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**SOCIAL COGNITION AND BEHAVIOR
IN RELATIONSHIP CONTEXT**

by

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ABSTRACT

Social information processing (SIP; Crick & Dodge, 1994) and social-cognitive learning theories have been often used to understand children's problem behaviors, such as aggression. According to these theories, children's thinking guides their subsequent behaviors. Although most of us agree that social behavior and underlying thought processes are context-dependent, personality and social development researchers have usually engaged in searching for stable patterns of dispositions and behaviors, ignoring (or treating as error) the variance across different situations and relationship types. This, however, can result in erroneous conclusions and question the interpretation of previous findings. Four studies were conducted to explore the influence of relationship context on children's social-cognitive evaluations and behavior. Samples were fourth to sixth graders from Estonia and Finland. Social cognitions were assessed by presenting children with hypothetical vignettes where the previously identified relationship partner's behavior had a negative consequence for the child (Studies I, II, and IV), followed by questions measuring different social-cognitive processes (e.g., hostile attributions, behavioral strategies, outcome expectations and self-efficacy beliefs for aggression). In addition, in Studies II and IV, children provided information about their behavior within a specific relationship context. In Study III, an affective priming paradigm was employed where participants were presented with a short display of photographs of children's liked and disliked classmates, and unknown peers. The results of this thesis suggest that children's thinking and behavior are largely influenced by the affective valence of the relationship. Moreover, cognitions guide behavior within the relationship. The current findings offer a fruitful avenue for studying the heterogeneity of peer interactions.

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LIST OF ORIGINAL PUBLICATIONS

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- II. **Peets, K.**, Hodges, E. V. E., & Salmivalli, C. (2008). Affect-congruent social-cognitive evaluations and behaviors. *Child Development*, *79*, 170-185.
- III. Nummenmaa, L., **Peets, K.**, & Salmivalli, C. (in press). Automatic activation of adolescents' peer-relational schemas: Evidence from priming with facial identity. *Child Development*.
- IV. **Peets, K.**, Hodges, E. V. E., & Salmivalli, C. (2008). Actualization of target-specific cognitions into aggressive behavior. Manuscript under review in *Child Development*.

1. THEORETICAL BACKGROUND

The way humans behave can, at least partly, be explained by their underlying thought patterns (i.e., social cognitions). One of the most widely used heuristics for studying social cognitions in children and adolescents is the SIP model (Crick & Dodge, 1994), that describes different “mental steps” that individuals go through before they engage in actual behavior in a situation. These mental processes are 1) encoding of cues (attention to a cue and its storage); 2) interpretation of cues (applying the meaningfulness to the information); 3) clarification of goals (deciding what one wants to achieve); 4) response access or construction (accessing possible behavioral responses from the behavioral repertoire in long-term memory or construction of new behavioral responses); and 5) response decision (evaluating possible outcomes for the selected or constructed behavioral responses, and choosing the “best” one).

So far, most research on social information processing has focused on individual or group differences in dispositional characteristics. This relatively decontextualized view of social cognition and behavior has dominated the mainstream of studies. However, as individuals’ thought and behavioral patterns are always intertwined with the context in which they appear, ignoring contextual variance can result in inaccurate conclusions about the phenomenon. Moreover, past research on social adjustment has mainly focused on individuals who are liked or disliked by their peers, and on how they generally behave, in a trait-like manner, toward these peers. There are numerous studies showing that rejection is a correlate of aggression, victimization, and other adjustment difficulties (e.g., Hodges & Perry, 1999). However, much less is known about the identities of the peers who dislike or like certain children and how they behave toward these children (Bukowski & Hoza, 1989). In this thesis I examined the effect of *relationship context* on children’s social-cognitive evaluations and behavior.¹

