groups.

Action Omission. As depicted in Table G17, for both the agency and the means-ends beliefs testing invariance of the correlations of the three belief dimensions and Action Omission across age groups resulted in a significant decrement in fit when compared to the metrically invariant model (see comparison of Model 1 vs. Model 4).

Both agency and means-ends beliefs for Self correlated invariantly weakly and positively with Action Omission ($r(z = 3.14; se = .05) = .15$; $r(z = 3.35; se = .05) = .17$, respectively) across grades 3 – 5. As expected, in grade 6 children's agency and means-ends beliefs for Self were negatively correlated with Action Omission, although these relationships were only marginally significant ($r(z = -1.58; se = .09) = -.15$ and $r(z = -1.54; se = .09) = -.14$, one-tailed tests, respectively).

Across all age groups, agency and means-ends beliefs for Luck correlated invariantly weakly and positively with Action Omission ($r(z = 4.90; se = .04) = .22$; $r(z = 5.01; se = .05) = .23$, respectively). Notably, for children in grade 6 beliefs about Luck represented the single dimension which was significantly and positively related to the tendency to omit action. However, in grades 3 - 5 the correlation between agency beliefs about Luck and Action Omission was significantly higher than the correlation between agency beliefs about Self and Action Omission for both agency and means-ends beliefs ($z = -1.87$, $p = <.05$, one-tailed test). However, in grades 3 to 5 the correlation between means-ends beliefs about Luck and Action Omission was only marginally significantly higher than the correlation between means-ends beliefs about Self and Action Omission ($z = -1.61$, $p < .10$, one-tailed test).

Both agency and means-ends beliefs for Adults were uncorrelated with Action Omission in grades 5 and 6. In contrast, in grades 3 and 4 agency and means-ends beliefs for Adults were positively correlated with Action Omission. However, this correlation was significantly lower in

grade 3 ($r(z = 2.75; se = .08) = .22$; $r(z = 3.25; se = .08) = .27$; for agency and means-ends beliefs, respectively) than in grade 4 ($r(z = 7.23; se = .07) = .52$; $r(z = 7.30; se = .07) = .52$, for agency and means-ends beliefs, respectively).

Relationships of Agency and Means-ends Beliefs with Goal Difficulty

As depicted in Table G17, for both the agency and the means-ends beliefs, testing invariance of the correlations between the three belief dimensions and Goal Difficulty across age groups resulted in a significant decrement in fit when compared to the metrically invariant model (see comparison of Model 1 vs. Model 2).

As seen in Table G18, agency beliefs about Luck were not reliably correlated with Goal Difficulty across all grade levels. Across grades 3 to 5 each dimension of agency and means-ends beliefs, with the exception of agency beliefs for Luck, was significantly and positively related to Goal Difficulty, although these relationships were only low. Thus, contrary to the predictions, none of the agency beliefs evinced a negative correlation with Goal Difficulty across grades 3 to 5. However, in line with the hypotheses, on average, means-ends beliefs were more highly correlated with Goal Difficulty than the agency beliefs (agency beliefs vs. means-ends beliefs, $z = 2.85, p < .01$) across grades 3 - 5.

Table G17
Testing Invariance of Latent Correlations of Agency and Means-ends Beliefs, Goal Difficulty, and Action-Strategies across Grade Levels

Metrically inv. (i.e., Baseline)		Test			Δ			
X²	df	Model Description	X²	df	Comp.	Δ X²	df	p
Agency Beliefs and Action Strategies								
1) 797.60	712a	2) All dimensions with Direct Action	815.95	721	1 : 2	18.35	9	.03
		2a) Grade 6: Luck - Direct Action free	803.70	719	1 : 2a	6.10	7	.53
		Grade 4: Adult - Direct Action free			2 : 2a	12.25	2	<.01
		2b) Grade 6: Luck - Direct Action zero	806.51	721	2a: 2b	2.81	2	.25
		Grade 4: Adult - Direct Action zero						
		3) All dimensions with Seek Help	811.64	721	1 : 3	14.04	9	.12
		4) All dimensions with Omission	839.78	721	1 : 4	42.18	9	<.01
		4a) Grade 6: Self - Omission free	803.56	717	1 : 4a	5.96	5	.31
		Grades 4, 5, 6: Adults- Omission free			4 : 4a	36.22	4	<.01

Table G17 continued

Metrically inv. (i.e., Baseline)		Test	Δ						
X ²	df	Model Description	X ²	df	Comp.	Δ X ²	df	p	
		4b)Grade 6: Self - Omission free Grades 5 and 6: Adults- Omission zero Grade 4: Adults- Omission free	806.05	719	4a : 4b	2.49	2	.29	
Means-ends Beliefs and Action Strategies									
1)	803.44	712a	2) All dimensions with Direct Action	822.70	721	1 : 2	19.26	9	.02
			2a)Grade 6: Luck - Direct Action free	811.72	719	1 : 2a	8.28	7	.31
			Grade 4: Adult - Direct Action free			2 : 2a	10.98	2	<.01
			2b)Grade 6: Luck - Direct Action zero	806.51	721	2a: 2b	2.81	2	.25
			Grade 4: Adult - Direct Action zero						
			3) All dimensions with Seek Help	817.04	721	1 : 3	13.60	9	.14
			4) All dimensions with Omission	848.62	721	1 : 4	45.18	9	<.01
			4a)Grade 6: Self - Omission free	811.10	717	1 : 4a	7.66	5	.18
			Grades 4, 5, 6: Adults- Omission free			4 : 4a	37.52	4	<.01
			4b)Grade 6: Self - Omission free	813.73	719	4a : 4b	2.63	2	.27
			Grades 5 and 6: Adults- Omission zero						
			Grade 4: Adults- Omission free						
Agency Beliefs and Goal Difficulty									
1)	528.20	514b	2) All dimensions with Difficulty	545.35	523	1 : 2	17.16	9	<.05
			2a)Grade 6: Self - Difficulty free	534.62	521	1 : 2a	6.42	7	.49
			Grade 6: Adult - Difficulty free			2 : 2a	10.73	2	<.01
Means-ends Beliefs and Goal Difficulty									
1)	548.58	514b	2) All dimensions with Difficulty	571.05	523	1 : 2	22.46	9	<.01
			2a)Grade 6: Self - Difficulty free	554.56	520	1 : 2a	5.98	6	.43
			Grade 6: Luck - Difficulty free			2 : 2a	16.48	3	<.01
			Grade 6: Adult - Difficulty free						
Action Strategies and Goal Difficulty									
1)	577.92	514b	2) All strategies with Difficulty	602.73	523	1 : 3	24.81	9	<.01
			2a)Grade 6: Seek Help - Difficulty free	582.95	521	1 : 3a	5.00	7	.66
			Omission - Difficulty free			3 : 3a	19.81	2	<.01

Note. Comp. = Comparison, inv. = invariant. The degrees of freedom of the here reported measurement invariant models differ from the degrees of freedom of the measurement invariant models reported in Table G5. a = The here reported models gained 108 df by fixing the parameters of the measurement model. b = The here reported models gained 90 df by fixing the parameters of the measurement model.

In grade 6 agency beliefs about Self and Adults evinced negative relationships with Goal Difficulty, although these relationships were only marginally significant ($p < .10$, one-tailed tests). Moreover, in grade 6 means-ends beliefs about Self, as hypothesized, evinced a significant and negative relationship with Goal Difficulty ($p < .05$, one-tailed test). However, contrary to the hypotheses, in grade 6 means-ends beliefs about external means (i.e., Luck and

Adults) tended to be negatively related to Goal Difficulty, although these relationships were not reliable ($p > .10$, two-tailed tests).

Relationships of Action Strategies and Goal Difficulty

As seen in Table G17, testing invariance of the correlations among Action Strategies and Goal Difficulty across age groups resulted in a significant decrement in fit when compared to the metrically invariant model (see comparison of Model 1 vs. Model 2).

As seen in Table G19, across all grade levels Direct Action was invariantly weakly and positively correlated with Goal Difficulty. Both Seeking Help and Action Omission were moderately highly and positively correlated with Goal Difficulty across grades 3 to 5. During this age range, Difficulty was more strongly correlated with Seeking Help and Action Omission than with Direct Action (Seeking Help and Action Omission versus Direct Action, $z = 3.89$, $p < .01$).

In contrast, in the oldest group of children (i.e., grade 6) both Seeking Help and Action Omission were not reliably correlated with Goal Difficulty. Hence, in grade 6 children's perceptions of difficulty were only related to increases in active problem-solving attempts (i.e., Direct Action) but not to passive or dependent problem-solving strategies.

Development of the Relationships of Perceived Control (i.e., Means-ends and Agency Beliefs, and Goal Difficulty) and Action Strategies with Friendship Outcomes (Self-rated and Friend-rated Friendship Quality, and Number of Mutual Friendships)

Relationships of Perceived Control (i.e., Means-ends and Agency Beliefs, and Goal Difficulty) and Action Strategies with Self-rated Friendship Quality Across Grade Levels

Agency beliefs and means-ends beliefs about Self. The multivariate tests and the univariate follow-up tests are reported in Table G20. As shown in the table, testing invariance of the correlations of friendship quality (i.e., Intimacy and Conflict) with agency beliefs about Self (Model 2) and agency beliefs about Luck (Model 3) across age groups resulted in nonsignificant decrements in fit when compared to the metrically invariant model (Model 1).

As seen in Table G18, across all age groups agency beliefs about Self invariably evinced a strong and positive correlation with Intimacy. In contrast, the correlations of agency beliefs about Self and Conflict invariably were invariantly not significantly different from zero across all age groups.

Across all grade levels, agency beliefs about Luck invariably evinced a low and positive correlation with Intimacy. In contrast, the correlation of agency beliefs about Luck and Conflict invariantly was not significantly different from zero across all age groups.

As seen in Table G20, testing invariance of the correlations of means-ends beliefs about Self and friendship quality across age groups resulted in a significant decrement in fit when compared to the metrically invariant model (see comparison of Model 1 vs. Model 2).

As shown in Table G18, agency and means-ends beliefs about Self did not differ in the patterns of relationships with self-rated Intimacy but in the patterns of relationships with self-rated Conflict. Specifically, similarly as the agency beliefs about Self and as expected, across all age groups means-ends beliefs about Self were invariantly moderately highly and positively correlated with Intimacy. Moreover, similarly as the corresponding agency beliefs, means-ends beliefs about Self were, unexpectedly, unrelated to Conflict in grades 3 and 4. In contrast, across the two older age groups means-ends beliefs about Self evinced, as hypothesized, a low and negative correlation with self-rated conflict while the corresponding agency beliefs, unexpectedly, did not..

Beliefs about Adults represented the single dimension of the agency belief-system where age-related differences occurred. Because the tests of age-related differences in the relationships of both agency and means-ends beliefs about Adults yielded a parallel pattern of results (see Table G20) the testing of the relationships of agency beliefs about Adults are reported together with the tests of the corresponding means-ends beliefs in the following paragraph.

External means-ends beliefs and Goal Difficulty. Constraining cross-group invariance of the correlations of both agency and means-ends beliefs about Adults and friendship quality

resulted in a significant decrement in fit when compared to the metrically invariant model (see comparisons of Model 1 vs. Model 4).

As seen in Table G20, both agency and means-ends beliefs about Adults evinced invariantly low to moderately strong and positive correlations with self-rated Intimacy across grade levels with the exception of grade 4. In grade 4, both agency and means-ends beliefs about Adults were nonsignificantly correlated with Intimacy. Across grades 3 and 4 both agency and means-ends beliefs about Adults were invariantly weakly and positively correlated with conflict while across grades 5 and 6 they were uncorrelated with Conflict. As seen in Table G18, at older ages none of the agency beliefs evinced a significant correlation with conflict perceptions.

As seen in Table G20, testing invariance of the correlations of means-ends beliefs about Luck and friendship quality across age groups resulted in a significant decrement in fit when compared to the metrically invariant model (see comparison of Model 1 vs. Model 3).

As seen in Table G18, in grade 5 the unexpected negative relationship of means-ends beliefs about Luck and Conflict failed to reach conventional levels of significance ($p > .05$, two-tailed test). Across the remaining age groups means-ends beliefs about Luck and Conflict were, as hypothesized, significantly positively correlated ($p < .05$, one-tailed test) although this correlation was only weak.

Similarly to means-ends beliefs about Adults, means-ends beliefs about Luck remained invariantly positively correlated with self-rated Intimacy across age groups. Thus, the expected negative correlations of external means-ends beliefs and Intimacy did not evince at older ages.

Moreover, as it was expected for the agency beliefs, for both agency and means-ends beliefs, self-related beliefs, on average, evinced stronger relationships with Intimacy than beliefs about Luck and Adults (Luck and Adults versus Self, $z = 6.48$, $p < .01$ and $z = 4.52$, $p < .01$ for agency and means-ends beliefs, respectively) across all age groups.

As shown in Table G20, testing invariance of the correlations of Goal Difficulty with friendship quality across age groups resulted in a significant decrement in fit when compared to the metrically invariant model (see comparison of Model 1 vs. Model 5).

Although negative relationships were expected, children's perceptions of Goal Difficulty were unrelated to their perceptions of Intimacy ($r(z = 1.22; se = .05) = .07$). In contrast, as expected, Goal Difficulty invariably evinced a moderately strong and positive correlation with Conflict ($r(z = 6.71; se = .05) = .37$) across all grade levels with the exception of grade 5. In grade 5 this relationship was not significantly different from zero ($r(z = 0.66; se = .11) = .07$).

Table G18

Correlations of Agency and Means-ends Beliefs with Goal Difficulty and Self-rated Friendship Quality across Grade Levels

Grade level	$\hat{\rho}$	Agency Beliefs			Means-ends Beliefs		
		Self	Luck	Adults	Self	Luck	Adults
Goal Difficulty							
Baseline (Grade 3)	$\hat{\rho}$.13 (.05)	.01 (.05)	.18 (.05)	.20 (.05)	.12 (.06)	.20 (.05)
	z	2.41	0.23	3.44	3.81	2.02	3.62
6	$\hat{\rho}$	<i>-.12 (.09)</i>		<i>-.13 (.09)</i>	<i>-.16 (.09)</i>	<i>-.13 (.09)</i>	<i>-.14 (.09)</i>
	z	<i>-1.29a</i>		<i>-1.39a</i>	-1.68	<i>-1.41</i>	<i>-1.54</i>
Self-rated Friendship Quality							
<i>Intimacy</i>							
Baseline (Grade 3)	$\hat{\rho}$.43 (.04)	.15 (.04)	.26 (.05)	.37 (.04)	.15 (.04)	.27 (.05)
	z	11.71	3.51	5.70	9.53	3.48	5.63
4	$\hat{\rho}$			<i>.06 (.09)</i>			<i>.06 (.09)</i>
	z			<i>0.61</i>			<i>0.63</i>
<i>Conflict</i>							
Baseline (Grade 3)	$\hat{\rho}$	<i>-.04 (.05)</i>	<i>.03 (.05)</i>	.23 (.06)	<i>.08 (.07)</i>	.11 (.06)	.30 (.06)
	z	<i>-0.93</i>	<i>0.73</i>	3.74	<i>1.15</i>	2.06	4.83
5	$\hat{\rho}$			<i>-.07 (.06)</i>	<i>-.18 (.07)</i>	<i>-.16 (.09)</i>	<i>-.07 (.06)</i>
	z			<i>-1.03</i>	<i>-2.74</i>	<i>-1.74</i>	<i>-1.01</i>
6	$\hat{\rho}$			<i>-.07 (.06)</i>	<i>-.18 (.07)</i>		<i>-.07 (.06)</i>
	z			<i>-1.03</i>	<i>-2.74</i>		<i>-1.01</i>

Note. Grade 3 represents the baseline group. If in a specific group an estimated correlation was significantly different from the estimate of the baseline group the estimate for that group is reported below. $\hat{\rho}$ = estimate, r = correlation, z = z-value. The LISREL estimates of the standard errors are reported in brackets. Values in italics indicate that the estimated correlations were not reliably different from zero ($p > .05$, one-tailed test); *a* indicates that the estimated correlations were only marginally different from zero ($p < .10$, one-tailed test).

Action strategies. As seen in Table 20, testing invariance of the correlations of action strategies (i.e., Direct Action, Seeking Help, and Action Omission) with self-rated Intimacy (see

comparison of Model 1 vs. Model 2) resulted in a significant decrement in fit when compared to the metrically invariant model (see comparison of Model 1 vs. Model 2).

Table G19
Correlations of Action Strategies with Goal Difficulty, and Self-rated Friendship Quality across Grade Levels

Grade level	Direct Action	Seeking Help	Action Omission
Self-rated Friendship Quality			
<i>Intimacy</i>			
3 - 5	.41 (.04 / 9.30)	.18 (.05 / 3.30)	.06 (.05 / 1.02)
6	.41 (.04 / 9.30)	.18 (.05 / 3.30)	-.28 (.09 / 2.94)
<i>Conflict</i>			
3 - 6	.06 (.05 / 1.14)	.20 (.06 / 3.42)	.35 (.05 / 7.19)
Goal Difficulty			
3 - 5	.22 (.05 / 4.11)	.37 (.06 / 5.83)	.39 (.05 / 7.23)
6	.22 (.05 / 4.11)	-.06 (.13 / 0.43)	.08 (.11 / 0.69)

Note. In brackets the first value represents the LISREL estimate of the standard error and the second value represents the *z*-value. Values in italics indicate that the estimated correlations were not reliably different from zero (*p* > .05).

As seen in Table G19, as hypothesized, across all age groups Direct Action invariantly evinced a positive and moderately high correlation with Intimacy. In contrast, instead of the expected negative relationship with Conflict this strategy was uncorrelated with Conflict.

On the one hand, seeking help as a strategy was unexpectedly invariantly positively and weakly related to friendship intimacy across all age groups. On the other hand, seeking help was, as expected, invariantly positively and weakly related to friendship conflict across all age groups.

As hypothesized, Action Omission was moderately highly and positively correlated with Conflict across all age groups. While Action Omission was uncorrelated with Intimacy from grade 3 to grade 5, in grade 6 this strategy evinced a low and negative correlation with

perceptions of Intimacy. The age-related increase in the strengths of the relationships of Action Omission and Intimacy is in line with the hypotheses.