1.1. Methods for studying social information processing

Social information processing patterns are traditionally assessed using a hypothetical vignette paradigm (for a review, see Crick & Dodge, 1994). Children are presented, often orally or in a written format, with hypothetical situations followed by questions measuring different SIP constructs. Moreover, how children process two types of situations, rebuff (e.g., being rejected from joining the peer group) and provocation (e.g., getting hit with the ball) by other peers, is thought to be an especially critical determinant for their adjustment in the peer group. In addition, one common way to assess social cognitions is to ask a child to think of a hypothetical peer instigator who provokes or

¹ As the original studies were conducted with the help of the co-authors, I prefer using the pronoun “we” instead of “I” in most of the text.

rebuffs the subject or another child. The intent of the hypothetical peer can be displayed, for instance, as ambiguous, benign, accidental, or hostile. Although most of social information processing is assumed to take place automatically (i.e., without awareness, unavoidably), social cognitions have been traditionally studied through these reflective measures. Priming has been proposed to be one possible method to assess automaticity of social information processing patterns. Whereas priming is widely exploited in the experimental literature with adults, it is much less used as a methodology with children. In one of the studies (Study III), the automaticity assumption was tested by using a priming paradigm

1.2. Social cognitions and aggression

One of the most studied components of the SIP model, at least in relation to aggression, is the attribution of intent (Step 2). Studies show that rejected and/or aggressive children misattribute hostility to others in case of non-hostile cues (accidental and benign), as well as have a tendency to infer hostility from others in ambiguous situations; yet, they are as accurate as other peers in identifying hostile cues (Dodge, Murphy, & Buchsbaum, 1984; Dodge & Somberg, 1987; Waldman, 1996). More importantly, when the intent of a peer is perceived as hostile, there is a greater probability for the child to select a retaliative response against the peer (e.g., Dodge & Frame, 1982; Dodge et al., 1984; Dodge & Somberg, 1987; Waldman, 1996). Whether children's tendency to see hostility in others should be considered a bias is controversial. As aggressive children are often recipients of aggressive acts (Dodge & Frame, 1982) and rejected by others, a hostile attributional bias might be an accurate reflection of reality.

Moreover, aggressive children also endorse more hostile goals (Erdley & Asher, 1996), construct a fewer number of alternative problem solving strategies (Asarnow & Callan, 1985), expect more positive outcomes for aggression (Perry, Perry, & Rasmussen, 1986), and have higher self-efficacy beliefs for aggression (Perry et al., 1986; Quiggle, Panak, Garber, & Dodge, 1992). Whereas Step 2, attribution of intent, has received the utmost attention by SIP researchers, according to Bandura's (1986) social-cognitive learning approach, outcome expectations (a belief that aggression can bring desirable outcomes) and self-efficacy beliefs (a belief in one's ability to perform a behavior) (Step 5 in the SIP model) are the major determinants of behavior. Moreover, although outcome expectations for aggression are associated with self-efficacy beliefs, the former could be expected to have less predictive power (Shell, Murphy, & Bruning, 1989).

Furthermore, there is a well-known distinction made on the basis of the function of aggression. Reactive aggression that originates from the frustration theory of aggression (see an overview by Berkowitz, 1989) is defined as a hostile response to perceived threat or provocation, whereas proactive aggression that fits more to the social-cognitive learning theory of aggression is a goal-directed harmful behavior (e.g., Dodge & Coie,

1987). Although reactive and proactive aggression strongly overlap (a meta-analysis by Card and Little, 2006), these two forms of aggression show unique social-behavioral and cognitive correlates. Whereas reactively aggressive children are usually rejected and victimized by other peers (Card & Little, 2006), proactive aggression is positively associated with leadership (Dodge & Coie, 1987) and having friends (Poulin & Boivin, 2000). Moreover, whereas reactively aggressive children have a tendency to see hostility in others, proactively aggressive children are characterized by cognitions that promote the use of aggression as an effective means to achieve desired outcomes (e.g., Crick & Dodge, 1996; Perry et al., 1986).

Both social information processing and social-cognitive learning theories assume that social cognitions develop through interaction with the environment (Crick & Dodge, 1994; Dodge & Pettit, 2003). For instance, maladaptive social information processing patterns are proposed to originate partly from maladaptive family relations that are further exacerbated by experiences among peers (Dodge et al., 2003). According to the social-cognitive learning approach, children develop cognitive patterns that encourage the use of aggression as an accepted means to achieve desired outcomes through observing others being successful at using aggression, direct tuition, or through mastery experience. First, parents can act as aggressive models but later on, other similar peers serve as the most influential figures for the child. Moreover, friends can be especially powerful models and reinforce each other's aggression-encouraging cognitions and aggressive behavior (Card & Hodges, 2006).

1.3. Person in relationship approach

Humans have very different types of relationships (e.g., friends, enemies, romantic partners) during their lifetime that can provide a source of happiness as well as distress. More importantly, what matters is how we mentally construe our relationships and the people involved in these relationships (Reis, Collins, & Berscheid, 2000). Social development and personality researchers have mainly studied dispositional characteristics that influence the way we think and behave across different contexts. This context-free trait-like view has, at least partly, developed due to the measures and designs used to assess different constructs. Moreover, the main focus of most studies has been on explaining individual differences rather than examining intra-personal variance (Wright, Lindgren, & Zakriski, 2001). Although there is some research on contextual effects on social cognition, the role of different relationships in children's thought and behavioral patterns is understudied.

Moreover, according to the relationship view of personality, humans are characterized by stable "if...then..." situation-behavior profiles (i.e., if situation/relationship A, then the child does B, if situation/relationship B, then the child does C) that reflect underlying personality. Over time, the child might develop a unique thought-behavior

pattern toward friends vs. enemies. For instance, a very different behavior is likely to result when the child thinks, “if I aggress against my friend, he/she will forgive me” vs. “if I aggress toward my enemy, he/she will probably get back at me” (Mischel, 2004; Mischel & Shoda, 1995; Mischel, Shoda, & Mendoza-Denton, 2002). Some social cognitions and consequently behaviors become more readily accessible in certain relationships than in others. For another child, the situation-behavior profile might be the opposite (“if I aggress against my friend, he/she will probably get back at me” vs. “if I aggress toward my enemy, he/she will forgive me”). Similarly, according to Baldwin (1992), individuals have different “relational schemas” that consist of a representation of self and interaction partner, and interpersonal “if...then...” script. In other words, in different relationships, unique representations of self (e.g., “I am powerful”) and the partner (e.g., “he/she is weak and no one likes him/her), and of interaction pattern between self and the partner (e.g., “if I attack him/her, he/she will start crying”) are activated.

1.4. Shift from hypothetical peers to actual peers

When children are asked to think of hypothetical peers, it is possible that social-cognitive evaluations children make are driven from their interactions with actual peers. For instance, children who spend most of their time interacting with the peers they dislike or with whom they are enemies are likely to show different social-cognitive patterns than children who spend most of their time with their friends. Moreover, children might directly imagine an actual peer when asked to think of a hypothetical peer. Some studies that have used identified peer instigators have indeed found that aggressive reputation of the peer has a significant impact on social information processing patterns (Dodge, 1980; Dodge & Frame, 1982; Perry et al., 1986). The hypothetical peer paradigm might be more useful and ecologically valid for studying children’s cognitions and behavior toward unknown peers. In this thesis, identified targets were used to assess relationship-specific social-cognitive evaluations and behavior.