Table G20
Testing Invariance of Latent Correlations of Agency and Means-ends Beliefs, Goal Difficulty, and Action-Strategies, with Self-rated Friendship Quality across Grade Levels

Metrically inv. (i.e., Baseline)		Test	Δ							
χ^2	df	Model Description	χ^2	df	Comp.	$\Delta \chi^2$	df	p		
Agency Beliefs with Friendship Quality (i.e., Intimacy and Conflict)										
1)	819.93	712a	2)	Self with Intimacy and Conflict	829.73	718	1 : 2	9.81	6	.13
			3)	Luck with Intimacy and Conflict	826.51	718	1 : 3	6.58	6	.36
			4)	Adults with Intimacy and Conflict	837.90	718	1 : 4	17.97	6	<.01
			4a)	Grades 5, 6: Adults - Conflict free	823.33	715	1 : 4a	7.55	3	.33
				Grades 4: Adults - Intimacy free			4 : 4a	14.57	3	<.01
			4b)	Grades 5, 6: Adults - Conflict inv.	823.43	716	4a : 4b	0.10	1	.75
				Grades 4: Adults - Intimacy free						
Means-ends Beliefs and Goal Difficulty with Friendship Quality (i.e., Intimacy and Conflict)										
1)	834.50	712a	2)	Self with Intimacy and Conflict	859.94	718	1 : 2	25.44	6	<.01
			2a)	Grades 5, 6: Self - Conflict free	838.90	716	1 : 2a	4.40	4	.33
							2 : 2a	21.04	2	<.01
			2b)	Grades 5, 6: Self - Conflict inv.	838.91	717	2a : 2b	0.01	1	.92
			3)	Luck with Intimacy and Conflict	854.90	718	1 : 3	20.40	6	<.01
			3a)	Grade 5: Luck - Conflict free	835.10	717	1 : 3a	0.60	5	.99
							3 : 3a	19.78	1	<.01
			4)	Adults with Intimacy and Conflict	870.33	718	1 : 4	35.84	6	<.01
			4a)	Grades 5, 6: Adults - Conflict free	837.18	715	1 : 4a	2.68	3	.44
				Grade 4: Adults - Intimacy free			4 : 4a	33.16	3	<.01
			4b)	Grades 5, 6: Adults - Conflict inv.	837.25	716	4a : 4b	0.07	1	.79
				Grades 4: Adults - Intimacy free						
			5)	Difficulty with Intimacy and Conflict	857.27	718	1 : 5	22.77	6	<.01
			5a)	Grade 5: Difficulty - Conflict free	837.50	717	1 : 5a	3.00	5	.70
							5 : 5a	19.77	1	<.01
Action Strategies with Friendship Quality (i.e., Intimacy and Conflict)										
1)	571.01	514b	2)	All strategies with Intimacy	590.66	523	1 : 2	19.65	9	.02
			2a)	Grade 6: Omission - Intimacy free	581.45	522	1 : 2a	10.44	8	.24
							2 : 2a	9.21	1	<.01
			3)	All strategies with Conflict	584.39	523	1 : 3	13.38	9	.15

Note. Comp. = Comparison, inv. = invariant. The degrees of freedom of the here reported measurement invariant models differ from the degrees of freedom of the measurement invariant models reported in Table G5. a = The here reported models gained 108 df by fixing the parameters of the measurement model. b = The here reported models gained 90 df by fixing the parameters of the measurement model.

Relationships of Perceived Control (i.e., Means-ends and Agency Beliefs, and Goal Difficulty) and Action Strategies with the Number of Mutual Friendships Across Grade Levels

As shown in Table G21, each of the models testing invariance of the correlations of the number of mutual friendships with the agency and means-ends beliefs, Goal Difficulty, and the action strategies resulted in a nonsignificant loss in fit when compared to the specific metrically invariant model². Hence, the relationships of each of the target constructs with the number of reciprocated friendships remained invariant across age groups. Thus, the hypothesis that the strength of the correlations would increase with age was not empirically supported.

Table G21
Testing Invariance of the Latent Correlations of Agency and Means-ends Beliefs, Action-Strategies, Goal Difficulty and Importance with the Number of Mutual Friendships across Age Groups

Metrically inv. (i.e., Baseline)		Test				Δ		
X²	df	Model Description	X²	df	Comp.	Δ X²	df	p
Agency Beliefs and Goal Importance with Number of Mutual Friendships								
1) 310.11	297a	2) Agency Beliefs	320.50	306	1 : 2	10.39	9	.32
		3) Goal Importance	352.31	300	1 : 3	1.66	3	.66
Means-ends Beliefs and Goal Difficulty with Number of Mutual Friendships								
1) 347.63	297a	2) Means-ends Beliefs	355.69	306	1 : 2	8.00	9	.52
		3) Goal Difficulty	349.23	300	1 : 3	1.54	3	.67
Action Strategies with Number of Mutual Friendships								
1) 231.18	208b	2) Action Strategies	239.08	208	1 : 2	7.90	9	.54

Note. Comp. = Comparison, inv. = invariant. The degrees of freedom of the here reported measurement invariant models differ from the degrees of freedom of the measurement invariant models reported in Table G5. a = The here reported models gained 17 df by fixing the parameters of the measurement model. b = The here reported models gained 24 df by fixing the loadings and intercepts of the measurement model.

Agency beliefs and means-ends beliefs about Self. As shown in Table G22, contrary to the hypotheses, across all age groups all dimensions of the agency beliefs and means-ends beliefs about Self were nonreliably correlated with the Number of Mutual Friendships.

² The analyses using the dichotomous counterpart of the Number of Mutual Friendships yielded similar results. The employed dummy coding contrasted children who have a reciprocated friendship with children who lack a reciprocated friendship.

External means-ends beliefs and Goal Difficulty. As hypothesized and as shown in Table G22, children's means-ends beliefs about Luck and Adults were weakly and negatively correlated with the number of mutual friendships (\underline{r} ($z = -2.60$; $se = .02$) = $-.11$ and \underline{r} ($z = -2.73$; $se = .04$) = $-.12$, respectively). Goal Difficulty also evinced, as hypothesized, a low and negative correlation with the number of mutual friendships (\underline{r} ($z = -2.77$; $se = .05$) = $-.13$).

Action strategies. As shown in Table G22, both Action Omission and Seeking help were not significantly correlated with the number of mutual friendships. In contrast, Direct Action evinced a low and negatively directed relationship with friendship quantity (\underline{r} ($z = -1.78$; $se = .05$) = $-.08$; $p < .10$, two-tailed test). The latter relationship was in the opposite direction than hypothesized. However, this correlation should not be overinterpreted because it was only low and only marginally significant.

Table G22
Age-invariant Correlations between Agency and Means-ends Beliefs, Action Strategies, Goal Difficulty, and Goal Importance with Number of Mutual Friendships

Construct		\underline{r}	\underline{se}	\underline{z}
Agency Beliefs	Self	.03	.04	0.73
	Luck	-.04	.04	-0.90
	Adult	-.04	.04	-0.97
Goal Importance		-.04	.04	-0.93
Means-ends Beliefs	Self	-.01	.04	-0.32
	Luck	-.11**	.02	-2.60
	Adult	-.12**	.04	-2.73
Goal Difficulty		-.13**	.05	-2.77
Action Strategies	DirectAction	-.08 ^a	.05	-1.78
	Seeking Help	.02	.05	0.40
	Action Omission	-.04	.05	-0.93

Note. The reported correlations were invariant across grades 3 - 6; \underline{r} = disattenuated correlation, \underline{se} = LISREL estimate of the standard error, \underline{z} = \underline{z} -value. * = $p < .05$, one-tailed tests. ^a = $p < .10$, two-tailed tests; the correlation is in opposite direction as hypothesized.

Additional analyses: Mean levels of the Number of Mutual Friendships Across Grade Levels. Theoretically age-related increases in perceived control may be due to actual increases in the number of mutual friendships. As a consequence, I tested whether the number of mutual friendships differed across age groups. Constraining the mean levels of the number of mutual friendships to be equal across grade levels in the model combining this construct with action strategies resulted in a nonsignificant $\Delta\chi^2$ value when compared to the unconstrained (measurement invariant) model (i.e., $\Delta\chi^2_{(3)} = 7.59, p = .06$)³. Thus, the interpretation that increases in perceived control (e.g., agency beliefs about Self) may be due to actual increases in the friendship network can be ruled out.

Relationships of Perceived Control (i.e., Means-ends and Agency Beliefs, and Goal Difficulty) and Action Strategies with First Best Friend's Perceptions of Friendship Quality Across Grade Levels

In contrast to the analyses across sociometric groups, in the analyses comparing the views of the friendship dyad members across age groups there is no class variable that allows to distinguish the dyad members. Hence, *pairwise intraclass correlations* between the children's ratings a target construct (i.e., agency and means-ends beliefs, Goal Difficulty, action strategies, and Goal Importance) and their best friends' views of friendship quality were computed. In order to do so, each dyad was represented two times in the data (see Gonzales & Griffin, 1997). Each child's ratings of the constructs were represented one time as the ratings of the first dyad member in a first row of the data. In a second row of the data each child's ratings were represented as the ratings of the second dyad member. Hence, the pair-wise intraclass correlations are computed over 2N pairs. Importantly, LISREL provides the correct test statistics (chi-square test and z-tests) when specifying N (i.e., number of dyads) as the number of observations (Gonzales & Griffin, 1997).

In total, there were 102 friendship dyads in grade 3, 89 friendship dyads in grade 4, 94 friendship dyads in grade 5, and 81 friendship dyads in grade 6.

³ Inspecting the mean levels of the unconstrained model indicated that children in the fourth grade tended to have more reciprocated friendships than children in the remaining grade levels.

Table G23

Testing Invariance of the Latent Correlations of Agency and Means-ends Beliefs, Action-Strategies, Goal Difficulty, and Goal Importance with Best Friends' Views of Friendship Quality across Age Groups

Metrically inv. (i.e., Baseline)		Test				Δ		
X ²	df	Model Description	X ²	df	Comp.	Δ X ²	df	p
Agency Beliefs and Goal Importance with Friendship Quality (i.e., Intimacy and Conflict)								
1) 437.02	712a	2) Self with Intimacy and Conflict	438.39	718	1 : 2	1.37	6	.97
		3) Luck with Intimacy and Conflict	439.35	718	1 : 3	2.33	6	.89
		4) Adults with Intimacy and Conflict	438.75	718	1 : 4	1.73	6	.94
		5) Importance with Intimacy and Conflict	438.49	718	1 : 5	1.47	6	.96
Means-ends Beliefs and Goal Difficulty with Friendship Quality (i.e., Intimacy and Conflict)								
1) 466.94	712a	2) Self with Intimacy and Conflict	469.06	718	1 : 2	2.12	6	.91
		3) Luck with Intimacy and Conflict	468.08	718	1 : 3	1.14	6	.98
		4) Adults with Intimacy and Conflict	467.85	718	1 : 4	0.91	6	.99
		5) Difficulty with Intimacy and Conflict	473.24	718	1 : 5	6.30	6	.39
Action Strategies with Friendship Quality (i.e., Intimacy and Conflict)								
1) 311.45	514b	2) Direct Action w. Intimacy and Conflict	628.91	520	1 : 2	2.54	6	.86
		3) Seek Help w. Intimacy and Conflict	628.37	520	1 : 3	2.00	6	.92
		4) Omission w. Intimacy and Conflict	631.08	520	1 : 4	4.71	6	.58

Note. Comp. = Comparison, inv. = invariant. The degrees of freedom of the here reported measurement invariant models differ from the degrees of freedom of the measurement invariant models reported in Table G21. a = The here reported models gained 108 df by fixing the parameters of the measurement model. b = The here reported models gained 90 df by fixing the loadings and intercepts of the measurement model.

As shown in Table G23, testing invariance of the *pairwise intraclass correlations* of both friend-rated Intimacy and Conflict with each dimension of the agency and means-ends beliefs, Goal Difficulty, and each of the action strategies, resulted in nonsignificant losses in fit when compared to the specific metrically invariant model. Hence, the relationships of each of the target constructs with the best friends' views of friendship quality remained invariant across age groups.

Moreover, contrary to the hypotheses, none of the constructs evinced a significant relationship with the best friends' views of Conflict.

Agency beliefs and means-ends beliefs about Self. As shown in Table G24, across all age groups children's agency beliefs about Self were, as expected, weakly and positively correlated with the best friends' views of Intimacy ($r(z = 2.11; se = .06) = .12$). The *pairwise intraclass correlation* between agency beliefs about Adults and the best friends' views of Intimacy, also as

predicted, was positively directed, although this correlation was only marginally significant ($r(z = 1.39; se = .05) = .08, p < .10$, one-tailed test). However, agency beliefs about Luck were not reliably correlated with the best friends' views of Intimacy.

External means-ends beliefs and Goal Difficulty. The *pairwise intraclass correlation* of means-ends beliefs about Adults and the best friends' views of Intimacy was, contrary to the hypotheses, positively directed and nonsignificant ($r(z = 1.38; se = .06) = .08, p > .10$, two-tailed test). As shown in Table G24, means-ends beliefs about Luck and Goal Difficulty were not reliably related to friend-rated Intimacy.

Table G24
Intra-class Correlations between Agency and Means-ends Beliefs, Action Strategies, Goal Difficulty, and Goal Importance with Best Friends' Ratings of Friendship Quality across Grade Levels

	Best Friends' Ratings of Friendship Quality			
	Intimacy		Conflict	
Agency Beliefs				
Self	.12*	(se = .06, z = 2.11)	-.04	(se = .06, z = -0.58)
Luck	-.03	(se = .06, z = -0.43)	.03	(se = .06, z = 0.04)
Adult	.08†	(se = .06, z = 1.39)	-.01	(se = .06, z = -0.20)
Goal Importance	.08	(se = .06, z = 1.23)	.10	(se = .07, z = 1.38)
Means-ends Beliefs				
Self	.03	(se = .06, z = 0.52)	-.02	(se = .07, z = -0.32)
Luck	-.04	(se = .06, z = -0.69)	.02	(se = .07, z = 0.32)
Adult	.08	(se = .06, z = 1.38)	.01	(se = .07, z = 0.08)
Goal Difficulty	-.08	(se = .07, z = -0.17)	.06	(se = .07, z = 0.83)
Action Strategies				
Direct Action	.10†	(se = .06, z = 1.50)	.04	(se = .07, z = 0.51)
Seeking Help	.01	(se = .13, z = 0.55)	-.06	(se = .15, z = -0.39)
Action Omission	-.04	(se = .07, z = -0.66)	.01	(se = .07, z = 0.16)

Note. The reported intra-class correlations were invariant across grades 3 - 6; se = LISREL estimate of the standard error, z = z-value. * = $p < .05$, † = $p < .10$, one-tailed tests.

Action strategies. The *pairwise intraclass correlation* of Direct Action and the best friends' view of Intimacy, as expected, was positively directed, although this relationship was only marginally significant ($r(z = 1.50; se = .07) = .10, p < .10$, one-tailed test). In contrast, as shown in Table G24, Seeking Help, and Action Omission were not reliably related to friend-rated Intimacy.

Summary of the Unexpected Findings in Grade 4

The results the above reported analyses show that in grade 4 patterns of results evinced that were neither consistent with the hypotheses nor, on a general level, they are consistent with the results obtained in the remaining grade levels. Specifically, in the model assessing the higher-order structure of the means-ends beliefs (see Appendix D) it was found that the loading of the first-order construct representing Effort on the higher-order construct representing Self was significantly stronger in grade 4 than in the remaining age groups. This result indicates that in grade 4 the meaning of the higher-order construct Self was more highly related to effort than in the remaining age groups. Moreover, the mean levels of both agency and means-ends beliefs about Self as well as Direct Action as a strategy were higher in grade 4 compared to grades 3 and 5 but lower than in grade 6. These findings may be related to the finding that self-related beliefs are highly related to Direct Action across all age groups. In grade 4 Direct Action and Help Seeking were more highly correlated than in the remaining age groups. Notably, Direct Action and Help Seeking were more highly related to self-related beliefs than Action Omission. However, in grade 4 Action Omission was more highly correlated with both agency and means-ends beliefs about Adults than in the remaining age groups. In contrast, in grade 4 both agency and means-ends beliefs about Adults were uncorrelated with Direct Action while these beliefs were significantly and positively correlated with this action strategy across the remaining age groups. Similarly, in grade 4 both agency and means-ends beliefs about Adults were uncorrelated with self-rated Intimacy while these beliefs were significantly and positively correlated with this friendship feature across the remaining age groups.

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 Friendled Children?

Table G25 provides an overview of the results of testing mean level differences and invariance of correlations of perceived control, action strategies, and Goal Importance across grade levels. As seen in the table, there were no age-related mean-level differences in children’s perceptions of Goal Importance. Only the multivariate test of the correlation between means-ends beliefs and Goal Importance was significant.

Table G25
Testing Mean-Level Differences and Invariance of Latent Correlations of Goal Importance with Perceived Control, Action Strategies, and Self-rated Friendship Quality across Grade Levels

Metrically inv. (i.e., Baseline)		Test		Δ				
X ²	df	Model Description	X ²	df	Comp.	ΔX ²	df	p
Mean-Level Comparison								
1) 115.15	76	2) Importance inv.	122.22	79	1 : 2	7.07	3	.07
Invariance of Correlations								
1) 528.20	514b	2) All Agency Beliefs	543.68	523	1 : 3	15.48	9	.08
1) 548.58	514b	2) All Means-ends Beliefs	568.51	523	1 : 2	19.93	9	.02
		2a) Grade 6: Luck - Importance free	554.56	522	1 : 2a	5.97	8	.65
					2 : 2a	13.95	1	<.01
1) 115.15	76	2) Goal Difficulty	118.46	79	1 : 2	3.31	3	.35
1) 577.92	514b	2) All Action Strategies	594.25	523	1 : 2	16.33	9	.06
1) 819.93	712a	2) Self-rated Intimacy and Conflict	823.62	718	1 : 2	3.69	6	.76
1) 437.02	712a	2) Friend-rated Intimacy and Conflict	438.49	718	1 : 2	1.47	6	.96
1) 310.11	297a	2) Number of Mutual Friendships	352.31	300	1 : 2	1.66	3	.66

Note. Comp. = Comparison, inv. = invariant. By fixing the parameters of the measurement model the here reported models gained a = 108 df and b = 90 df.

Table G26 provides an overview of the correlations of Goal Difficulty and the remaining target constructs across grade levels. Generally, the evinced correlational patterns of Goal Importance and both agency and means-ends beliefs supported the assumption that Goal Importance was rather highly related to agency beliefs and self-related means-ends beliefs. More

specifically, Goal Importance evinced high and positive correlations with both agency and means-ends beliefs about Self. Moreover, generally, the patterns of relationships of Goal Importance with both action strategies and friendship outcomes resembled the patterns of relationships of agency and means-ends beliefs about Self with these constructs.

Table G26

Overview of Relationships of Goal Importance with Perceived Control, Action Strategies, and Friendship Outcomes across Grade Levels

Construct	<i>r</i>	<i>se</i>	<i>z</i>	Exception:	<i>r</i>	<i>se</i>	<i>z</i>
Agency: Self	.55	(.03)	16.33				
Agency: Luck	.28	(.04)	6.56				
Agency Adult	.20	(.04)	4.63				
Means-ends: Self	.55	(.03)	16.11				
Means-ends: Luck	.36	(.05)	7.72	Grade 6:	.09	(.09)	0.95
Means-ends Adults	.22	(.04)	4.40				
Goal Difficulty	.30	(.05)	6.17				
Direct Action	.67	(.04)	19.03				
Seeking Help	.29	(.06)	5.26				
Action Omission	.00	(.05)	0.01				
Self-rated Intimacy	.35	(.04)	8.08				
Self-rated Conflict	.09	(.05)	1.81				
Friend: Intimacy	.08	(.06)	1.23				
Friend: Conflict	.10	(.07)	1.38				
Number of Mutual Friendships	-.04	(.04)	-0.93				

Note. *r* = latent correlation, *se* = LISREL estimate of the standard error, *z* = *z*-value. The intra-class correlations of the first best friends' ratings and Goal Importance is reported.

Summary and Discussion of the Results of the Cross-sectional Age Comparisons

The preparatory analyses provided evidence of the internal validity and measurement equivalence (i.e., metric invariance) of the lower-order constructs of the agency and means-ends beliefs and action strategies across grade levels (i.e., grades 3 - 6). Moreover, it was shown that agency and means-ends beliefs, and action strategies can be invariantly represented by higher-order structures across grade levels. Beliefs for the means Effort, Ability, and Personal Attributes could be represented as a higher-order construct, termed Self, in both the agency and means-ends belief systems. Across all age groups beliefs about Parents and Teachers invariantly contributed to an equal amount to the higher-order construct Adults. Moreover, the action

strategies Doing Nothing and Avoidance could be represented as a higher-order construct, termed Action Omission. As a consequence, in subsequent analyses the established higher-order constructs were represented by domain-representative parcels (Kishton & Widaman, 1994).