1.5. Contextual effects on social cognition

There are a handful of earlier studies that have examined the influence of *context* on the way children process social information. For instance, aggressive reputation of the provocateur serves as a context that exacerbates aggression-supporting cognitions. In early studies by Dodge (1980; Dodge & Frame, 1982), both aggressive and nonaggressive children attributed more hostility and proposed more hostile responses toward aggressive than non-aggressive peer instigators. Similarly, Perry and colleagues (1986) found that children expected aggression toward aggressive peers to result in more positive outcomes (i.e., peer approval, fewer signs of victim’s suffering) than when aggressing toward nonaggressive peers. In addition, aggressive children are more likely

to make hostile attributions when a negative act is directed toward themselves rather than at another peer (Dodge & Frame, 1982). Threat to self (Dodge & Somberg, 1987) and experiencing negative affect (Orobio de Castro, Slot, Bosch, Koops, & Veerman, 2003) seem to be conditions that increase the likelihood of making hostile inferences in aggressive children. These findings indicate that hostile attributions as well as other aggression-supporting cognitions are not made by default by aggressive children but are dependent on the context (e.g., characteristics of the target).

1.6. Relationship effects on social cognition and behavior

Global decontextualized measures still guide the mainstream of studies on social adjustment in children and adolescents. However, recently, there is an accumulation of research focusing on variability in behavior (mainly aggression and victimization) across different relationship partners. There is indeed evidence that aggression is largely relationship-specific. In a study by Dodge and colleagues (Dodge, Price, Coie, & Christopoulos, 1990) where interactions of unacquainted children were observed, half of all aggressive acts took place only within 20% of the dyads, providing evidence that aggression is not randomly distributed. Moreover, it has been shown that the dyadic component explains variance in reactive and proactive aggression at least as much as personality-like tendencies (Coie et al., 1999). Recent evidence also indicates that different forms of aggression are displayed with different frequency toward different interaction partners. Direct aggression (i.e., face-to-face verbal or physical aggression) is more often targeted at romantic partners, whereas indirect aggression is more frequently displayed at same- and opposite-sex friends (Richardson & Green, 2006). Furthermore, not only aggression, but also social-cognitive evaluations show considerable variance across different dyads, and relationship-specific cognitions predict relationship-specific behavior. For instance, Hubbard and colleagues (Hubbard, Dodge, Cillessen, Coie, & Schwartz, 2001) showed that reactive aggression within a specific relationship was best predicted by relationship-specific attributions of hostility rather than a generalized tendency to infer hostility across different relationship partners.

1.7. Context of positive and negative affect

The focus of this study was to examine the context of positive and negative affect. One of the main reasons for disliking someone, at least in middle childhood, is aggression (Hayes, Gershman, & Halteman, 1996). However, liking or disliking someone depends, at least partly, on the (dis)similarity of two children. For instance, Nangle et al. (Nangle, Erdley, & Gold, 1996) found that children were liked by the peers who were similar to them in their behavioral repertoire, regardless of the valence of the behavior (e.g., disruptive peers liked disruptive children). Similarly, proactively aggressive children tend to befriend similar peers (Poulin & Boivin, 2000). Moreover, individual reasons for

liking and disliking can be much more diverse and become more abstract when children get older (Hayes et al., 1996).

In addition, despite that aggressors as well as victims tend to be disliked by their peers, whether someone is liked or disliked depends also on the *emotional ties* the child has with another peer. For example, Ray et al. (Ray, Norman, Sadowski, & Cohen, 1999) demonstrated that children's affect toward the victim of hypothetical aggression changed with the valence of the relationship they had with the target (friends, enemies, or acquaintances). Children who were in a hypothetical friendship with the victim liked the target more than children who were in an acquaintance or enemy relationship. Thus, it is not status or behavioral similarity *per se* but the emotional valence of the relationship that influences how other children and their behavior are perceived, and consequently, what behavior is performed (Lemerise & Arsenio, 2000). For example, Card and Hodges (2007) found that victimization is more likely to occur in the context of negative (especially in the case of reciprocal negative affect) than positive affect, and is most strongly associated with maladjustment correlates. Whatever the reason for liking and disliking, positive and negative affect toward another peer, and thus the relationship with the target, is likely to be maintained via affect-congruent social-cognitive evaluations. In other words, acts by other peers are seen in a positive or negative light depending on the emotional valence of the relationship with these peers. A negative act by someone the child likes (or is a friend with) is likely to be interpreted differently than a negative act by someone the child dislikes. For instance, Hymel (1986) demonstrated that children hold disliked peers more responsible for the negative behaviors than liked peers. Hence, although the original reasons for disliking someone can disappear (e.g., the child is no longer aggressive), children might still interpret new behaviors of the disliked peer in light of a negative representation held toward this peer. These affective-cognitive biases shared by several children can also contribute to the stability of rejected status of the child in the classroom.