Moreover, the results provided evidence that the factor variances of agency beliefs, Goal Difficulty, Goal Importance, self-rated and friend-rated friendship quality, and number of mutual friendships were invariant across grade levels. In contrast, the factor variances of the means-ends beliefs and the action strategies differed across age groups. In the youngest age group (i.e., grade 3) the variances of both sets of constructs were restricted compared to the older age groups (i.e., grades 4 - 6).

Furthermore, the results showed that gender did not affect any of the constructs with the exception of self-rated Friendship Conflict. Specifically, in grade 3, girls perceived the relationships significantly more conflictual than boys. Moreover, evidence of internal validity and measurement equivalence for each construct used in the preparatory was provided.

Development of Means-ends and Agency Beliefs: Structural Relationships, Mean Levels, and Functioning in the Domain of Friendship During Middle Childhood

An overview of the hypotheses and the results of the preparatory analyses is provided in Table G27. The findings of the present study replicated previous findings in the domain of friendship (Wanner, 1995) that the children differentiated only to a low degree between agency and means-ends beliefs. As expected, the findings regarding the correlations across belief system provided some evidence for an age-related increase in differentiation between belief types. Specifically, older children differentiated more between agency and means-ends beliefs about the causes Self and Adults compared to younger children. In contrast, children's agency and means-ends beliefs about Luck remained invariantly highly correlated. However, the patterns of age-related decreases in the correlations of agency and means-ends beliefs about noncorresponding means mainly may be accounted by increases in differentiation among means dimensions.

The findings of the present study provided support for the assumption that in middle childhood a major developmental progression represents the differentiation among beliefs about specific means dimensions holds for the domain of friendship (e.g., Skinner, 1990b). More specifically, the findings of age-related differences in children's perceptions of control about friendship reflect their newly acquired capacities to distinguish between controllable causes such as effort and uncontrollable causes such as luck (e.g., Skinner, 1995; Weisz, 1986; see also Theory Chapter, Section 2.2.1.7).

Table G27
Summary of the Hypotheses and Results of the Grade-Level Comparisons

Development of Means-ends and Agency Beliefs: Structural Relationships, Mean Levels, and Functioning in the Domain of Friendship During Middle Childhood	
<i>Development of Agency and Means-ends Beliefs</i>	
<i>Prediction</i>	<i>Hypotheses supported?</i>
Exploration: Do age-related differences in the mean levels and correlations within belief systems evince in parallel across agency belief and means-ends belief systems?	YES
Beliefs about Adults and Luck show decreases in mean levels in grade 6	YES Onset of decreases in mean levels of beliefs about Adults and Luck already in grade 5
Mean levels of beliefs about Self are unaffected by age	NO Mean levels of beliefs about Self increased with age
Differentiation between beliefs about controllable and uncontrollable means dimensions increases: Correlations of beliefs about external means (i.e., Luck and Adults) and Self within belief-systems decrease with age	YES and NO In grade 6 differences evolved around beliefs about Luck: Correlations of beliefs about Luck and Self decreased; Correlations of beliefs about Luck and Adults decreased Correlations of beliefs about Self and Adults remained invariant across age groups
Differentiation between belief types increases with age: Age-related decreases in correlations across agency and means-ends belief systems	YES and NO Correlations of agency and means-ends beliefs about corresponding means decreased for - beliefs about Self in grades 5 and 6 - beliefs about Adults in grade 6 Correlations of beliefs about Luck were invariant across age groups Age-related decreases in correlations of agency and means-ends beliefs about noncorresponding means evolved around beliefs about Luck and Self across grades 5 and 6.

Table G27 continued

<i>Development of the Relationships of Means-ends and Agency Beliefs, Goal Difficulty, and Action Strategies</i>	
<i>Prediction</i>	<i>Hypotheses supported?</i>
Agency beliefs are <i>positively</i> correlated with - Direct Action	YES
and <i>negatively</i> correlated with - Action Omission - Seeking Help - Goal Difficulty	NO Across grades 3 - 5 all dimensions of agency and means-ends beliefs were positively correlated with Action Omission, Seeking Help, and Goal Difficulty Across all grades: Luck and Goal Difficulty uncorrelated In Grade 6 differences in correlations reflect increases in understanding of differences among means dimensions but not between belief types (i.e., differences evinced in parallel across both agency and means-ends beliefs)
- Agency beliefs about Self evince higher correlations compared to agency beliefs about external means (i.e., Luck and Adults)	YES
- Correlations of means-ends beliefs about Self are similar to the corresponding correlations of agency beliefs about Self	YES
- With age the correlations increase	NO
Means-ends beliefs about external means evince similar correlations as the corresponding agency beliefs at younger ages.	YES
For older children high external means-ends beliefs indicate low feelings of control, consequently, the correlations of external means-ends beliefs are <i>reversed</i> compared to agency beliefs.	NO
	<i>Summary of age-related differences in correlations across agency and means-ends beliefs</i> Grade 6: Self negatively correlated with Goal Difficulty, although agency: Self only marginally significant Grade 6: Luck and Direct Action uncorrelated; only Luck positively correlated with Action Omission. Grades 5 and 6: Adults and Action Omission uncorrelated Grade 6: external means-ends beliefs and Goal Difficulty uncorrelated Grade 6: Self negatively correlated with Action Omission, although, only marginally significant
Across all age groups the correlations of Goal Difficulty are <i>reversed</i> compared to agency beliefs.	NO Across grades 3 - 5 positively correlated with each action strategy Grade 6: Only positively correlated with Direct Action

Table G27 continued

<i>Development of the Relationships of Perceived Control (i.e., Means-ends and Agency Beliefs, and Goal Difficulty) and Action Strategies with Friendship Outcomes (Self-rated and Friend-rated Friendship Quality, and Number of Mutual Friendships)</i>	
<i>Prediction</i>	<i>Hypotheses supported?</i>
<p>Agency beliefs and Direct Action are <i>positively</i> correlated with</p> <ul style="list-style-type: none"> - Self: Intimacy - Best Friend: Intimacy - Number of Mutual Friends <p>and <i>negatively</i> correlated with:</p> <ul style="list-style-type: none"> - Self: Conflict - Best Friend: Conflict - Agency beliefs about Self evince higher correlations compared to agency beliefs about external means (i.e., Luck and Adults) - Correlations of means-ends beliefs about Self are similar to the corresponding correlations of agency beliefs about Self - Means-ends beliefs about external means evince similar correlations as the corresponding agency beliefs at younger ages. For older children high external means-ends beliefs indicate low feelings of control. Consequently, at older ages the correlations of external means-ends beliefs are <i>reversed</i> compared to agency beliefs. Across all age groups the correlations of <ul style="list-style-type: none"> - Goal Difficulty - Seeking Help - Action Omission <p>are <i>reversed</i> compared to agency beliefs and Direct Action.</p> <p>With age the correlations increase</p>	<p>YES</p> <p>YES: agency beliefs about Self</p> <p>NO: no correlations</p> <p>YES: Grades 5 - 6: means-ends: Self</p> <p>NO: Grades 3 -4 agency: Adults positive corr.</p> <p>NO: no correlations</p> <p>YES</p> <p>YES</p> <p>NO</p> <ul style="list-style-type: none"> - Correlations external means-ends beliefs and Self: Intimacy remained similar to the correlations of external agency beliefs across all ages. - Correlations with number of mutual friendships were in predicted directions across all ages. - Correlations with Self: Conflict were in predicted directions at younger ages and unreliable at older ages <p>YES</p> <p>Correlations of Goal Difficulty with number of mutual friendships and Self: Conflict were in predicted directions across all ages. Goal Difficulty was uncorrelated with friend ratings</p> <p>YES and NO</p> <ul style="list-style-type: none"> - In grade 6 Action Omission negatively correlated with Self: Intimacy while at younger ages unrelated - Across all grades: Action Omission and Seeking Help positively correlated with Self: Conflict; Seeking Help positively correlated with Self: Intimacy <p>NO</p>

In line with the low degree of differentiation between belief types developmental differences in belief dimensions in terms of both mean levels and correlations evinced in parallel across both agency and means-ends beliefs. In contrast, various studies provided evidence that in the academic domain, in line with a rather high degree of differentiation between belief types, age-related differences in both mean levels and correlations evince only in the means-ends beliefs while agency beliefs remain rather unaffected by such age-related differences (see Theory Chapter 2.2.1.7). However, these studies used the predecessor of the instrument used in the present study. Thus, it cannot be ruled out that these differences across domains of functioning are due to differences in measurement. Future research may address whether parallel developmental differences across belief types can also be found when measuring children's perceived control about academic performance with the academic version of the Multi-CAM instrument.

More specifically, the findings replicated the findings of a previous study conducted in the domain of friendship (Skinner, 1990b) and various studies conducted in the academic performance domain (e.g., Little & Lopez, 1996; see Theory Chapter 2.2.1.7) that the mean levels of beliefs about external means (i.e., luck and adults' help) decrease with age. Contrary to previous findings in the domain of friendship (Skinner, 1990b), the onset of the decreases in the mean levels of beliefs about external means evinced already one grade level earlier than in grade 6. This difference across studies may be due to differences in statistical power of the employed statistical tests. Generally, SEM techniques have greater power than conventional analyses of variance.

Age-related differences in correlations evolved only around the dimension Luck. Moreover, in line with findings of previous studies investigating the development of control-related beliefs in the friendship domain (Skinner, 1990b, Wanner, 1995), decreases in correlations among belief dimensions often evinced only for the oldest children (i.e., grade 6) while only few differences evinced already in grade 5. Moreover, it was found that the correlations of beliefs about Luck and Adults decreased for the oldest children. Hence, children also increasingly differentiated between external causes. Together, these findings point to the

possibility that children's increased capacities to differentiate between controllable and uncontrollable causes mainly affected beliefs about Luck. An alternative for the finding that at older ages children had lower agency and means-ends beliefs about Adults may be that seeking adults' help represents increasingly a nonnormative behavior in the domain of friendship (see Theory Chapter, Section 2.3.5).

As expected, children did not increasingly differentiate among beliefs about support provided by parents and teachers. Beliefs about support provided by both adult caretakers remained highly correlated across the investigated age range and could be represented as a single higher-order construct. Moreover, the finding that beliefs about self-related causes (i.e., effort, ability, and personal attributes) remained highly correlated across the investigated age range suggests that children's beliefs about self-related causes remained centered around their conception of personal efforts across grades 3 to 6. As a consequence, in this study self-related beliefs could be represented as a single higher-order construct. These findings support the assumption that developmental differences due to children's reasoning about the fixedness or mutability of these causes may occur at older ages than the investigated age range (e.g., Dweck, 1991; Elliott & Dweck, 1988; see also Theory Chapter, Section 2.2.1.7). However, another possibility is that the effects of implicit theories about the fixedness or mutability of causes do not generalize across life domains. Thus, future research may address whether findings indicating the effects of implicit theories in the academic performance domain replicate in the domain of friendship at older ages.

An unexpected finding was that the oldest group of children had higher agency and means-ends beliefs about self-related means than younger children. Moreover, 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). Taken together, these findings suggest that for older children friendship relationships may be more central for their lives. This assumption is further supported by the findings 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 the importance of intimate exchanges increases with age (for a review see, Rubin et al., 1998). Hence, the findings supported 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). Moreover, these findings are in line with the 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).

Development of the Relationships of Means-ends and Agency Beliefs, Goal Difficulty, and Action Strategies

The relationships of agency beliefs and action strategies replicated previous findings showing that children's self-efficacy beliefs correlate with self-reported behavioral responses to hypothetical peer situations (Crick & Wellmann, in press; Erdley & Asher, 1996; Perry et al., 1986). As expected, at younger ages (i.e., grade 3 to grade 5) the patterns of relationships of means-ends beliefs and action strategies paralleled the corresponding patterns of relationships of agency beliefs. Each of these relationships was positive, although the strengths of relationships differed according to belief dimensions (i.e., means) and action strategy. Specifically, beliefs about Self were, as predicted, more highly related to effort investment (i.e., Direct Action) than beliefs about Luck and Adults. Beliefs about Luck were more strongly related to Action Omission than the remaining dimensions (i.e., Self and Adults), although, in general, each of these relationships were only low. However, the finding that each dimension of both agency beliefs and means-ends beliefs were positively, although only lowly, related to Action Omission across grades 3 and 5 was unexpected. This finding suggests that for younger children Action Omission represents a viable action strategy to solve friendship problems even if they feel in control.

Moreover, contrary to the hypotheses, agency and means-ends beliefs were positively related to Seeking Help. However, the positive relationships are in line with the assumption that children have to invest action means in order to recruit social support. Although children may seek help if they feel that they lack the capacities to solve friendship problem's on their own,

they still need to have the action means necessary to recruit help (see Theory Chapter 2.3.5). Thus, the positive relationships of agency beliefs and Seeking Help may reflect children's beliefs that they have the means available to recruit help. This assumption applies most obviously if children's friends represent the major source of support. The operationalization of the strategy did not make reference to a specific source of support such as adults, peers, or friends. However, the assumption that the positive relationships of agency beliefs and Seeking Help may reflect children's beliefs that they have the means available to recruit help may generalize across other possible sources of support. The finding that beliefs about Adults were more highly related to help seeking behaviors compared to the remaining belief dimensions (i.e., Self and Luck) indicates that, in fact, adults may represent a major source of support in the domain of friendship during middle childhood.

While the relationships of both agency and means-ends beliefs and Seeking Help were age invariant the belief-strategy relationships of both Direct Action and Action Omission differed for the oldest children (i.e., grade 6) compared to younger children. However, contrary to the hypotheses, the developmental differences in these relationships mainly reflected increases in children's understanding of differences in the controllability of the specific causes and only to a low degree increases in their understanding of differences in the belief types. This assumption is supported by the finding that developmental differences in relationships evinced in parallel in both agency and means-ends beliefs. Moreover, the findings provided no evidence for the hypothesis that at older ages external means-ends beliefs are negatively related to effort investments (i.e., Direct Action). This hypothesis affords that children differentiate among both belief dimensions and belief types.

However, there was some evidence for developmental differences regarding both agency and means-ends beliefs about Luck. Specifically, in grade 6 both agency and means-ends beliefs about Luck were unrelated to the employment of Direct Action as a strategy to solve friendship problems while at younger ages both beliefs were positively related to this action strategy. Thus, older children's beliefs about both availability and the usefulness of Luck did not encourage active problem solving, although they also did not discourage engagement in this

strategy. The finding that both agency and means-ends beliefs about Adults remained positively related to Direct Action for oldest group of children may be explained by the fact that children have to invest own capacities in order to recruit adults' social support. Thus, the relationship of beliefs about Adults and Direct Action may be due to their common variance with self-related beliefs.

In contrast, in grade 6 children who omitted action regarded problem solving to be a matter of luck as indicated by the relationships of both agency and means-ends beliefs about Luck and this action strategy. At this age, beliefs about both availability and usefulness of both self-related capacities and adults' support were unrelated to action omission.

Unexpectedly, across grade 3 to grade 5, agency and means-ends beliefs were positively related to perceptions of Goal Difficulty. For the purpose of this discussion, it is sufficient to refer to assumptions of the energization theory of motivation (e.g., Brehm & Self, 1989; see Theory Chapter 2.1.2.1) and goal-setting theory (e.g., Locke & Latham, 1990; see Theory Chapter 2.2.1.6) proposing that individuals invest more effort in difficult tasks. In support of these assumptions, findings on adult samples showed that difficult goals are related to increases in self-efficacy beliefs (Cervone, et al., 1991; Early & Lituchy, 1991). Thus, a reasonable explanation for this finding is that for younger children the feeling that friendship goals are difficult to attain was related to heightened perceptions about the amount of means which are necessary to succeed in having friends. Related to the low degree of differentiation between belief types, the children also felt that they have access to these means.

However, for the oldest children both agency and means-ends beliefs about Self were negatively related to Goal Difficulty, although the relationship of agency beliefs about Self and Goal Difficulty was only marginally significant. Thus, only for the oldest children the relationships of self-related beliefs were in expected directions. The finding that in grade 6 children regarded good friendships to be less difficult to attain if own capacities are both highly useful and highly available may indicate that older children ascribed self-related capacities a major impact on friendship outcomes. This assumption is further supported by the finding that the mean levels of both self-related agency and means-ends beliefs showed age-related

increases. At the same time, the finding that for the oldest children beliefs about external causes were unrelated to perceptions of Goal Difficulty provided support for the assumption that older children believed less in the effectiveness of external means for attaining friendship goals. This is further supported by the finding of a drop in mean levels of external beliefs.

In a similar vein, for the oldest group of children difficulty perceptions were positively related to active problem attempts which was complemented by the finding that this strategy also showed an age-related increase. However, the assumption that older children regarded passive behaviors and help seeking behaviors as being less adaptive for attaining good friendships than younger children was not supported by differences in mean levels. Some support for this assumption is provided by the finding that for the oldest group of children difficulty perceptions were unrelated to both Action Omission and Seeking Help. Hence, older children relied on active problem-solving to overcome perceived difficulties to attain friendships while they, typically, did not behave passively or seeked help to overcome perceived difficulties. In contrast, the positive relationships of Goal Difficulty and each type of action strategies across grades 3 to 5 suggest that children who perceived friendship goals difficult to attain were encouraged to employ each kind of coping behaviors. At younger ages, children who perceived friendship goals to be difficult were even more likely to omit action and to seek out help than to engage in active problem solving. Taken together, the findings suggest that older children recognized that if there is personal control in a situation, active problem-solving often may be more adaptive than passive behaviors (e.g., Compas, 1987; Losoya et al., 1998; Heckhausen & Schulz, 1995; see Theory Chapter 2.3.1.2).

Development of the Relationships of Perceived Control (i.e., Means-ends and Agency Beliefs, and Goal Difficulty) and Action Strategies with Friendship Outcomes (Self-rated and Friend-rated Friendship Quality, and Number of Mutual Friendships)

The findings regarding the correlations of perceived control, action strategies, and children's own views of friendship quality provided further evidence that children's recognition of the maladaptivity of passive behaviors for solving friendship problems increases with age.

Specifically, in grade 6 Action Omission was related to lower self ratings of Intimacy while at younger ages this action strategy was unrelated to children's own views of Intimacy. However, across all age groups children's self-reported passive behaviors were related to high self ratings of Conflict. Together these findings show that omitting action when confronted with friendship problems was related to low self ratings of friendship quality. However, due to the bi-directional nature of correlations this relationship can be interpreted to mean that Conflict causes Action Omission or vice versa.

Similarly, the findings showed that across all age groups children's help-seeking behaviors were related to increases in own views of Conflict. However, 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, the assumption that social support contributes positively to intimate friendships is less likely.

Moreover, the findings showed that younger children sought out adults' help when confronted with friendship problems such as Conflict while older children refrained from using this strategy in such situations. Specifically, high agency beliefs about Adults were related to high self ratings of Conflict across the younger age groups (i.e., grades 3 and 4) while they were uncorrelated with Conflict across the older age groups (i.e., grades 5 and 6). However, due to

the bi-directional nature of correlations an interpretation of this finding in opposite direction may also hold. This finding could be interpreted to indicate that at younger ages involving adults when confronted with friendship problems lead to Conflict while at older ages the implementation of this action means did not result in Conflicts. However, this is interpretation is unlikely because Conflict itself may represent a major friendship problem. Thus, Conflict more likely represents an antecedent of help seeking than a consequence. Moreover, it is assumed that with age adult intervention in children's friendships becomes increasingly nonnormative (see Theory Chapter 2.3.5).

Furthermore, the finding that high means-ends beliefs about Adults also were related to high Conflict at younger ages may be due to the low degree of differentiation between belief types at these ages. However, an alternative explanation for this finding is, that children attributed Conflict to be due to a lack of support provided by Adults. Hence, the positive relationship may reflect that high perceptions of Conflict lead children to believe that they needed a lot of support provided by adults. The latter explanation may also account for the finding that means-ends beliefs about Luck were positively related to Conflict at younger ages. In this case this explanation is even more likely to apply because the corresponding agency beliefs were unrelated to Conflict. Thus, the alternative explanation that a low degree of differentiation between agency and means-ends beliefs accounts for the relationship between means-ends beliefs and Conflict can be ruled out. Consequently, the finding indicates that younger children differentiated between agency and means-ends beliefs about Luck. This is supported by the finding that agency and means-ends beliefs about corresponding means were not perfectly correlated but there some degree of differentiation across all ages. Given that the relationship of means-ends beliefs about Luck and Conflict was due to the unique variance of this belief, this finding indicates that children attributed Conflict to result from a lack of luck.

However, older children's external means-ends beliefs were unrelated to their views of Conflict. This finding suggests that older children regarded external means as rather unimportant for friendships. Moreover, the finding that across grades 5 and 6 means-ends beliefs about Self were related to lower self-rated Conflict while at younger ages (grades 3 and

4) these beliefs were unrelated to perceptions of Conflict suggests that children's recognition of the adaptativity of investing own capacities in order to solve friendship problems increased with age. The finding that agency beliefs about Self and self-rated Conflict were not correlated across all ages speaks against the assumption that this relationship was due to a low degree of differentiation between belief types. Thus, the findings suggest that children who did not recognize the importance of self-related means for friendships had highly conflictual friendships. This interpretation implies that children who preferred alternative action means than self-related means failed to have friendships of high quality. This interpretation is in line with the proposition that in the domain of peer relationships action which is not age adequate but typical for younger ages results in adjustment problems (e.g., Crick & Dodge, 1994).

Moreover, the findings supported the hypothesis that perceptions of Goal Difficulty were related to high self ratings of Conflict across all ages. This finding is in line with the assumption that this type of control develops earlier than agency and means-ends beliefs (e.g., Skinner, 1995).

Across all age groups, each of the agency and means-ends beliefs were positively related to children's own views of Intimacy. In addition, in line with the low degree of differentiation between belief types, the patterns of relationships were similar across belief systems. Thus, the expected negative correlations of external means-ends beliefs and self-rated Intimacy did not evince at older ages. As expected, for both agency and means-ends beliefs, self-related beliefs were more strongly related to self-rated Intimacy than beliefs about external means.

As it was the case for the relationships of agency and means-ends beliefs and self-rated Conflict, the findings regarding the more objective measures of friendship outcomes provided evidence for differential relationships. Specifically, with the exception of a marginally significant relationship of agency beliefs about Adults, self-related agency beliefs were the single belief dimension which were significantly related to the best friends' views of Intimacy across all ages. Moreover, Direct Action was also positively and invariantly correlated with both self-rated and friend-rated Intimacy, although the latter correlation was only marginally significant. In contrast, friend-rated Conflict was neither related to perceived control nor to action strategies.

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. Unexpectedly, these negative relationships evinced already beginning with grade 3. Although, as shown in Section 4.2.2.1, these relationships were caused by sociometric status as a third variable, they provide evidence that children differentiated between agency and means-ends beliefs beginning from grade 3..

In sum, 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. Beliefs for the means Effort, Ability, and Personal Attributes could be represented as a higher-order construct, termed Self, in both the agency and means-ends belief systems. 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.

Moreover, 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. Increases in children's understanding that Luck and adults' help are uncontrollable causes while self-related means are more controllable were indicated by (a) the expected declines in mean levels of beliefs about Luck and Adults, (b) the unexpected increase in beliefs about Self, and (c) the 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, most of the differences in the correlational patterns evinced only in grade 6.

Consistent, with previous findings in the friendship domain (Wanner, 1995) agency and means-ends beliefs were highly correlated indicating that the children differentiated only to a low degree between these two belief types. 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.

The findings provide evidence for a low degree of differentiation between belief types which only slightly increased with age. In line with the low degree of differentiation between belief types (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 were similar across agency and means-ends beliefs.

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

However, regarding help-seeking behaviors the findings were not unequivocally in support of the hypothesized negative effect 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, the assumption that social support contributes positively to intimate friendships is less likely. These explanations may also account for findings of positive relationships of both agency and means-ends beliefs about Adults and self-rated Intimacy.

Generally, correlations which were hypothesized to be negative were either unreliable or low and positive. As a consequence, beliefs, action strategies, and self-rated friendship quality showed patterns of salient and nonsalient relationships. With development the patterns of salient and nonsalient relationships were even more emphasized. However, in the vast majority of cases drops in strength of relationships evinced for the oldest group only. For example, the hypothesized relationship of agency beliefs about Self and Action Omission was $r = .15$ at younger ages. For the oldest children this relationship tended to be negative but did not reach conventional levels of significance. The findings showed that beliefs about specific means were differentially related to specific action strategies. 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. As hypothesized, 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, both Action Omission and Seeking Help were, as expected, related to higher self ratings of Conflict while Direct Action was not related to this friendship aspect.

In only two cases an unreliable correlation at younger ages changed into a negative correlation at older ages. Specifically, the correlation between Action Omission and self-rated Intimacy was lowly and negatively in grade 6 while this relationship was unreliable across the younger age groups. Similarly, across grade 5 and grade 5 means-ends beliefs about Self were lowly and negatively related to self-rated Conflict while this relationship was unreliable across the younger age groups.

Contrary to the hypothesis that children differentiate between agency and means-ends beliefs at older ages only, differentiation between belief types was indicated for the whole age range. Specifically, the finding that younger children's external means-ends beliefs were related to high self-rated Conflict while there was not corresponding relationship for their agency beliefs provided some evidence for the hypothesis that high external-means-ends beliefs indicate low feelings of control beginning from grade 3. For young children high perceptions of conflict were related to increased perceptions of the importance of external means in order to solve friendship problems. In contrast, the finding that older children's external means-ends beliefs were unrelated to their views of conflict suggests that they regarded external means as rather unimportant for friendships.

However, 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, they provide evidence that children differentiated between agency and means-ends beliefs beginning from grade 3. 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.

Moreover, the findings suggest that for older children friendship relationships may be more central for their lives. 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). The unexpected finding that

the oldest group of children had also higher agency and means-ends beliefs about self-related means than younger children may be related to these findings. These findings are in line with the 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 the importance of intimate exchanges increases with age (for a review see, Rubin et al., 1998). Hence, the findings supported 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).

Importantly, the strengths of relationships of Goal Difficulty, agency and means-ends 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). This finding replicated when investigating these relationships across sociometric groups of friended and friendless children. The latter findings indicated that agency beliefs and Goal Difficulty were independent and thus, replicated previous findings on an adult sample (Lee & Bobko, 1992). Thus, as hypothesized, Goal Difficulty was more highly related to the amount of resource investment necessary to attain a goal and perceptions of contingency than perceptions of own competence (e.g., Winell, 1987).

Finally, in support of assumptions of the multi-dimensional model of action-control behaviors (Lopez & Little, 1996) and replicating empirical findings of children's coping (see Theory Chapter 2.3.3) in the present study Direct Action and Action Omission were found to represent rather independent action strategies. Thus, these strategies did not represent opposite poles of a unidimensional construct which varies between low and high degrees of engagement. In the latter case they would have been negatively correlated. In contrast, the present findings showed that beginning with grade 4 these strategies were even moderately highly and positively correlated. Thus, the decision to do nothing in order to change the situation appears to be rather

different from being low on acting directly on the problem, although, children may implement both strategies in order to cope with a problematic friendship situation. These findings support the usefulness of including both strategies.

In conclusion, the findings regarding age-related differences further corroborate the central conclusions of the main study.

Suggestions for Future Research

Future research should investigate whether the degree of differentiation between belief types increases after grade 6 in the domain of friendship. Moreover, it should be examined whether, with a higher degree of differentiation among belief types, the hypothesized relationships among perceived control, action strategies, and friendship outcomes find stronger empirical support at older ages.

Another important question is whether the differences in findings of grade 4 when compared to both the younger children (i.e., grade 3) and the older children (i.e., grades 5 and 6) replicate in future studies. While in the present study the differences in findings in grade 4 were treated as 'noise' when comparing younger and older children, they may, in fact, pinpoint to normative developmental differences in children's agency and means-ends beliefs. Within the context of this study it cannot be disentangled whether the differences in the correlational patterns and mean levels of agency and means-ends beliefs are due to sampling errors or systematically related to children's development. One possible explanation for the evinced differences would be that in grade 4 children begin to differentiate among controllable and effort-related causes and Luck as an uncontrollable cause. There may be normative differences when comparing children's agency and means-ends beliefs at the beginning of this developmental process to their beliefs at later stages of this process. Exploring the development of children's agency and means-ends beliefs and their relationships to both action strategies and friendship outcomes longitudinally with rather short time intervals between the times of measurement may provide deeper insights about these developmental processes. Such research may encompass the examination of the development of children's reasoning about the controllability of specific means.

Generally, agency and means-ends beliefs evinced fewer relationships with children's views of Conflict compared to Intimacy. This finding may be accounted by the fact that children's beliefs about positive friendship outcomes were assessed. Conflicts may mainly represent unintended outcomes which may be, at least in part, due to action failures. However, avoidance of Conflict may represent a goal which is more important for some children than for others. Previous research has shown that in the social domain avoidance goals were related to different types of action strategies than approach goals (Higgins, Roney, Crowe, & Hymes, 1994). Other findings suggest that the group of withdrawn children which presumably has a large overlap with friendless-rejected children, may have a higher focus on avoidance goals than the remaining groups of children. For example, withdrawn children rated the goal of staying away from the protagonist of hypothetical ambiguous provocation situations as being more important than other children (Erdley and Asher, 1993). Future research may investigate the relationships of beliefs about the domain of conflict avoidance, action strategies, and measures of friendship quality and quantity.

Table G28

Development of Means-Ends Beliefs: Estimated Parameters of the Measurement-Invariant 4-Group Model

Grade	Self-related Means			Luck			Adults		
	I1	I2	I3	I1	I2	I3	I1	I2	I3
	Factor Loadings								
All	0.81 (0.05)	0.79 (0.05)	0.79 (0.05)	0.78 (0.06)	0.77 (0.06)	0.75 (0.05)	0.81 (0.05)	0.82 (0.05)	0.80 (0.05)
	Unique				Variances				
Grade 3	0.33 (0.05)	0.40 (0.06)	0.61 (0.08)	0.72 (0.09)	0.46 (0.07)	0.55 (0.08)	0.43 (0.06)	0.37 (0.06)	0.49 (0.07)
Grade 4	0.11 (0.02)	0.18 (0.03)	0.14 (0.02)	0.14 (0.03)	0.18 (0.03)	0.24 (0.04)	0.14 (0.02)	0.10 (0.02)	0.12 (0.02)
Grade 5	0.12 (0.02)	0.12 (0.02)	0.13 (0.02)	0.17 (0.03)	0.16 (0.03)	0.13 (0.02)	0.11 (0.02)	0.16 (0.03)	0.11 (0.02)
Grade 6	0.10 (0.02)	0.10 (0.02)	0.09 (0.02)	0.12 (0.02)	0.13 (0.02)	0.14 (0.02)	0.11 (0.02)	0.20 (0.03)	0.11 (0.02)
	Intercepts								
All	-0.18 (0.07)	-0.16 (0.07)	-0.15 (0.07)	0.09 (0.07)	0.10 (0.07)	0.10 (0.07)	0.18 (0.07)	0.22 (0.07)	0.20 (0.07)

Note. Standard errors of the estimates are in parentheses.

Table G29
Development of Agency Beliefs: Estimated Parameters of the Measurement-Invariant 4-Group Model

Grade	Self-related Means			Luck			Adults		
	I1	I2	I3	I1	I2	I3	I1	I2	I3
Factor Loadings									
All	0.92 (0.05)	0.91 (0.05)	0.91 (0.05)	0.86 (0.05)	0.84 (0.05)	0.82 (0.05)	0.90 (0.05)	0.88 (0.05)	0.90 (0.05)
Unique Variances									
Grade 3	0.19 (0.03)	0.15 (0.03)	0.19 (0.03)	0.21 (0.04)	0.30 (0.04)	0.36 (0.05)	0.14 (0.03)	0.24 (0.03)	0.17 (0.03)
Grade 4	0.11 (0.02)	0.18 (0.03)	0.14 (0.02)	0.13 (0.03)	0.18 (0.03)	0.24 (0.04)	0.14 (0.02)	0.11 (0.02)	0.12 (0.02)
Grade 5	0.13 (0.02)	0.12 (0.02)	0.13 (0.02)	0.17 (0.03)	0.16 (0.03)	0.13 (0.02)	0.11 (0.02)	0.16 (0.02)	0.11 (0.02)
Grade 6	0.11 (0.02)	0.10 (0.02)	0.08 (0.02)	0.12 (0.02)	0.13 (0.02)	0.14 (0.02)	0.11 (0.02)	0.21 (0.03)	0.11 (0.02)
Intercepts									
All	-0.16 (0.07)	-0.15 (0.07)	-0.15 (0.07)	0.14 (0.07)	0.14 (0.07)	0.13 (0.07)	0.14 (0.07)	0.14 (0.07)	0.14 (0.07)

Note. Standard errors of the estimates are in parentheses.

Table G30
Development of Action Strategies: Estimated Parameters of the Measurement-Invariant 4-Group Model

Grade	Direct Action			Seeking Help			Action Omission		
	I1	I2	I3	I1	I2	I3	I1	I2	I3
Factor Loadings									
	0.61 (0.06)	0.61 (0.05)	0.61 (0.05)	0.58 (0.06)	0.57 (0.05)	0.56 (0.05)	0.78 (0.05)	0.78 (0.05)	0.78 (0.05)
Unique Variances									
Grade 3	0.74 (0.10)	0.59 (0.08)	0.79 (0.10)	0.67 (0.09)	0.70 (0.09)	0.71 (0.09)	0.70 (0.09)	0.44 (0.07)	0.45 (0.07)
Grade 4	0.11 (0.02)	0.18 (0.03)	0.14 (0.02)	0.14 (0.03)	0.18 (0.03)	0.24 (0.04)	0.14 (0.02)	0.11 (0.02)	0.12 (0.02)
Grade 5	0.12 (0.02)	0.12 (0.02)	0.13 (0.02)	0.17 (0.03)	0.16 (0.03)	0.13 (0.02)	0.11 (0.02)	0.16 (0.03)	0.11 (0.02)
Grade 6	0.10 (0.02)	0.11 (0.02)	0.08 (0.02)	0.12 (0.02)	0.13 (0.02)	0.14 (0.02)	0.11 (0.02)	0.20 (0.03)	0.11 (0.02)
Intercepts									
	-0.21 (0.06)	-0.18 (0.06)	-0.20 (0.06)	-0.10 (0.06)	-0.09 (0.06)	-0.08 (0.06)	0.07 (0.07)	0.10 (0.07)	0.08 (0.07)

Note. Standard errors of the estimates are in parentheses.

Table G31
Development of Self-rated Friendship Quality: Estimated Parameters of the Measurement-Invariant 4-Group Model

Grade	Intimacy			Conflict		
	I1	I2	I3	I1	I2	I3
Factor Loadings						
All	0.85 (0.06)	0.85 (0.07)	0.79 (0.06)	0.68 (0.06)	0.71 (0.06)	0.77 (0.06)
Unique Variances						
Grade 3	0.35 (0.06)	0.53 (0.08)	0.43 (0.06)	0.62 (0.08)	0.67 (0.09)	0.44 (0.08)
Grade 4	0.56 (0.09)	0.52 (0.09)	0.67 (0.10)	0.45 (0.07)	0.50 (0.07)	0.31 (0.06)
Grade 5	0.56 (0.08)	0.49 (0.08)	0.56 (0.08)	0.47 (0.07)	0.35 (0.06)	0.27 (0.06)
Grade 6	0.43 (0.07)	0.42 (0.07)	0.46 (0.07)	0.44 (0.07)	0.39 (0.06)	0.35 (0.07)
Intercepts						
All	-0.08 (0.07)	-0.06 (0.07)	-0.04 (0.07)	-0.03 (0.06)	-0.08 (0.07)	-0.05 (0.07)

Note. Standard errors of the estimates are in parentheses.

Table G32
Development of Goal Difficulty and Importance: Estimated Parameters of the Measurement-Invariant 4-Group Model

Grade	Goal Difficulty			Goal Importance		
	I1	I2	I3	I1	I2	I3
Factor Loadings						
All	0.61 (0.06)	0.72 (0.06)	0.60 (0.05)	0.66 (0.06)	0.72 (0.06)	0.78 (0.06)
Unique Variances						
Grade 3	0.64 (0.08)	0.35 (0.07)	0.59 (0.08)	0.74 (0.09)	0.57 (0.08)	0.48 (0.08)
Grade 4	0.61 (0.09)	0.46 (0.09)	0.69 (0.10)	0.46 (0.07)	0.49 (0.07)	0.30 (0.06)
Grade 5	0.59 (0.08)	0.44 (0.08)	0.57 (0.08)	0.48 (0.07)	0.35 (0.06)	0.27 (0.06)
Grade 6	0.47 (0.07)	0.37 (0.08)	0.46 (0.07)	0.46 (0.07)	0.39 (0.07)	0.34 (0.07)
Intercepts						
All	-0.20 (0.06)	-0.24 (0.07)	-0.21 (0.06)	-0.10 (0.06)	-0.12 (0.07)	-0.12 (0.07)

Note. Standard errors of the estimates are in parentheses.