1.8. Cognitions guiding aggression

The basic premise of social information processing and social-cognitive learning theories is that cognitions guide behavior. However, most research on social cognition and aggression is concurrent without allowing one to make causal conclusions. A very few longitudinal studies have found that social information processing patterns mediate the link, for instance, between earlier physical abuse and later conduct problems (Dodge, Pettit, Bates, & Valente, 1995), and between earlier retaliation beliefs and future aggression (Zelli, Dodge, Lochman, Laird, & Conduct Problems Prevention Group, 1999). However, as the authors of these studies did not control for initial levels of aggression (conduct problems), it is possible that these thought patterns served as markers or consequences of earlier maladjustment.

I was able to find only two studies where the authors controlled for initial levels of aggression. In a study by Huesmann and Guerra (1997), normative beliefs (i.e., a belief in the acceptability of the behavior) predicted increases in aggression over a one-year interval among older elementary school children. In another study, Egan et al. (Egan, Monson, & Perry, 1998) found that aggression-encouraging social cognitions (self-efficacy and outcome expectations for aggression) fostered aggression for boys who had high base levels of aggression and low base levels of victimization. In addition, Fontaine et al. (Fontaine, Burks, & Dodge, 2002) found that response decision processes predicted externalizing problems over time. Recently, Fontaine et al. (Fontaine, Yang, Dodge, Bates, & Pettit, 2008) also provided support for the bi-directional longitudinal influence between response decision processes and externalizing problems. However, one of the weaknesses of these last two studies is that the response decision scale was an aggregation of conceptually distinct constructs (e.g., self-efficacy beliefs and outcome expectations; Fontaine et al., 2008), and the externalizing score was a composite of different aggressive behaviors and delinquency.

Furthermore, cognition-aggression links are usually rather modest, suggesting that not all children act on their aggressive thought patterns. Certain environmental conditions can enhance or inhibit these cognition-aggression links. For instance, as reviewed above, cognitions fostered aggression only when children had already experienced positive reinforcement for their aggression (Egan et al., 1998). In addition, children are likely to act out their cognitions against targets who have personal (anxious, dysregulated) and interpersonal difficulties (rejected, without friends) as the likelihood of counter-attack is decreased due to the targets' inability to successfully defend themselves and no one sticking up for them. In contrast, children who are strong and have a network of friends who can defend them are less likely to be chosen as future targets (Hodges, Boivin, Vitaro, & Bukowski, 1999; Hodges & Perry, 1999).

2. PURPOSE OF THE STUDY

The main purpose of this study was to examine the effect of relationship context on children's social-cognitive evaluations and behavior. More specific study questions were as follows:

1. Do children show different social-cognitive evaluations toward their friends, enemies, and neutral acquaintances? Does the relationship effect hold when the reputation of the target peers is considered? (Study I)
2. Do children's social-cognitive evaluations change according to the affect felt toward the peer? Do relationship-specific social cognitions predict relationship-specific behavior? (Study II)
3. Does relationship-specific information processing occur automatically? (Study III)
 - a) Is affective relationship-specific information elicited by pre- or postattentive priming? (Experiments 1 and 2)
 - b) Are relationship-specific social cognitions elicited automatically? (Experiment 3)
4. Does stability of dislike felt toward the peer increase the probability of aggression-encouraging cognition translating into aggression? Does the aggressiveness of the actor and target further modify the cognition-aggression links? (Study IV)