Table G33
Raw Correlations among Perceived Control, Action Strategies, Self-rated Friendship Quality, and Number of Mutual Friendships by Grade Level

Construct	1	2	3	4	5	6	7	8	9	10	11	12	13
Grade 3													
1 agency: Self	1.00												
2 agency: Luck	0.55	1.00											
3 agency: Adult	0.37	0.34	1.00										
4 means-e: Self	0.70	0.43	0.30	1.00									
5 means-e: Self	0.45	0.73	0.25	0.48	1.00								
6 means-e: Self	0.27	0.33	0.75	0.29	0.29	1.00							
7 Goal Difficulty	0.14	0.06	0.19	0.26	0.19	0.16	1.00						
8 Direct Action	0.50	0.20	0.26	0.43	0.20	0.18	0.17	1.00					
9 Seek Help	0.31	0.27	0.27	0.23	0.28	0.29	0.31	0.21	1.00				
10 Action Omission	0.19	0.25	0.20	0.23	0.27	0.25	0.34	-0.02	0.47	1.00			
11 Self: Intimacy	0.42	0.14	0.16	0.24	0.14	0.14	0.14	0.39	0.13	0.11	1.00		
12 Self: Conflict	0.10	0.07	0.15	0.09	0.07	0.24	0.26	0.10	0.16	0.33	0.11	1.00	
13 Numb. Friends	0.09	-0.03	-0.07	0.09	-0.04	-0.12	-0.08	-0.06	-0.01	-0.10	-0.03	-0.07	1.00
14 Importance	0.52	0.32	0.19	0.50	0.38	0.19	0.20	0.52	0.19	0.10	0.34	0.08	-0.11
Grade 4													
1 agency: Self	1.00												
2 agency: Luck	0.58	1.00											
3 agency: Adult	0.28	0.42	1.00										
4 means-e: Self	0.75	0.48	0.27	1.00									
5 means-e: Self	0.41	0.70	0.30	0.53	1.00								
6 means-e: Self	0.22	0.23	0.77	0.26	0.27	1.00							
7 Goal Difficulty	0.07	-0.06	0.14	0.27	0.10	0.24	1.00						
8 Direct Action	0.62	0.34	0.13	0.60	0.27	0.08	0.12	1.00					
9 Seek Help	0.22	0.19	0.41	0.26	0.19	0.45	0.22	0.25	1.00				
10 Action Omission	0.11	0.23	0.44	0.19	0.28	0.37	0.27	-0.07	0.45	1.00			
11 Self: Intimacy	0.38	0.15	0.05	0.28	0.11	0.02	0.03	0.35	0.05	-0.07	1.00		
12 Self: Conflict	0.04	0.13	0.23	0.11	0.11	0.17	0.25	0.16	0.23	0.33	0.07	1.00	
13 Numb. Friends	0.07	0.06	0.01	-0.03	-0.04	-0.11	-0.09	-0.05	0.01	0.01	0.27	0.01	1.00
14 Importance	0.51	0.29	0.13	0.53	0.27	0.20	0.33	0.52	0.27	0.07	0.36	0.17	0.00
Grade 5													
1 agency: Self	1.00												
2 agency: Luck	0.44	1.00											
3 agency: Adult	0.35	0.36	1.00										
4 means-e: Self	0.57	0.18	0.14	1.00									
5 means-e: Self	0.22	0.64	0.22	0.28	1.00								
6 means-e: Self	0.11	0.28	0.74	0.05	0.26	1.00							
7 Goal Difficulty	0.17	0.16	0.18	0.32	0.31	0.19	1.00						
8 Direct Action	0.63	0.25	0.37	0.46	0.15	0.09	0.28	1.00					
9 Seek Help	0.31	0.27	0.40	0.15	0.20	0.30	0.22	0.33	1.00				
10 Action Omission	0.09	0.05	-0.01	0.09	0.14	0.05	0.22	-0.21	0.29	1.00			
11 Self: Intimacy	0.47	0.18	0.32	0.20	0.07	0.17	0.02	0.31	0.16	0.01	1.00		
12 Self: Conflict	-0.13	-0.14	-0.04	0.03	-0.01	0.09	0.04	-0.05	0.04	0.11	-0.02	1.00	
13 Numb. Friends	-0.01	-0.19	-0.08	-0.06	-0.22	-0.07	-0.19	0.00	-0.00	-0.07	0.16	-0.07	1.00
14 Importance	0.52	0.30	0.27	0.33	0.17	0.08	0.28	0.61	0.23	-0.09	0.28	0.03	-0.01

Table G33 continued

Construct	1	2	3	4	5	6	7	8	9	10	11	12	13
Grade 6													
1 agency: Self	1.00												
2 agency: Luck	0.29	1.00											
3 agency: Adult	0.34	0.12	1.00										
4 means-e: Self	0.60	0.09	0.16	1.00									
5 means-e: Self	0.08	0.68	0.05	0.13	1.00								
6 means-e: Self	0.07	0.08	0.56	0.20	0.24	1.00							
7 Goal Difficulty	-0.13	-0.11	-0.13	0.17	0.12	0.18	1.00						
8 Direct Action	0.52	0.08	0.26	0.43	0.10	0.14	0.12	1.00					
9 Seek Help	0.25	0.14	0.17	0.27	0.06	0.07	-0.05	0.15	1.00				
10 Action Omission	-0.16	0.15	-0.13	0.05	0.26	0.13	0.08	-0.19	0.28	1.00			
11 Self: Intimacy	0.33	0.10	0.29	0.16	0.03	0.05	-0.01	0.32	0.23	-0.19	1.00		
12 Self: Conflict	-0.15	0.05	-0.07	0.03	0.08	0.10	0.34	0.04	0.07	0.21	-0.08	1.00	
13 Numb. Friends	-0.06	0.04	0.00	-0.08	-0.09	-0.12	-0.07	-0.18	0.11	0.02	0.10	-0.11	1.00
14 Importance	0.34	0.03	0.15	0.38	0.02	0.05	0.11	0.31	0.15	-0.09	0.25	0.05	-0.00

Note. The effects of Gender are partialled.

Appendix H

Agency and Means-ends Beliefs, Action Strategies, Self-rated Friendship Quality, Goal Difficulty and Goal Importance: Estimated Parameters of the Measurement-Invariant 5-Group Models

Table H1

Testing Invariance of Agency Beliefs across Sociometric Groups of Friendled and Friendless Children: Estimated Parameters of the Measurement-Invariant 5-Group Model

Group	Self-related Means			Luck			Adults		
	I1	I2	I3	I1	I2	I3	I1	I2	I3
	Factor Loadings								
All	0.94 (0.05)	0.92 (0.05)	0.93 (0.05)	0.92 (0.05)	0.89 (0.05)	0.88 (0.05)	0.94 (0.05)	0.89 (0.05)	0.91 (0.05)
	Unique Variances								
AvWF	0.10 (0.02)	0.14 (0.02)	0.14 (0.02)	0.16 (0.03)	0.17 (0.03)	0.23 (0.03)	0.11 (0.02)	0.16 (0.02)	0.12 (0.02)
PoWF	0.14 (0.03)	0.10 (0.02)	0.13 (0.03)	0.14 (0.04)	0.17 (0.04)	0.22 (0.04)	0.08 (0.03)	0.21 (0.04)	0.17 (0.03)
ReWF	0.19 (0.05)	0.20 (0.05)	0.08 (0.04)	0.23 (0.07)	0.18 (0.06)	0.20 (0.06)	0.17 (0.05)	0.14 (0.04)	0.06 (0.03)
AvNF	0.05 (0.03)	0.14 (0.04)	0.17 (0.05)	0.11 (0.06)	0.33 (0.10)	0.36 (0.10)	0.08 (0.04)	0.20 (0.06)	0.09 (0.04)
ReNF	0.20 (0.06)	0.17 (0.05)	0.12 (0.05)	0.22 (0.08)	0.31 (0.09)	0.33 (0.10)	0.35 (0.11)	0.19 (0.07)	0.27 (0.09)
	Intercepts								
All	0.01 (0.07)	-0.01 (0.07)	0.00 (0.07)	0.02 (0.07)	-0.02 (0.07)	0.00 (0.07)	-0.02 (0.07)	-0.02 (0.07)	-0.03 (0.07)

Note. Standard errors of the estimates are in parantheses. AvWF = friendled-average children, PoWF = friendled-popular children, ReWF = friendled-rejected children, AvNF = friendless-average children, ReNF = friendless-rejected children.

Table H2

Testing Invariance of Means-ends Beliefs across Sociometric Groups of Friended and Friendless Children: Estimated Parameters of the Measurement-Invariant 5-Group Model

Group	Self-related Means			Luck			Adults		
	I1	I2	I3	I1	I2	I3	I1	I2	I3
	Factor Loadings								
All	0.92 (0.05)	0.91 (0.05)	0.91 (0.05)	0.86 (0.05)	0.84 (0.05)	0.82 (0.05)	0.90 (0.05)	0.88 (0.05)	0.90 (0.05)
	Unique Variances								
AvWF	0.35 (0.05)	0.34 (0.05)	0.46 (0.06)	0.60 (0.07)	0.34 (0.06)	0.37 (0.06)	0.33 (0.05)	0.36 (0.05)	0.34 (0.05)
PoWF	0.28 (0.06)	0.24 (0.06)	0.42 (0.07)	0.61 (0.10)	0.39 (0.08)	0.47 (0.09)	0.21 (0.05)	0.32 (0.06)	0.28 (0.06)
ReWF	0.65 (0.18)	0.82 (0.21)	0.75 (0.19)	0.89 (0.22)	0.52 (0.16)	0.71 (0.20)	0.77 (0.18)	0.23 (0.09)	0.23 (0.09)
AvNF	0.47 (0.15)	0.33 (0.13)	0.73 (0.20)	0.76 (0.21)	0.50 (0.18)	0.71 (0.22)	0.44 (0.14)	0.58 (0.17)	0.39 (0.14)
ReNF	0.46 (0.14)	0.40 (0.13)	0.29 (0.10)	0.68 (0.18)	0.66 (0.19)	0.60 (0.18)	0.74 (0.21)	0.37 (0.14)	0.76 (0.22)
	Intercepts								
All	0.02 (0.07)	0.01 (0.07)	0.02 (0.06)	0.06 (0.06)	0.02 (0.06)	0.03 (0.06)	-0.04 (0.06)	0.00 (0.06)	-0.05 (0.06)

Note. Standard errors of the estimates are in parantheses. AvWF = friended-average children, PoWF = friended-popular children, ReWF = friended-rejected children, AvNF = friendless-average children, ReNF = friendless-rejected children.

Table H3

Testing Invariance of Action Strategies across Sociometric of Friended and Friendless Children: Estimated Parameters of the Measurement-Invariant 5-Group Model

Group	Direct Action			Seeking Help			Action Omission		
	I1	I2	I3	I1	I2	I3	I1	I2	I3
Factor Loadings									
All	0.63 (0.06)	0.63 (0.06)	0.60 (0.06)	0.60 (0.06)	0.63 (0.06)	0.58 (0.06)	0.61 (0.05)	0.68 (0.06)	0.72 (0.06)
Unique Variances									
Av_wF	0.60 (0.08)	0.55 (0.07)	0.49 (0.07)	0.70 (0.08)	0.60 (0.08)	0.66 (0.08)	0.61 (0.07)	0.50 (0.07)	0.45 (0.07)
Pop_wF	0.50 (0.10)	0.51 (0.10)	0.55 (0.10)	0.62 (0.11)	0.74 (0.12)	0.56 (0.10)	0.75 (0.12)	0.29 (0.07)	0.28 (0.07)
Rej_wF	0.38 (0.12)	0.55 (0.15)	0.69 (0.17)	1.05 (0.25)	0.67 (0.19)	0.89 (0.22)	0.67 (0.17)	0.97 (0.24)	0.59 (0.17)
Av_nF	0.56 (0.17)	0.56 (0.17)	0.74 (0.21)	0.57 (0.16)	0.69 (0.19)	0.41 (0.12)	0.72 (0.20)	0.32 (0.12)	0.52 (0.17)
Rej_nF	0.81 (0.24)	0.59 (0.19)	0.59 (0.19)	0.78 (0.21)	0.94 (0.25)	1.08 (0.27)	0.55 (0.16)	0.57 (0.18)	0.42 (0.16)
Intercepts									
All	-0.05 (0.06)	-0.05 (0.06)	-0.02 (0.06)	0.06 (0.06)	0.05 (0.06)	0.05 (0.06)	0.00 (0.06)	-0.01 (0.06)	-0.02 (0.06)

Note. Standard errors of the estimates are in parantheses. AvWF = friended-average children, PoWF = friended-popular children, ReWF = friended-rejected children, AvNF = friendless-average children, ReNF = friendless-rejected children.

Table H4

Testing Invariance of Goal Difficulty and Importance across Sociometric Groups of Friendled and Friendless Children: Estimated Parameters of the Measurement-Invariant 5-Group Model

Group	Goal Difficulty			Goal Importance		
	I1	I2	I3	I1	I2	I3
Factor Loadings						
All	0.62 (0.06)	0.78 (0.06)	0.64 (0.05)	0.62 (0.05)	0.73 (0.05)	0.78 (0.06)
Unique Variances						
Av_wF	0.77 (0.09)	0.31 (0.07)	0.46 (0.06)	0.53 (0.06)	0.41 (0.06)	0.40 (0.06)
Pop_wF	0.39 (0.07)	0.24 (0.07)	0.46 (0.08)	0.60 (0.10)	0.16 (0.06)	0.28 (0.07)
Rej_wF	0.93 (0.22)	0.43 (0.16)	0.66 (0.17)	0.76 (0.18)	0.59 (0.16)	0.47 (0.15)
Av_nF	0.76 (0.19)	0.07 (0.11)	0.82 (0.21)	0.67 (0.18)	0.37 (0.12)	0.34 (0.12)
Rej_nF	1.04 (0.28)	0.64 (0.24)	0.84 (0.24)	0.57 (0.16)	0.81 (0.23)	0.42 (0.17)
Intercepts						
All	0.01 (0.06)	-0.07 (0.06)	-0.05 (0.06)	0.00 (0.06)	-0.01 (0.06)	0.00 (0.06)

Note. Standard errors of the estimates are in parantheses. AvWF = friendled-average children, PoWF = friendled-popular children, ReWF = friendled-rejected children, AvNF = friendless-average children, ReNF = friendless-rejected children.

Table H5

Testing Invariance of Self-rated Friendship Quality across Sociometric Groups of Friended and Friendless Children: Estimated Parameters of the Measurement-Invariant 5-Group Model

Group	Intimacy			Conflict		
	I1	I2	I3	I1	I2	I3
Factor Loadings						
All	0.85 (0.05)	0.68 (0.05)	0.76 (0.05)	0.60 (0.05)	0.53 (0.05)	0.59 (0.05)
Unique Variances						
Av_wF	0.16 (0.04)	0.48 (0.05)	0.28 (0.04)	0.58 (0.07)	0.53 (0.06)	0.43 (0.06)
Pop_wF	0.14 (0.06)	0.46 (0.08)	0.42 (0.08)	0.31 (0.07)	0.44 (0.08)	0.35 (0.08)
Rej_wF	0.28 (0.10)	0.57 (0.14)	0.25 (0.09)	0.55 (0.17)	0.62 (0.17)	0.60 (0.18)
Av_nF	0.28 (0.14)	0.38 (0.12)	0.86 (0.23)	0.27 (0.14)	0.73 (0.21)	0.79 (0.23)
Rej_nF	0.29 (0.12)	0.75 (0.19)	0.63 (0.17)	0.56 (0.19)	0.89 (0.24)	0.59 (0.19)
Intercepts						
	-0.02 (0.06)	-0.02 (0.06)	-0.03 (0.06)	-0.07 (0.06)	-0.08 (0.05)	-0.08 (0.05)

Note. Standard errors of the estimates are in parantheses. AvWF = friended-average children, PoWF = friended-popular children, ReWF = friended-rejected children, AvNF = friendless-average children, ReNF = friendless-rejected children.

Appendix I

Testing Measurement Invariance of Models Combining Two or Three Sets of the Constructs across Sociometric Groups of Friended and Friendless Children

Table II

Testing Measurement Invariance of the Models Combining the Various Sets of Constructs across Sociometric Groups of Friended and Friendless Children

Models	Global Fit Indices							Comparison of Models		
	χ^2	df	χ^2/df	NNFI	IFI	CFI	RMSEA	$\Delta\chi^2$	df	p
Agency Beliefs and Means-ends Beliefs										
Configural	1170.14	800	1.46	.92	.94	.94	.03			
Metric invariance	1266.41	896	1.41	.93	.94	.94	.03	96.27	96	.47
Agency Beliefs and Action Strategies										
Configural	984.20	800	1.23	.95	.96	.96	.02			
Metric invariance	1065.19	896	1.19	.96	.96	.96	.02	80.99	96	.86
Means-ends Beliefs and Action Strategies										
Configural	970.01	800	1.21	.92	.94	.94	.02			
Metric invariance	1068.82	896	1.19	.93	.94	.94	.02	98.81	96	.40
Agency Beliefs, Goal Difficulty, and Goal Importance										
Configural	714.59	570	1.25	.96	.97	.97	.02			
Metric invariance	786.88	650	1.21	.97	.97	.97	.02	72.29	80	.72
Means-ends Beliefs, Goal Difficulty, and Goal Importance										
Configural	689.31	570	1.21	.93	.95	.95	.02			
Metric invariance	779.97	650	1.20	.94	.95	.95	.02	90.66	80	.19
Action Strategies, Goal Difficulty, and Goal Importance										
Configural	729.21	570	1.28	.89	.92	.92	.03			
Metric invariance	801.93	650	1.23	.91	.92	.93	.02	72.72	80	.71

Table I2

Testing Measurement Invariance of the Models Combining Self-rated Friendship Quality with Agency Beliefs, Means-ends beliefs, Action Strategies, Goal Difficulty, and Goal Importance across Sociometric Groups of Friended and Friendless Children

Models	Global Fit Indices							Comparison of Models		
	χ^2	df	χ^2/df	NNFI	IFI	CFI	RMSEA	$\Delta\chi^2$	df	p
Agency Beliefs, Goal Importance, and Self-rated Friendship Quality										
Configural	1050.78	800	1.31	.94	.95	.96	.03			
Metric invariance	1139.29	896	1.27	.95	.96	.96	.03	88.51	96	.69
Means-ends Beliefs, Goal Difficulty, and Friendship Quality										
Configural	1037.92	800	1.30	.90	.92	.93	.03			
Metric invariance	1157.39	896	1.29	.90	.92	.92	.03	119.47	96	.05
Action Strategies and Friendship Quality										
Configural	720.00	570	1.26	.90	.92	.93	.02			
Metric invariance	798.37	650	1.23	.91	.93	.93	.02	78.37	80	.53

Table I3

Testing Measurement Invariance of the Models Combining Friend-rated Friendship Quality with Agency Beliefs, Means-ends beliefs, Action Strategies, Goal Difficulty, and Goal Importance across Sociometric Groups of Friended Children

Models	Global Fit Indices							Comparison of Models		
	χ^2	df	χ^2/df	NNFI	IFI	CFI	RMSEA	$\Delta\chi^2$	df	p
Agency Beliefs, Goal Importance, and Friendship Quality										
Configural	589.35	480	1.23	.97	.97	.98	.03			
Metric invariance	644.33	528	1.22	.97	.97	.97	.03	54.98	48	.20
Means-ends Beliefs, Goal Difficulty, and Friendship Quality										
Configural	650.58	480	1.36	.91	.93	.93	.03			
Metric invariance	710.31	528	1.35	.91	.93	.93	.03	59.46	48	.12
Action Strategies and Friendship Quality										
Configural	407.58	342	1.19	.94	.96	.96	.02			
Metric invariance	447.84	382	1.17	.95	.96	.96	.02	40.26	40	.46

Table I4

Global Fit Indices of the Models Combining the Number of Mutual Friendships with Agency and Means-ends Beliefs, Action Strategies, Goal Difficulty, Goal Importance across Sociometric Groups

Models	Global Fit Indices							
	χ^2	df	p	χ^2/df	NNFI	IFI	CFI	RMSEA
Agency Beliefs, Goal Importance ^a	285.66	259	.12	1.10	.99	.99	.99	.02
Means-ends Beliefs, Goal Difficulty ^a	282.30	259	.15	1.09	.98	.99	.99	.01
Action Strategies ^b	172.84	180	.64	0.96	1.0	1.0	1.0	.01

Note. ^a = covariance structure models were specified, ^b = Mean and covariance structures models were specified.

Appendix J

Equality of Latent Variances of the Constructs and Gender, Linear, and Quadratic Effects of Grade on the Constructs across Sociometric Groups of Friended and Friendless Children

Invariance of the Latent Variances of the Various Sets of Constructs across Sociometric Groups of Friended and Friendless Children

In the first set of models, I equated the variances across the five target groups by constraining the latent standard deviations of all four subsequent groups (i.e., friended-popular and friended-rejected and friendless-average and friendless-rejected children) to be equal to the latent standard deviations of the first group (friended-average children).

As shown in Table J1, on the specified significance level of $\alpha < .20$, testing invariance of the factor variances of Goal Difficulty and Goal Importance resulted in a significant decrement in fit when compared to the measurement invariant model (see comparison of Model 1 versus Model 2).