3. METHOD

3.1. Participants

The samples of the four studies consisted of fourth- to sixth-grade children throughout Estonia (Study I), a country with approximately 1.4 million inhabitants, and Turku (Studies II to IV), a town with approximately 175,000 inhabitants in Finland. Children in Study I were randomly selected from among 442 boys and girls (from ten public schools) who filled in a social adjustment measure in Spring 2003. Individual interviews were carried out in February-March 2004. Participants in Studies II to IV took part in a longitudinal project, consisting of three measurement waves within one year (Time 1: Spring 2005; Time 2: Fall 2005; Time 3: Spring 2006). Children attended six public schools in the area of Turku. In Study II, the data from the initial wave (Spring 2005) of the longitudinal study was used. Experiments (Study III) were carried out in late Fall 2005 and participants were randomly selected from among children taking part in the longitudinal data collection who had nominated, at least, two same-sex peers they liked the most and least during the second measurement wave (i.e., earlier in the Fall of 2005). In Study IV, portions of the data from the first (Spring 2005) and third (Spring 2006) measurement waves of the longitudinal project were analyzed. Information about sample characteristics and time of data collection is displayed in Table 1.

All participating children were in their middle childhood or early adolescence. The reason for selecting the particular age group was twofold: 1) children had spent enough time around their classmates to form a more stable representation of each classmate, and 2) younger children might be less sensitive to the contextual effects (e.g., due to cognitive immaturity) (e.g., McDowell, Parke, & Spitzer, 2002).

Table 1. *Sample characteristics of each study and time of data collection*

| | Study I | Study II* | Study III* | | | Study IV* |
|----------|------------------------|-----------------------|----------------------|----------------------|----------------------|-----------------------------|
| | | | Exp 1 | Exp 2 | Exp 3 | |
| Grade | 4 | 5 | 6 | 6 | 6 | 5 and 6 |
| Age | M = 10.47, SD = .55 | 11-12 | 12-13 | 12-13 | 12-13 | 11-12 (at Time 1) |
| Sex | 75 boys, 69 girls | 119 boys, 90 girls | 12 boys, 12 girls | 20 boys, 10 girls | 20 boys, 10 girls | 109 boys, 86 girls |
| <i>N</i> | 144 | 209 | 24 | 30 | 30 | 195 |
| Time | Early spring 2004 | Spring 2005 | Fall 2005 | Fall 2005 | Fall 2005 | Spring 2005, Spring 2006 |

Note. Exp – Experiment. * – Samples belong to the longitudinal project. Age is measured in years.

3.2. Measures

In all four studies, we first identified three targets/relationships for each child (see a more detailed description for each study below). Social cognitions were measured using similar hypothetical vignettes used by the Conduct Problems Prevention Research Group (e.g., Zelli et al., 1999) and Hughes et al. (Hughes, Meehan, & Cavell, 2004). Vignettes described a provocation or rebuff toward the focal child by the target instigator (Studies I, II, and IV) or a hypothetical same-sex peer (Experiment 3 in Study III). An overview of the cognitions measured and questions asked in each study is displayed in Table 2. In addition, children participated in a peer-nomination procedure (all studies) and filled in a relationship-specific behavior measure (Studies II and IV).

3.3. Procedure

All participating children had received parental permission to take part in the data collection. Testing sessions were carried out individually (Studies I and III), or in a group setting (Studies II and IV) during regular school hours. Participants were always ensured about the confidentiality of their responses and received a small thank-you gift for their collaboration.

3.4. Study I

3.4.1 Participants

Participants were 144 fourth-grade boys and girls who were randomly drawn (using a random sampling option in the program STATISTICA) from a sample pool of 442 children (see also Table 1). Initially, 160 children were selected, however, 16 children had left the particular school or were absent from school when the interviews were conducted. In addition, we excluded 7 children from the main analyses as they had an enemy and neutral relationship with the same peer.