In contrast, testing invariance of the factor variances of the agency beliefs, the means-ends beliefs, the action strategies, and friendship quality resulted in a significant decrement in fit when compared to the measurement invariant model (see comparisons of Model 1 versus Model 2 of the respective set of constructs). Freeing the variance of the agency beliefs about Luck in the group of friended-rejected children resulted in a marginally significant ($p < .10$) increment in fit compared to the previous model (see comparison of Model 2 versus Model 2a). However, comparing the model with the relaxed constraint (Model 2a) with the metrically invariant model (Model 1) showed that the $\Delta \chi^2$ value of the two models was not significant. Thus, the group of friended-rejected children had more heterogeneous agency beliefs about Luck (β ($z = 9.79$; $se = .12$) = 1.20) than the remaining groups of children. In the latter groups the variances of all dimensions of agency beliefs were fixed at 1.

Freeing the variance of means-ends beliefs about Luck in the group of popular children resulted in a significant increment in fit when compared to the previous model (see comparison of Model 2 versus Model 2a), and a nonsignificant difference in fit when compared with the

metrically invariant model (see comparison of Model 1 versus Model 2a). Popular children had more homogeneous means-ends beliefs about Luck (β ($z = 8.94$; $se = .08$) = 0.73) than the remaining groups.

Relaxing the constraint that the variance of Seeking Help as a strategy in the group of friended-average children is equal to the corresponding variances of the remaining groups resulted in a significant increment in fit when compared to the previous model (see comparison of Model 2 versus Model 2a), and a nonsignificant difference in fit when compared with the metrically invariant model (see comparison of Model 1 versus Model 2a). The variance of Seeking Help was larger in the group of friended-average children where it was fixed to 1 compared to the remaining four groups of children (β ($z = 10.98$; $se = .08$) = 0.84).

Freeing the variance of Conflict in the group of friended-rejected children resulted in a significant increment in fit when compared to the previous model (see comparison of Model 2 versus Model 2a), and a nonsignificant difference in fit when compared with the metrically invariant model (see comparison of Model 1 versus Model 2a). Replicating the results of the analyses addressing invariance of popular, average, and rejected children's reciprocal friendship perceptions (see below), friended-rejected children's views of conflict were more heterogeneous (β ($z = 6.82$; $se = .19$) = 1.27) compared to friended-average and popular children as well as friendless-average and friendless-rejected children.

In order to compare the variances of the children's own typical views of their mutual friendships and their friends' typical views of the friendships I used the metrically invariant 6-group model as baseline (Model 1) for the comparisons. As described in Section 4.2.1.1, average children represented the first group, average children's friends represented the second group, popular children represented the third group, popular children's friends represented the fourth group, rejected children represented the fifth group, and rejected children's friends represented the sixth group.

Table J1

Testing Invariance of Latent Variances of Agency and Means-ends Beliefs, Action-Strategies, Goal Difficulty and Importance, and Self-rated Friendship Quality across Friendled and Friendless Sociometric Groups

Metrically inv. (i.e., Baseline)		Test				Δ		
X²	df	Model Description	X²	df	Comp.	ΔX²	df	p
Agency Beliefs								
1) 311.19	341a	2) Variances inv.	328.63	353	1 : 2	17.44	12	.13
		2a) Friendled Rejected: Luck	325.06	352	1 : 3	13.87	11	.24
					2 : 3	3.57	1	.06
Means-ends Beliefs								
1) 289.65	341a	2) Variances inv.	306.15	353	1 : 2	16.50	12	.17
		2a) Popular: Luck	325.06	352	1 : 3	8.42	11	.68
					2 : 3	8.08	1	<.01
Action Strategies								
1) 260.75	341a	2) Variances inv.	277.27	353	1 : 2	16.52	12	.17
		2a) Friendled Average: Seeking Help	273.12	352	1 : 3	12.36	11	.34
					2 : 3	4.15	1	.04
Goal Difficulty and Goal Importance								
1) 150.02	194b	2) Variances inv.	156.11	202	1 : 2	6.08	8	.64
Self-rated Friendship Quality								
1) 162.50	194b	2) Variances inv.	178.54	202	1 : 2	16.04	8	.04
		2a) Friendled-Rejected: Conflict	157.07	201	1 : 3	4.57	7	.71
					2 : 3	11.47	1	<.01

Note. inv. = invariant, a and b = The degrees of freedom of the here reported measurement invariant model differs from the degrees of freedom of the measurement invariant model reported in Table 6. a = The here reported models gained 54 df by fixing the loadings of the measurement model. b = The here reported models gained 42 df by fixing the loadings of the measurement model.

In Model 2, I constrained the latent standard deviations of children's self ratings of Intimacy and Conflict across all five subsequent groups to be equal to the latent standard deviations of the first group. Thus, any latent variance that was different was so relative to the construct variances of the group of average children. The factor variances were not invariant across groups as indicated by the significant loss in fit of Model 2 when compared with the metrically-invariant model, $\Delta X^2_{(10)} = 31.03$, $p < .01$. Freeing the variances of self-rated and friend-rated Conflict of the rejected group resulted in a significant increment in fit compared to

Model 2, $\Delta \chi^2_{(2)} = 20.67$, $p < .01$. Moreover, comparing the model with the relaxed constraints with the metrically invariant model (Model 1) showed that the fit of the two models was not significantly different, $\Delta \chi^2_{(8)} = 10.36$, $p = .24$.

Constraining the variances of self-rated and friend-rated Conflict in the rejected group to be equal resulted in a nonsignificant loss in fit compared to the previous model, $\Delta \chi^2_{(1)} = 0.04$, $p = .84$. Hence, rejected children's conflict perceptions were equally variable as the friends' conflict perceptions (β ($z = 10.08$; $se = .16$) = 1.57). Both rejected children's own and their friends' conflict perceptions were more heterogeneous than average and popular children's own and their friends' conflict perceptions who did not differ with regard to variability. Together with the above reported finding concerning friended-rejected children's views of Conflict regarding both reciprocated and not reciprocated friendships, the results indicate that friended-rejected children's views of the negative aspects of friendships are rather heterogeneous.

Gender, Linear, and Quadratic Effects of Grade on the Constructs across Groups of Friended and Friendless Popular, Average, and Rejected Children

The next set of analyses tested whether the effects of Gender interact with sociometric status and friendship status (i.e., being friended vs. friendless). Moreover, the question was addressed whether linear and quadratic age trends of the constructs interact with sociometric status and friendship status.

Gender effects

As seen in Table J2, on the specified alpha level of $p < .20$, across the five target groups the effects of gender could be constrained to zero for means-ends beliefs and action strategies without a significant loss in fit when compared to the respective measurement invariant model.

With regard to children's agency beliefs, gender significantly interacted with sociometric status and relationship reciprocity (see comparison of Model 1 versus Model 2). Relaxing the constraint of gender on agency beliefs about Adults in the group of friendless-average children resulted in a significant increment in fit, when compared to the previous model (see comparison of Model 2 versus Model 2a), and a nonsignificant difference in fit when compared to the metrically invariant model (see comparison of Model 1 versus Model 2a).

In the group of friendless-average children, girls endorsed agency beliefs about Adults significantly more strongly than boys (β ($z = 3.38$; $se = .16$) = .54).

The multivariate test of lacking gender effects on Goal Difficulty and Importance, indicated that gender significantly interacted with sociometric status and relationship reciprocity (see comparison of Model 1 versus Model 2). Relaxing the constraint of gender on Goal Importance in the group of popular children resulted in a significant increment in fit, when compared to the previous model (see comparison of Model 2 versus Model 2a), and a nonsignificant difference in fit when compared to the metrically invariant model (see comparison of Model 1 versus Model 2a).

Popular girls viewed friendship goals significantly more important than popular boys (β ($z = 2.69$; $se = .13$) = .34).

Finally, across all target groups the effects of gender on self-rated friendship quality could be forced to be invariant without a significant loss in fit when compared to the respective measurement invariant model. The results showed that girls viewed the friendships more intimate than boys (β ($z = 3.02$; $se = .05$) = .16) while there was no significant difference between girls and boys with regard to Conflict perceptions (β ($z = 0.41$; $se = .06$) = .03).

The latter results were replicated in the analyses of children's own typical views of their mutual friendships and their friends' typical views of the friendships. In order to test effects of gender on children's own typical views of their mutual friendships and their friends' typical views of the friendships I used the metrically invariant 6-group model as baseline for the comparisons.

The model constraining the effects of Gender to be invariant across groups resulted in a nonsignificant χ^2 when compared to the metrically invariant 6-group model, $\Delta \chi^2_{(10)} = 9.85$, $p = .45$. Gender had a significant impact on both children's own and their friends' views of intimacy. Specifically, girls perceived the friendships more intimate than boys (β ($z = 3.86$; $se = .04$) = .16). These results are in line with studies showing that girls tend to perceive their friendships to be more intimate than boys (e.g., Buhrmester, 1990; Buhrmester & Furman, 1987; Parker & Asher, 1993; Patterson et al., 1990). In contrast, gender did not significantly affect the children's and their friends' perceptions of the amount conflict (β ($z = -1.21$; $se = .05$) = -.06).

Linear, and Quadratic Effects of Grade

As shown in Table J2, for agency beliefs, action strategies, and Goal Difficulty and Goal Importance testing cross-group invariance of the linear and quadratic effects of grade did not yield significant losses in fit when compared to the respective measurement invariant model. Across the five target groups, agency beliefs for Self invariantly showed a linear age-related increase (β ($z = 2.18$; $se = .05$) = .10) while the mean levels of both agency beliefs about Luck and Adults linearly decreased with age (β ($z = 2.36$; $se = .05$) = -.11; β ($z = 2.71$; $se = .05$) = -.13, respectively). Moreover, agency beliefs were unaffected by quadratic effects of grade (β ($z = 0.75$; $se = .05$) = .04; β ($z = 0.33$; $se = .05$) = .02, β ($z = -0.80$; $se = .04$) = -.05 for agency beliefs about Self, Luck, and Adults, respectively).

Across the five target groups, both Direct Action (β ($z = 4.78$; $se = .06$) = .28) and Seeking Help (β ($z = 2.93$; $se = .06$) = .17) invariantly showed a significant linear age-related increase while Action Omission did not evince a reliable linear mean-level trend (β ($z = -1.50$; $se = .06$) = -.09). While the mean-level trends of Direct Action and Action Omission were in line with the findings of the developmental analyses (see Appendix G), the age-related increase in Seeking Help was not. However, the developmental comparisons were based on the unselected, overall sample while the present sample was restricted to children who belonged to the target sociometric groups. Furthermore, action strategies were unaffected by quadratic effects of grade (β ($z = 0.32$; $se = .06$) = .02; β ($z = 0.80$; $se = .06$) = .06, β ($z = -0.71$; $se = .06$) = -.04 for Direct Action, Seeking Help, and Action Omission, respectively).

As seen in Table J2, the linear and quadratic effects of grade on Goal Difficulty and Goal Importance did not interact with both sociometric status and friendship status. Children's perceptions of Goal Difficulty showed a significant positive and linear age-related increase (β ($z = 4.76$; $se = .06$) = .27) that was slowed by a significant negative and quadratic age-related trend (β ($z = -2.29$; $se = .05$) = -.13). Hence, the mean-level trajectory of goal difficulty followed an inversely U-shaped curvature. Goal Importance was only marginally significantly affected by linear effects of age (β ($z = 1.90$; $se = .05$) = .10) and nonsignificantly affected by quadratic effects of age (β ($z = 0.23$; $se = .05$) = .01).

With regard to children's means-ends beliefs, grade significantly interacted with sociometric status and relationship reciprocity (see comparison of Model 1 versus Model 3). Relaxing the constraint of linear effects of grade on means-ends beliefs about Adults in the group of popular children resulted in a significant increment in fit, when compared to the previous model (see comparison of Model 3 versus Model 3a), and a nonsignificant difference in fit when compared to the metrically invariant model (see comparison of Model 1 versus Model 3a).

In the group of popular children, means-ends beliefs about Adults did not show a significant linear effect of age (β ($z = -0.27$; $se = .10$) = $-.03$) while this belief invariantly showed a significant negative and linear trend (β ($z = -6.15$; $se = .06$) = $-.39$) across the remaining groups of children. Across all five target groups, means-ends beliefs for Luck significantly and linearly decreased with increasing age (β ($z = -2.79$; $se = .05$) = $-.14$).

As seen in Table J2, the linear effects of grade on means-ends beliefs about Self and the quadratic effects of grade on all dimensions of the means-ends beliefs did not interact with both sociometric status and friendship status. Across all groups means-ends beliefs about Self invariantly were not significantly affected by linear effects of age (β ($z = 1.77$; $se = .05$) = $.09$). Moreover, all dimensions of means-ends beliefs invariantly were not reliably affected by quadratic age effects (β ($z = -0.16$; $se = .05$) = $-.01$; β ($z = 0.64$; $se = .05$) = $.03$; β ($z = -1.89$; $se = .05$) = $-.10$, for means-ends beliefs about Self, Luck, and Adults, respectively).

With regard to children's ratings of friendship quality, grade significantly interacted with sociometric status and relationship reciprocity (see comparison of Model 1 versus Model 3). Relaxing the constraint of linear effects of grade on Intimacy in the groups of friended-average children, friendless-average children, and friended-rejected children resulted in a significant increment in fit, when compared to the previous model (see comparison of Model 3 versus Model 3a), and a nonsignificant difference in fit when compared to the metrically invariant model (see comparison of Model 1 versus Model 3a).

The fit of the model constraining the linear effects of grade on Intimacy to be equal across the groups of friended-average children, friendless-average children, and friendless-rejected children did not significantly differ from the previous model where these parameters were freely estimated (see comparison of Model 3a versus Model 3b). Across the groups of popular and friended-rejected children Intimacy showed an age-related linear increase (β ($z = 2.35$; $se = .09$) = .22) which was invariant across the two groups. In contrast, across the groups of friended-average children, friendless-average children, and friendless-rejected children the linear influence of grade invariantly did not significantly differ from zero (β ($z = -1.47$; $se = .06$) = -.09).

As seen in Table J2, the linear effects of grade on Conflict did not interact with sociometric status and friendship status. Across all five target groups the linear effects of age on Conflict invariantly did not reliably differ from zero (β ($z = 1.26$; $se = .06$) = .08). Moreover, the quadratic effects of grade on both Intimacy and Conflict did not interact with sociometric status and friendship status. Across the five target groups both Intimacy and Conflict were invariantly were not reliably affected by quadratic age effects (β ($z = -1.19$; $se = .05$) = -.06; β ($z = 1.32$; $se = .06$) = .08, respectively).

In order to test the linear and quadratic effects of grade on children's own typical views of their mutual friendships and their friends' typical views of the friendships I used the metrically invariant 6-group model as baseline for the comparisons. Only friendship ratings of relationships which were reciprocated by the nominated friend entered the analyses while in the previous analyses children's typical views of friendship quality were included without selecting for the ratings referring to reciprocated friendship nominations.

On the specified alpha level of $p = .20$, grade significantly interacted with sociometric status and sources of ratings, $\Delta X^2_{(20)} = 25.63$, $p = .18$. Relaxing the constraint of the linear effect of age on Intimacy for the group of rejected children's friends resulted in a significant increment in fit, when compared to the previous model, $\Delta X^2_{(1)} = 6.16$, $p = .01$, and a nonsignificant difference in fit when compared to the metrically invariant model, $\Delta X^2_{(19)} = 19.47$, $p = .43$.

With increasing age, rejected children's friends' ratings of friendship of Intimacy declined (β ($z = -2.06$; $se = .21$) = $-.44$). In contrast, with age rejected children themselves tended to perceive the friendship increasingly more to be intimate (β ($z = 2.45$; $se = .04$) = $.11$). Thereby, the linear age-related trend of Intimacy in the group of rejected children did not differ from the corresponding trends in the groups of average and popular children and the average and popular children's friends.

Table J2

Testing Invariance of the Effects of Gender, and Linear and Quadratic Effects of Grade on Agency and Means-ends Beliefs, Action-Strategies, Goal Difficulty and Importance, and Self-rated Friendship Quality across Sociometric Groups of Friended and Friendless Children

Metrically inv. (i.e., Baseline)		Test	Δ					
X^2	df	Model Description	X^2	df	Comp.	ΔX^2	df	p
Agency Beliefs								
1) 311.19	341a	2) Gender effects fixed at 0	332.18	356	1 : 2	20.99	15	.14
		2a) Friendless Average: Adults free	321.75	355	1 : 2a	10.56	14	.72
					2 : 2a	10.43	1	<.01
		3) Linear and quadratic grade effects inv.	332.97	365	1 : 3	21.78	24	.59
Means-ends Beliefs								
1) 289.65	341a	2) Gender effects fixed at 0	299.85	356	1 : 2	10.20	15	.81
		3) Linear and quadratic grade effects inv.	321.51	365	1 : 3	31.86	24	.13
		3a) Popular: Linear grade on Adults free	312.64	364	1 : 3a	22.99	24	.46
					3 : 3a	8.87	1	<.01
Action Strategies								
1) 260.75	341a	2) Gender effects fixed at 0	277.19	356	1 : 2	16.44	15	.35
		3) Linear and quadratic grade effects inv.	280.65	365	1 : 3	19.90	24	.70
Goal Difficulty and Goal Importance								
1) 150.02	194b	2) Gender effects fixed at 0	166.04	204	1 : 2	16.08	10	.10
		2a) Popular: Importance free	158.99	203	1 : 2a	8.97	9	.44
					2 : 2a	7.05	1	<.01
		3) Linear and quadratic grade effects inv.	158.73	210	1 : 3	8.71	16	.93

Table J2 continued

Metrically inv. (i.e., Baseline)		Test	Δ					
χ^2	df	Model Description	χ^2	df	Comp.	$\Delta\chi^2$	df	p
Self-rated Friendship Quality								
1) 162.50	194b	2) Gender effects inv.	171.94	202	1 : 2	9.44	8	.31
		3) Linear and quadratic grade effects inv.	186.03	210	1 : 3	23.53	16	.10
		3a) Average with & without friends, Rejected without friends:Linear grade on Intimacy free	176.15	207	1 : 3a 3 : 3a	13.65 9.88	13 3	.40 .02
		3b) Average with & without friends, Rejected without friends:Linear grade on Intimacy inv.	178.56	209	3a : 3b	2.41	2	.30

Note. inv. = invariant. By fixing the loadings of the measurement model, the here reported measurement invariant models gained a =54 df and b = 42 df.

Appendix K

Mean-level Differences in Friendship Outcomes (i.e., Children's Typical Views of Friendship Quality, Self ratings and Friend ratings of Mutual Friendships, and Number of Mutual Friendships)

Appendix K describes the modeling procedures and results with regard to tests of latent differences in children's typical views of friendship quality, self ratings and friend ratings of mutual friendships, and the number of mutual friendships.

Children's Typical Views of Friendship Quality

The multivariate test of invariance of the mean levels of self-rated friendship quality (i.e., Intimacy and Conflict) evinced a significant loss in fit when compared with the metrically invariant model, $\Delta \chi^2_{(8)} = 38.33$, $p = <.01$. The univariate test of invariance of the mean levels of Conflict showed that children's conflict perceptions did not differ across the target groups $\Delta \chi^2_{(4)} = 7.45$, $p = .11$.

With regard to Intimacy the univariate test of the mean level resulted in a significant decrement in fit when compared to the metrically invariant model, $\Delta \chi^2_{(4)} = 24.07$, $p = <.01$.

Relaxing the constraints in the groups of popular children and friendless-rejected children resulted in a significant increment in fit when compared to the previous model, $\Delta \chi^2_{(2)} = 22.45$, $p = <.01$, and a nonsignificant $\Delta \chi^2$ value when compared with the metrically invariant model, $\Delta \chi^2_{(2)} = 1.62$, $p = .44$.

As expected, friendless-rejected children perceived the relationships less intimate (α ($z = -3.73$; $se = .17$) = $-.62$) than friended-average children. However, the expected mean-level difference between friendless-average children and friended-average children did not evince. Moreover, popular children perceived the relationships more intimate than average children (α ($z = 2.70$; $se = .13$) = $.35$).

Thus, the evinced rank ordering according to mean levels of Intimacy was: popular children > friended-average children = friended-rejected children = friendless-average children > friendless-rejected children.

Self ratings and Friend ratings of Mutual Friendships

For the comparisons of children's own and their friends' views of mutual friendships, the measurement-invariant 6-group model represented the baseline model. The model testing invariance of the mean levels of Intimacy simultaneously across sociometric status and sources of ratings evinced a nonsignificant loss in fit when compared with the measurement-invariant model, $\Delta \chi^2_{(5)} = 7.02, p = .22$.

Friended children's own views of Intimacy did not differ across sociometric groups. However, the friends' views of Intimacy also did not differ from the children's own views and, at same time, across sociometric groups.

Importantly, the result of equal mean levels of self-rated Intimacy across groups of popular, average, and rejected children differs from the previously reported result that popular children had higher mean levels compared to the remaining groups of children. However, the analyses differed in two important aspects which may explain the differences in the results. Firstly, they differed in the sample sizes which affect the statistical power to detect differences among groups, the analyses differed in the investigated self-ratings. In the previously conducted analyses self-rated friendship quality was not selected for reciprocity while in the analyses investigating children's mutual friendship perceptions they were.

The model testing invariance of the mean levels of Conflict simultaneously across sociometric status and sources of ratings evinced a significant loss in fit when compared with the metrically invariant model, $\Delta \chi^2_{(5)} = 11.13, p = .04$. Relaxing the constraint of Conflict in the group of rejected children's friends resulted in a significant increment in fit compared to the previous model, $\Delta \chi^2_{(1)} = 6.95, p < .01$. Moreover, comparing the model with the relaxed constraints with the metrically-invariant model showed that the fit of the two models was not significantly different, $\Delta \chi^2_{(4)} = 4.18, p = .38$.

Hence, as depicted in Figure 9, rejected children's friends perceived the relationships significantly more conflictual (α ($z = 2.74; se = .28$) = .77) than the rejected children themselves and average and popular children's friends.

Number of Mutual Friendships

For the mean-level comparisons of the number of mutual friendships were conducted by using the measurement-invariant 3-group model combining this construct with action strategies. Constraining the mean levels of the number of mutual friendships to be equal across the sociometric groups resulted in a significant $\Delta \chi^2$ value when compared to the measurement-invariant model, $\Delta \chi^2_{(2)} = 152.45$, $p < .01$. Relaxing the constraint in the rejected group resulted in a significant increment in fit compared to the previous model, $\Delta \chi^2_{(1)} = 42.10$, $p < .01$. However, comparing the model with the relaxed constraints with the metrically-invariant model showed that the fit of the two models was still significantly different, $\Delta \chi^2_{(1)} = 110.35$, $p < .01$. This result indicated that the the number of mutual friendships was also significantly different across the average and the popular group.

Specifically the popular children, on average, had a higher number of mutual friendships (α ($z = 8.30$; $se = .11$) = 0.93) compared to the average children. In contrast, the rejected children, on average, had a lower number of mutual friendships than the average children (α ($z = -8.05$; $se = .11$) = -0.91). Thus, previous findings (e.g., Brendgen et al., 2000) showing that the number of mutual friendships is related to children's sociometric status were replicated.

Appendix L

Invariance of the Correlational Structure of Action Strategies, Self-rated Friendship Quality Across Sociometric Groups of Friended and Friendless Children and Invariance of the Correlations of Self-rated and Friend-rated Quality of Mutual Friendships

Action Strategies

As shown in Table L1, the multivariate test of invariance of the correlations among the three action strategies (i.e., Direct Action, Seeking Help, and Action Omission) did not evince a significant loss in fit when compared with the metrically invariant model, (see Model 1 versus Model 2).

Across the five target groups, the correlation between Direct Action and Seeking help invariantly was of moderate size (\underline{r} ($z = 6.27$; $se = .07$) = .43). Across the groups, Direct Action and Action Omission invariantly were not reliably correlated (\underline{r} ($z = -1.59$; $se = .07$) = -.11). In contrast, across all groups the strategy to omit action was highly related to the strategy to seek out help (\underline{r} ($z = 10.75$; $se = .06$) = .61).

Self-rated Intimacy and Conflict

The univariate test of invariance of the correlations between children's perceptions of Intimacy and Conflict in their friendship relationships across age groups resulted in a significant decrement in fit when compared to the metrically invariant model (see Table L1, comparison of Model 1 vs. Model 2).

Relaxing the invariance constraints in the groups of popular children and both groups of rejected children resulted in a significant increment in fit compared to the previous model (see comparison of Model 2 versus Model 2a) and a nonsignificant difference in fit when compared with the metrically invariant model (see comparison of Model 1 versus Model 2a). On a significance level of $\alpha < .10$, the correlation between Intimacy and Conflict in the popular group did not significantly differ from the corresponding correlation in the group of friended-rejected children; the correlation between Intimacy and Conflict could be forced to be of equal magnitude across the two groups without resulting in a significant decrement in fit when compared to the model not specifying this constraint (see comparison of Model 2a versus

Model 2b). However, the correlation between Intimacy and Conflict could not be forced to be of equal magnitude across the these two groups and the group of friendless-rejected children without resulting in a significant decrement in fit when compared to the model specifying this constraint for the former two groups only (see comparison of Model 2b versus Model 2c).

The correlation between Intimacy and Conflict was significantly higher in the group of friendless-rejected children (r ($z = 4.50$; $se = .16$) = .70) compared to both the group of popular children and friended-rejected children (r ($z = 2.53$; $se = .10$) = .25) where this relationship was of equal size. Across both groups of average children the correlation between Intimacy and Conflict was of equal size and did not reliably differ from zero (r ($z = -1.59$; $se = .08$) = -.13).

Table L1

Testing Invariance of Latent Correlations of Action-Strategies, and Self-rated Friendship Quality

Metrically inv. (i.e., Baseline)		Test			Δ			
X^2	df	Model Description	X^2	df	Comp.	ΔX^2	df	p
Action Strategies								
1) 260.75	341a	2) All three correlations inv.	279.00	353	1 : 2	18.25	12	.11
Self-rated Friendship Quality								
1) 162.50	194b	2) Correlation inv.	180.58	198	1 : 2	18.08	4	.00
		2a) Popular, Friende-Rejected, Friendless-Rejected free	163.00	195	1 : 2a 2 : 2a	0.50 17.58	1 3	.48 .00
		2b) Popular, Friende-Rejected inv. Friendless-Rejected free	164.12	196	2a : 2b	4.63	1	.29
		2c) Popular, Friende-Rejected Friendless-Rejected inv.	167.63	197	2b : 2c	3.51	1	.06

Note. Comp. = Comparison, inv. = invariant. By fixing the loadings of the measurement model the here reported measurement invariant models gained a = 45 df and b = 42 df.

Self ratings and friend ratings of mutual friendships

In order to to test invariance of the correlations of children's own typical views of their mutual friendships and their friends' typical views of the friendships within perspectives, I used the metrically invariant 6-group model as baseline for the comparisons. The model testing

invariance of the correlation between friendship Intimacy and Conflict simultaneously across sociometric status and sources of ratings evinced a significant loss in fit on the set significance level ($p \leq .10$) when compared with the metrically invariant model, $\Delta \chi^2_{(5)} = 10.60$, $p = .06$. Relaxing the constraint in the group of popular children resulted in a significant increment in fit when compared to the previous model, $\Delta \chi^2_{(1)} = 4.78$, $p = .03$. Moreover, comparing the model with the relaxed constraints with the metrically invariant model showed that the fit of the two models did not significantly differ, $\Delta \chi^2_{(4)} = 5.82$, $p = .21$.

In the group of popular children Intimacy and Conflict represented orthogonal dimensions of friendship quality (r ($z = 0.50$; $se = .06$) = .06), while across the remaining groups of children (i.e., average and rejected children and average, popular, and rejected children's friends) Intimacy and Conflict were lowly and negatively correlated. (r ($z = -4.61$; $se = .05$) = -.24).

The next set of models tested invariance of the latent correlations between the children's own views and the friends' views of friendship quality. For these tests, I specified a measurement-invariant three-group MACS model ($\chi^2_{(268)} = 373.31$, $\underline{NNFI} = .92$, $\underline{CFI} = .93$, $\underline{IFI} = .93$). The fit of this model did not significantly differ from the configural invariant model ($\Delta \chi^2_{(40)} = 45.46$, $p = .26$). In each group once the two-factor structure was measured by the child's responses and once the same two-factor structure was measured by the unit-weight composites of the child's three best friends' responses. Average children and their friends represented the first group, the popular children and their friends represented the second group, and rejected children and their friends represented the third group.

First, I investigated the degree of concordance of the children's own views of Intimacy and the friends' views of Intimacy is invariant across sociometric status groups. Specifically, the analyses targeted at replicating the previously found rank ordering according degree of concordance of the friends views (see Brendgen et al., 2000): popular > average > rejected. Thus, the hypotheses were directed and, therefore, the p-value for an α level of .05 for accepting directed alternative hypotheses (i.e., one-tailed-tests) is .10. The overall model test of cross-group invariance of the correlations between self-rated and friend-rated Intimacy evinced a

marginally significant loss in fit, $\Delta \chi^2_{(2)} = 5.74$, $p = .06$.

In the next step, I conducted single comparisons in order to further scrutinize whether the correlations between self-rated and friend-rated Intimacy were significantly different across the three groups. The model in which the correlations between self-rated and friend-rated Intimacy were constrained to be equal across the average and the popular groups resulted in a significant loss of fit when compared to the metrically invariant model, (see comparison of Model 8 versus 9a), $\Delta \chi^2_{(1)} = 3.70$, $p = .05$. Comparing the rejected and the popular group revealed that the correlation between self-rated and friend-rated intimacy was significantly higher in the popular group than in the rejected group, $\Delta \chi^2_{(1)} = 4.62$, $p = .03$. The model in which the correlations between self-rated and friend-rated Intimacy in the average and the rejected group were constrained to be equal did not result in a significant loss in fit when compared to the metrically invariant model, $\Delta \chi^2_{(1)} = 0.93$, $p = .33$.

Hence, the degree of concordance between the friends' views of Intimacy was higher in the popular group than in the average group (r ($z = 5.78$; $se = .09$) = .53; r ($z = 3.74$; $se = .08$) = .29, respectively). Moreover, while popular and rejected children significantly differed regarding the degree of concordance with their friends' views of Intimacy, average and rejected children did not, although in the rejected group this correlation was not reliably different from zero (r ($z = 0.52$; $se = .19$) = .10). However, when interpreting the latter finding it should be taken in consideration that the rather small size of the rejected group reduces the statistical power of the conducted cross-group comparisons.

Next, I investigated whether the following rank ordering according degree of concordance of the friends views would replicate (see Brendgen et al., 2000): popular > average = rejected. The model testing cross-group invariance of the correlation between self-rated and friend-rated conflict evinced a nonsignificant loss in fit, $\Delta \chi^2_{(2)} = 1.39$, $p = .50$. In all sociometric groups self-rated and friend-rated conflict were moderately highly correlated (r ($z = 6.20$; $se = .07$) = .42). When interpreting this finding it should be noted that the variability of both self-rated and friend-rated conflict in the rejected group was larger than in both the average

and the popular group. Thus, the degree of correspondence of the friends' views of conflict in the rejected group may be enlarged due to the higher variability compared to the average and popular groups.

Finally, I investigated the apriori hypotheses (see Brendgen et al., 2000) that (a) the strength of the correlation between self-rated Intimacy and friend-rated Conflict would not differ from the strength of the correlation between self-rated Conflict and friend-rated Intimacy and (b) the strengths of these correlations would not differ across sociometric groups. Thus, I specified a model that equated the correlation between self-rated Intimacy and friend-rated Conflict with the correlation between self-rated Conflict and friend-rated Intimacy, and, at the same time, the model tested cross-group invariance of these correlations. The model evinced a nonsignificant loss in fit at the set significance level ($p < .20$), $\Delta \chi^2_{(5)} = 6.60$, $p = .25$. The correlations between self-rated and friend-rated non-corresponding friendship features were negative and of low size ($\underline{\beta}$ ($z = -2.37$; $se = .05$) = $-.12$) and were invariant across sociometric groups.

In sum, the present study replicated the finding that average and popular children's perspectives on Intimacy correlated positively with their friends' perspectives on this positive friendship feature. However, while Brendgen et al. (2000) found that the relationships between self-rated and friend-rated Intimacy were equally high across both the popular and the average group, the results of the present study showed that the relationship of the friends' views were higher in the popular group than in the average group. Across both studies, rejected children's views of Intimacy were unrelated to their friends' views. However, Brendgen et al. found that the correlation between rejected children's self-rated and friend-rated Intimacy differed significantly from the corresponding correlations evinced in both the average and the popular groups. In contrast, in the present study the correlation between rejected children's self-rated and friend-rated Intimacy differed only significantly from the corresponding correlation in the popular group. This correlation did not reliably differ from the corresponding correlation evinced in the average group. However, when interpreting the latter finding it should be taken in consideration that the rather small size of the rejected group reduces the statistical power of the conducted cross-group comparisons.

Further differences in the results of the studies evinced with regard to the correlations between self-rated and friend-rated Conflict. Brendgen et al. found that these correlations did not differ across the average and rejected groups but was significantly higher in the popular group. In the present study, the relationship between children's own views of Conflict and their friends' views of Conflict did not differ across sociometric groups. Across all sociometric groups self-rated and friend-rated Conflict were invariantly moderately highly correlated. When interpreting this finding it should be noted that the variability of both self-rated and friend-rated Conflict in the rejected group was larger than in both the average and the popular group. Thus, the degree of correspondence of the friends' views of Conflict in the rejected group may be enhanced due to the higher variability compared to the average and popular groups.

Brendgen et al. (2000) provided support for the hypothesis that the structure of children's views of friendship quality doesn't differ across sociometric status and sources of ratings. Intimacy and Conflict consistently represented orthogonal dimensions. In contrast, in the present study this was only the case in the popular group. However, across the remaining groups the negative correlation between Intimacy and Conflict was only low.

Moreover, the present study replicated the findings of Brendgen et al. that (a) the strength of the correlation between self-rated Intimacy and friend-rated Conflict did not differ from the strength of the correlation between self-rated Conflict and friend-rated Intimacy and (b) the strengths of these correlations did not differ across sociometric groups. However, while in the previous study self-rated and friend-rated non-corresponding friendship dimensions were orthogonal, in the present study they were lowly and negatively correlated.

Appendix M

Results of Hierarchical Regression Analyses

Table M1

Regressing Goal Difficulty, Action Strategies, and Self-rated Friendship Quality on Agency and Means-ends Beliefs, Dummy-coded Sociometric Groups, and Friendship Participation and their Interactions

Dimension	Agency	Means-ends	Other significant Terms	<i>t</i>
<i>Action Strategies</i>				
Direct Action				
Self	2.20*	1.34		
Luck	0.22	-0.80	friendled vs. friendless	-2.26
			rej vs. av X Agency	4.47
			rej vs. av X Means-ends	3.18
			friendled vs. friendless X Agency	3.37
			friendled vs. friendless X Means-ends	2.74
			rej vs. av X friendled vs. friendless X Agency	3.20
Adults	2.21*	-2.75*	friendled vs. friendless	-2.21
			rej vs. av X Agency	4.37
			rej vs. av X Means-ends	3.12
			friendled vs. friendless X Agency	6.29
			friendled vs. friendless X Means-ends	2.73
			rej vs. av X friendled vs. friendless X Agency	-3.12
Seeking Help				
Self	0.09	0.51	rej vs. av X friendled vs. friendless X Agency	-2.16
			rej vs. av X friendled vs. friendless X Means-ends	2.06
Luck	1.50	-0.45	rej vs. av X Agency	2.05
			friendled vs. friendless X Agency	3.05
			rej vs. av X friendled vs. friendless X Agency	-2.74
			rej vs. av X friendled vs. friendless X Means-ends	2.43
Adults	0.73	3.39*	friendled vs. friendless	2.19
			friendled vs. friendless X Agency	2.89
			rej vs. av X friendled vs. friendless X Agency	-2.74
			rej vs. av X friendled vs. friendless X Means-ends	2.20
Action Omission				
Self	-1.19	1.54	rej vs. av X friendled vs. friendless X Agency	2.17
			rej vs. av X friendled vs. friendless X Means-ends	2.01
Luck	0.06	3.28*	Agency x Means-ends	-3.07
Adults	-1.10	3.37*	rej vs. av X friendled vs. friendless X Means-ends	2.14

Table M1 continued

Dimension	Agency	Means-ends	Other significant Terms	<i>t</i>
<i>Self-rated Friendship Quality</i>				
Self: Intimacy				
Self	1.28	-0.15	pop vs. av	2.98
Luck	1.02	-0.41	pop vs. av	3.02
			friendled vs. friendless X Agency	6.13
			rej vs. av X Agency	2.55
			rej vs. av X friendled vs. friendless X Agency	-2.25
Adults	1.49	-0.01	pop vs. av	3.02
			rej vs. av X Agency	2.21
			friendled vs. friendless X Agency	5.63
			rej vs. av X friendled vs. friendless X Agency	-2.03
Self: Conflict				
Self	-3.53*	4.14*	rej vs. av X Agency	2.55
			friendled vs. friendless X Agency	2.99
			friendled vs. friendless X Means-ends	-3.35
			rej vs. av X friendled vs. friendless X Agency	-2.47
			rej vs. av X friendled vs. friendless X Means-ends	2.35
Luck	-0.40	0.75	rej vs. av X Means-ends	2.26
Adults	-1.73 [†]	2.58*	rej vs. av X Means-ends	2.45
<i>Goal Difficulty</i>				
Self	-1.29	1.72		
Luck	-2.07*	3.19*	rej vs. av X Means-ends	3.60
			friendled vs. friendless X Means-ends	2.95
			friendled vs. friendless X AgencyX Means-ends	-3.35
Adults	-0.80	1.90	rej vs. av X Means-ends	4.31
			friendled vs. friendless X Agency	-2.26
			friendled vs. friendless X Means-ends	3.35
			friendled vs. friendless X AgencyX Means-ends	-4.03

Note. Reported are the t-values (*t*) of the regression coefficients of the hierarchical regression analyses after entering the interaction terms. Abbreviations of dummy codings of sociometric groups and friendship participation: rej = rejected children, av = average children, pop = popular children, Agency = agency beliefs about the respective means dimension, Means-ends = means-ends beliefs about the respective dimension.

Table M2

Regressing Friend-rated Friendship Quality on Agency and Means-ends Beliefs, and Dummy-coded Sociometric Groups

Dimension	Agency	Means-ends	Other significant Terms	<i>t</i>
Friend-rated Intimacy				
Self	1.96*	0.42	rej vs. av	2.22
			rej vs. av X Agency	-2.07
Luck	0.49	0.99		
Adults	1.83 [†]	0.78		
Friend-rated Conflict				
Self	0.95	-0.54	rej vs. av	-2.40
			rej vs. av X Means-ends	2.87
Luck	-0.15	-0.08		
Adults	-0.58	0.00		

Note. Reported are the t-values (*t*) of the regression coefficients of the hierarchical regression analyses after entering the interaction terms. Abbreviations of dummy codings of sociometric groups: rej = rejected children, av = average children, pop = popular children, Agency = agency beliefs about the respective dimension, Means-ends = means-ends beliefs about the respective dimension.

Appendix N

Relationships of Perceived Control (i.e., Agency and Means-ends Beliefs, and Goal Difficulty) and Action Strategies with the Number of Mutual Friendships

Table N1

Relationships among Agency and Means-ends Beliefs, Action Strategies, Goal Difficulty, and Number of Mutual Friendships

Construct	Dimension	Group	r	se	z
Agency Beliefs	Self	all	.02	.05	0.40
	Luck	all	-.05	.05	-0.85
	Adult	all	-.05	.05	-0.86
Means-ends Beliefs	Self	all	-.02	.05	-0.31
	Luck	all	-.05	.06	-0.90
	Adult	all	-.03	.05	-0.61
Goal Difficulty		average/rejected	.00	.06	-0.04
		popular	-.29**	.10	-2.87
Action Strategies	DirectAction	all	-.09	.06	-1.54
	Seeking Help	all	.11 ^a	.06	1.76
	Action Omission	all	.00	.05	-0.08

Note. r = disattenuated correlation, se = LISREL estimate of the standard error, z = z -value. * = $p < .05$, one-tailed tests. ^a = $p < .10$, two-tailed tests; the correlation is in opposite direction as hypothesized.

Appendix O

Effects of RAVEN Intelligence, School Grades, Peer-nominations of Aggression, and Social Desirability on the Relationships of Perceived Control, Action Strategies and Friend-rated Friendship Quality

Table O1

Descriptive Statistics: Social Desirability, Raven Intelligence, School Grades, and Aggression of the Five Target Groups

Group	Mean	SD	Minimum	Maximum	Skewness	Kurtosis
Social Desirability						
Friended Popular	2.47	0.64	1.00	4.00	0.22	-0.44
Friended Average	2.54	0.66	1.00	4.00	-0.07	-0.55
Friended Rejected	2.52	0.65	1.17	4.00	-0.17	-0.39
Friendless Average	2.63	0.67	1.17	3.67	-0.74	-0.42
Friendless Rejected	2.62	0.66	1.33	4.00	0.06	-0.56
Raven Intelligence						
Friended Popular	5.75	1.35	1.67	9.00	-0.32	-0.04
Friended Average	5.49	1.38	1.33	8.67	-0.61	0.22
Friended Rejected	4.98	1.58	0.00	7.67	-1.06	1.44
Friendless Average	5.41	1.07	3.00	7.33	-0.45	0.00
Friendless Rejected	5.40	1.47	1.33	8.00	-0.82	0.37
School Achievement						
Friended Popular	4.92	0.86	2.00	6.00	-0.79	0.54
Friended Average	4.57	0.85	2.00	6.00	-0.48	0.14
Friended Rejected	3.93	0.86	2.50	6.00	0.29	-0.66
Friendless Average	4.52	0.95	2.17	6.00	-0.69	-0.10
Friendless Rejected	3.79	0.85	2.00	5.87	-0.28	0.36
Peer Nomination: Aggression						
Friended Popular	-0.11	0.84	-1.07	3.43	2.35	5.54
Friended Average	-0.07	0.85	-1.17	3.05	1.79	2.74
Friended Rejected	0.61	1.19	-0.84	3.06	0.57	-1.12
Friendless Average	-0.25	0.69	-0.86	1.91	2.15	4.17
Friendless Rejected	0.36	1.22	-0.86	3.40	1.02	0.01

Note. SD = standard deviation.

Table O2

Covariates: Their Effects on the Correlations of Agency and Means-ends Beliefs, Goal Importance, and Goal Difficulty with Friend-rated Friendship Quality

Friend Rating	Covariate	Statistic	Agency Beliefs				Means-ends Beliefs			
			Self	Luck	Adults	Importance	Self	Luck	Adults	Difficulty
Popular Children										
Intimacy	None	r	0.39**	-0.08	0.19*	0.04	0.22*	0.08	0.08	0.10
		se	(0.10)	(0.11)	(0.11)	(0.11)	(0.11)	(0.14)	(0.12)	(0.12)
		z	4.08	0.69	1.74	0.36	1.96	0.65	0.70	0.70
	Social Desirability	r	0.23*	-0.02	0.19†	-0.06	0.06	-0.07	0.10	-0.02
		se	(0.13)	(0.13)	(0.13)	(0.14)	(0.14)	(0.16)	(0.14)	(0.14)
		z	1.77	-0.13	1.49	-0.47	0.44	-0.46	0.74	-0.13
	RAVEN	r	0.42**	0.07	0.19*	0.06	0.24*	0.08	0.08	0.10
		se	(0.10)	(0.12)	(0.11)	(0.12)	(0.11)	(0.14)	(0.12)	(0.12)
		z	4.43	0.65	1.74	0.49	2.10	0.61	0.65	0.86
	School Grades	r	0.41**	0.08	0.20*	0.04	0.23*	0.09	0.09	0.11
		se	(0.10)	(0.11)	(0.11)	(0.12)	(0.11)	(0.14)	(0.12)	(0.12)
		z	4.22	0.73	1.83	0.31	2.03	0.70	0.74	0.94
Aggression	r	0.41**	0.08	0.19*	0.05	0.24*	0.09	0.08	0.11	
	se	(0.10)	(0.11)	(0.11)	(0.12)	(0.11)	(0.14)	(0.12)	(0.12)	
	z	4.27	0.71	1.75	0.44	2.08	0.68	0.68	0.93	
Conflict	None	r	-0.30**	0.06	-0.23*	-0.23*	-0.20†	-0.05	-0.06	-0.13
		se	(0.11)	(0.12)	(0.12)	(0.12)	(0.12)	(0.14)	(0.13)	(0.13)
		z	-2.70	0.51	-1.69	-1.97	-1.64	-0.32	-0.47	-1.05
	Social Desirability	r	-0.12	0.16	-0.17†	-0.16	-0.04	0.10	-0.06	-0.02
		se	(0.13)	(0.13)	(0.13)	(0.13)	(0.14)	(0.16)	(0.14)	(0.14)
		z	-0.87	1.24	-1.38	-1.26	-0.32	0.61	-0.45	-0.13
	RAVEN	r	-0.27**	0.03	-0.19*	-0.21*	-0.19†	-0.08	-0.06	-0.13
		se	(0.11)	(0.12)	(0.11)	(0.12)	(0.12)	(0.14)	(0.12)	(0.12)
		z	-2.50	0.27	-1.68	-1.83	-1.63	-0.58	-0.49	-1.08
	School Grades	r	-0.28**	0.06	-0.20*	-0.21*	-0.18†	-0.05	-0.07	-0.13
		se	(0.11)	(0.12)	(0.11)	(0.12)	(0.12)	(0.14)	(0.13)	(0.12)
		z	-2.55	0.47	-1.75	-1.77	-1.52	-0.37	-0.54	-1.06
Aggression	r	-0.29**	0.05	-0.19†	-0.22*	-0.21*	-0.03	-0.03	-0.08	
	se	(0.11)	(0.12)	(0.11)	(0.12)	(0.12)	(0.14)	(0.12)	(0.13)	
	z	-2.64	0.45	-1.62	-1.94	-1.79	-0.23	-0.26	-0.68	

Table O2 continued

Friend		Agency Beliefs					Means-ends Beliefs			
Rating	Covariate	Statistic	Self	Luck	Adults	Importance	Self	Luck	Adults	Difficulty
Average Children										
Intimacy	None	r	0.25**	-0.14 [†]	0.20**	0.27**	0.12 [†]	-0.10	0.14*	-0.08
		se	(0.07)	(0.08)	(0.08)	(0.08)	(0.08)	(0.08)	(0.08)	(0.09)
		z	3.34	-1.86	2.59	3.33	1.40	-1.17	1.69	-0.98
	Social Desirability	r	0.24**	-0.15*	0.20**	0.27**	0.10	-0.11 [†]	0.13 [†]	-0.09
		se	(0.07)	(0.08)	(0.07)	(0.08)	(0.08)	(0.08)	(0.08)	(0.09)
		z	3.36	-2.04	2.73	3.25	1.26	-1.33	1.63	-1.09
	RAVEN	r	0.25**	-0.14 [†]	0.21**	0.27**	0.12 [†]	-0.10	0.15*	-0.09
		se	(0.07)	(0.08)	(0.07)	(0.08)	(0.08)	(0.08)	(0.08)	(0.09)
		z	3.50	-1.89	2.80	3.44	1.45	-1.18	1.80	-1.01
	School Grades	r	0.22**	-0.11	0.23**	0.25**	0.09	-0.07	0.20**	-0.09
		se	(0.07)	(0.08)	(0.07)	(0.08)	(0.08)	(0.08)	(0.08)	(0.09)
		z	3.03	-1.38	3.18	3.03	1.04	-0.84	2.42	-1.02
	Aggression	r	0.25**	-0.14 [†]	0.19**	0.27**	0.12 [†]	-0.10	0.14*	-0.08
		se	(0.07)	(0.07)	(0.07)	(0.08)	(0.08)	(0.08)	(0.08)	(0.09)
		z	3.47	-1.93	2.62	3.34	1.44	-1.21	1.68	-0.96
Conflict	None	r	-0.16*	0.02	-0.04	0.06	-0.15*	0.08	0.01	0.34**
		se	(0.08)	(0.09)	(0.09)	(0.10)	(0.09)	(0.09)	(0.09)	(0.09)
		z	-1.89	0.20	-0.52	0.62	-1.67	0.91	0.08	3.88
	Social Desirability	r	-0.15*	0.02	-0.04	0.07	-0.14 [†]	0.09	0.02	0.36**
		se	(0.08)	(0.09)	(0.09)	(0.10)	(0.09)	(0.09)	(0.09)	(0.09)
		z	-1.78	0.27	-0.52	0.76	-1.60	0.98	0.19	4.14
	RAVEN	r	-0.19*	-0.03	-0.10	0.04	-0.17*	0.07	-0.03	0.35**
		se	(0.08)	(0.09)	(0.09)	(0.09)	(0.09)	(0.09)	(0.09)	(0.09)
		z	-2.28	-0.39	-1.11	0.38	-1.89	0.72	-0.30	4.07
	School Grades	r	-0.12 [†]	-0.03	-0.08	0.10	-0.12 [†]	0.05	-0.04	0.36**
		se	(0.08)	(0.09)	(0.09)	(0.09)	(0.09)	(0.09)	(0.09)	(0.09)
		z	-1.45	-0.33	-0.88	1.08	-1.32	0.56	-0.39	4.14
	Aggression	r	-0.16*	0.01	-0.04	0.08	-0.16*	0.08	0.02	0.34**
		se	(0.08)	(0.09)	(0.09)	(0.09)	(0.09)	(0.09)	(0.09)	(0.09)
		z	-1.97	0.09	-0.43	0.85	-1.82	0.87	0.20	3.87

Table O2 continued

Friend Rating	Covariate	Statistic	Agency Beliefs				Means-ends Beliefs			
			Self	Luck	Adults	Importance	Self	Luck	Adults	Difficulty
Rejected Children										
Intimacy	None	r	-0.01	0.23 [†]	-0.12	-0.16	-0.09	0.29 [†]	0.16	0.18
		se	(0.17)	(0.16)	(0.17)	(0.20)	(0.20)	(0.18)	(0.17)	(0.19)
		z	-0.03	1.41	-0.72	-0.84	-0.44	1.63	0.93	0.96
	Social Desirability	r	0.03	0.26 [†]	-0.03	-0.13	-0.06	0.32*	0.33 [†]	0.17
		se	(0.18)	(0.17)	(0.19)	(0.20)	(0.20)	(0.18)	(0.20)	(0.19)
		z	0.17	1.59	-0.16	-0.63	-0.32	1.76	1.61	0.89
	RAVEN	r	-0.07	0.17	-0.13	-0.22	-0.23	0.22	0.13	0.14
		se	(0.17)	(0.17)	(0.17)	(0.20)	(0.20)	(0.19)	(0.17)	(0.19)
		z	-0.40	1.01	-0.79	-1.13	-1.14	1.17	0.76	0.70
	School Grades	r	0.00	0.25 [†]	-0.11	-0.16	-0.07	0.30*	0.21	0.25
		se	(0.17)	(0.16)	(0.17)	(0.21)	(0.20)	(0.18)	(0.19)	(0.22)
		z	0.00	1.50	-0.67	-0.76	-0.37	1.69	1.12	1.15
	Aggression	r	-0.01	0.23 [†]	-0.12	-0.17	-0.09	0.28 [†]	0.16	0.18
		se	(0.17)	(0.16)	(0.17)	(0.20)	(0.20)	(0.18)	(0.17)	(0.19)
		z	-0.06	1.39	-0.73	-0.85	-0.44	1.57	0.91	0.97
Conflict	None	r	0.10	-0.03	0.11	0.44**	0.53**	0.08	0.03	0.35*
		se	(0.18)	(0.18)	(0.18)	(0.18)	(0.17)	(0.20)	(0.19)	(0.19)
		z	0.55	-0.15	0.64	2.40	3.08	0.41	0.16	1.88
	Social Desirability	r	0.08	-0.03	0.14	0.43**	0.50**	0.09	0.04	0.34*
		se	(0.17)	(0.17)	(0.19)	(0.18)	(0.17)	(0.20)	(0.21)	(0.18)
		z	0.45	-0.16	0.73	2.41	2.97	0.46	0.19	1.87
	RAVEN	r	-0.02	-0.19	0.11	0.37*	0.42*	-0.07	-0.03	0.28 [†]
		se	(0.18)	(0.17)	(0.17)	(0.19)	(0.19)	(0.21)	(0.18)	(0.19)
		z	-0.13	-1.08	0.61	2.00	2.16	-0.33	-0.15	1.46
	School Grades	r	0.07	-0.03	0.11	0.46**	0.50**	0.09	0.02	0.39*
		se	(0.17)	(0.18)	(0.17)	(0.19)	(0.17)	(0.20)	(0.20)	(0.21)
		z	0.42	-0.19	0.66	2.41	2.95	0.43	0.09	1.88
	Aggression	r	0.10	0.08	0.13	0.45**	0.55**	0.17	0.06	0.36*
		se	(0.17)	(0.17)	(0.17)	(0.17)	(0.16)	(0.19)	(0.18)	(0.18)
		z	0.60	0.49	0.73	2.59	3.40	0.89	0.35	1.97

Note. Stat. = Statistic, r = LISREL estimate of the correlation between the covariate and the central construct, se = standard error, z = z-value. The metric invariant model including the agency beliefs, Goal Importance, friend-rated friendship quality, and the covariates evinced satisfactory levels of fit ($\chi^2_{(1032)} = 1464.22$, $NNFI = .90$, $CFI = .92$, $IFI = .93$, $RMSEA = .03$). The metric invariant model including the means-ends beliefs, Goal Difficulty, friend-rated friendship quality, and the covariates evinced low levels of fit ($\chi^2_{(1032)} = 1591.05$, $NNFI = .81$, $CFI = .85$, $IFI = .86$, $RMSEA = .04$). School grades were coded that higher values mean better school achievement. ** = $p < .01$, * = $p < .05$, [†] = $p < .10$, one-tailed tests. The negative correlation between agency beliefs about Luck and friend-rated Intimacy evinced in the average group is in opposite direction than hypothesized; thus, a two-tailed test of significance is appropriate.

Table O3

Covariates: Their Effects on the Correlations of Action Strategies with Friend-rated Friendship Quality

Group	Covariate	Statistic	<i>Friend-rated Intimacy and</i>			<i>Friend-rated Conflict and</i>		
			Direct Action	Seeking Help	Action Omission	Direct Action	Seeking Help	Action Omission
Popular	None	r	0.43**	0.17	-0.03	-0.41**	-0.21†	-0.09
		se	(0.11)	(0.14)	(0.12)	(0.12)	(0.15)	(0.12)
		z	3.82	1.16	-0.23	-3.41	-1.39	-0.76
	Social Desirability	r	0.25†	0.10	-0.05	-0.23†	-0.16	-0.11
		se	(0.15)	(0.17)	(0.14)	(0.15)	(0.16)	(0.13)
		z	1.63	0.61	-0.39	-1.49	-0.99	-0.80
	RAVEN	r	0.50**	0.18	-0.03	-0.38**	-0.19	-0.12
		se	(0.11)	(0.15)	(0.12)	(0.13)	(0.15)	(0.12)
		z	4.37	1.25	-0.24	-3.00	-1.26	-0.99
	School Grades	r	0.45**	0.17	-0.03	-0.39**	-0.20†	-0.11
		se	(0.11)	(0.14)	(0.12)	(0.12)	(0.15)	(0.12)
		z	3.92	1.15	-0.21	-3.18	-1.39	-0.92
	Aggression	r	0.45**	0.17	-0.03	-0.38**	-0.26*	-0.10
		se	(0.11)	(0.15)	(0.12)	(0.13)	(0.16)	(0.13)
		z	3.95	1.16	-0.21	-3.02	-1.66	-0.81
Average	None	r	0.17*	0.03	-0.10	-0.02	0.08	0.02
		se	(0.09)	(0.10)	(0.09)	(0.10)	(0.11)	(0.10)
		z	1.83	0.35	-1.09	-0.17	0.75	0.17
	Social Desirability	r	0.15†	0.04	-0.10	0.01	0.10	0.04
		se	(0.09)	(0.10)	(0.09)	(0.11)	(0.11)	(0.10)
		z	1.57	0.41	-1.18	0.09	0.91	0.37
	RAVEN	r	0.17*	0.03	-0.10	-0.05	0.09	0.01
		se	(0.09)	(0.10)	(0.09)	(0.10)	(0.11)	(0.10)
		z	1.91	0.36	-1.09	-0.49	0.87	0.10
	School Grades	r	0.13†	0.04	-0.06	0.03	0.10	-0.01
		se	(0.09)	(0.10)	(0.09)	(0.10)	(0.11)	(0.10)
		z	1.47	0.39	-0.70	0.25	0.89	-0.11
	Aggression	r	0.17*	0.04	-0.09	-0.03	0.08	-0.02
		se	(0.09)	(0.10)	(0.09)	(0.10)	(0.11)	(0.10)
		z	1.88	0.39	-1.01	-0.33	0.75	-0.16
Rejected	None	r	-0.45**	-0.15	0.24	0.51**	0.55**	0.68**
		se	(0.17)	(0.21)	(0.21)	(0.17)	(0.18)	(0.18)
		z	-2.75	-0.71	1.16	3.07	3.02	3.75
	Social Desirability	r	-0.44**	-0.09	0.21	0.49**	0.61**	0.70**
		se	(0.17)	(0.26)	(0.23)	(0.17)	(0.24)	(0.18)
		z	-2.56	-0.33	0.94	2.82	2.52	3.79
	RAVEN	r	-0.48**	-0.24	0.15	0.48**	0.41*	0.64**
		se	(0.16)	(0.20)	(0.26)	(0.17)	(0.19)	(0.24)
		z	-2.90	-1.20	0.57	2.81	2.11	2.68
	School Grades	r	-0.45**	-0.14	0.24	0.49**	0.53**	0.66**
		se	(0.17)	(0.22)	(0.21)	(0.17)	(0.19)	(0.17)
		z	-2.67	-0.65	1.13	2.85	2.81	3.84
	Aggression	r	-0.45**	-0.14	0.23	0.50**	0.45*	0.76**
		se	(0.17)	(0.20)	(0.21)	(0.18)	(0.20)	(0.19)
		z	-2.69	-0.67	1.10	2.70	2.31	4.04

Note. r = correlation between the covariate and the central construct, se = standard error, z = z -value. ** = $p < .01$, * = $p < .05$, † = $p < .10$, one-tailed tests. School grades were coded that higher values mean better school achievement.