3.4.2 Identification of the target peers

For each child, we identified three targets/relationship types via relationship descriptions. More specifically, children nominated a same-sex peer who fit the respective relationship description (friend, enemy, neutral) the best. Although relationships were identified by relying on a child's perception, all three descriptions included the aspect of mutuality. Most children were able to nominate one of their classmates who fit the description of the relationship type. Three children had a friend outside of their own classroom. The same index (relationships outside own classroom) for the enemy and neutral category was 3 and 1, respectively. Descriptions of each relationship are:

Enemies

At first/Now think about a boy (girl) from your class with whom you do not get along well. You do not like the boy (girl) and he (she) does not like you either. You quarrel with each other. You have not been getting along for a while already.

Table 2. *Cognitions in each study*

| Study | Construct | Example of the question | Question format | Response coding |
|-----------------------------|---|---|-----------------|---|
| Study I | Hostile attributions | 1. Why do you think ___ (name) bumped you?; 2. Do you think ___ (name) wanted to bump you or not? (optional question) | Open/ Closed | 1 = hostile 0 = nonhostile |
| | Behavioral strategies | What would you do after ___ (name) has bumped you? | Open | 1. hostile ^a 2. verbal/assertive 3. passive |
| Study II | Hostile attributions | 1. Why do you think ___ (name) splashed you with mud?; ^b 2. Was ___ (name) mean or not? | Closed | 1 = hostile 0 = nonhostile |
| | Relational outcome expectations for aggression | If you pushed ___ (name) into the puddle, would he/she like you after that? | Closed | 1 = definitely not, 2 = maybe not, 3 = maybe yes, 4 = definitely yes |
| | Instrumental outcome expectations for aggression | If you pushed ___ (name) into the puddle would it stop him/her from splashing you in the future? | Closed | 1 = definitely not, 2 = maybe not, 3 = maybe yes, 4 = definitely yes |
| | Self-efficacy beliefs for aggression | How easy or hard would it be for you to push ___ (name) into the puddle? | Closed | 1 = very easy, 2 = easy, 3 = hard, 4 = very hard (reverse coded) |
| Study III (Experiment 3) | Hostile attributions | Did he/she intend to harm you? | Closed | -250 (definitely no) to +250 (definitely yes) ^c |
| | Anger | Would you be angry at him/her? | Closed | -250 (definitely no) to +250 (definitely yes) |
| | Retaliation | Would you do something to get even? | Closed | -250 (definitely no) to +250 (definitely yes) |
| Study IV | Hostile attributions | | See Study II | |
| | Expectations of anger | How angry would you feel in this situation? | Closed | 1 = not angry at all, 2 = somewhat angry, 3 = angry, 4 = very angry |
| | Expectations of sadness | How sad would you feel in this situation? | Closed | 1 = not sad at all, 2 = somewhat sad, 3 = sad, 4 = very sad |
| | Self-efficacy beliefs for aggression | | See Study II | |

Note. ^a—Original six mutually exclusive categories were collapsed into three. ^b—Four alternatives were presented to the first question that were later coded as one of the two categories (hostile vs. nonhostile). ^c—The response scale varied from -250 to +250, however, participants saw only two labels (*definitely no* and *definitely yes*) presented at the endpoints of the scale. Children provided their responses by moving the vertical line along the scale.

Friends

At first/Now think about a boy (girl) from your class who is your best friend. You regard him (her) as your best friend and he (she) considers you his (her) best friend. You spend a lot of time together. You are having fun together. You have been friends for a while already.

Neutrals

At first/Now think about a boy (girl) from your class whom you do not know well. It does not mean that you do not like him (her) or he (she) does not like you. You do not know each other so well to be sure if you like each other or not.

3.4.3 Social cognition

The target peer identification was immediately followed by the social-cognitive task. Social cognitions were measured by presenting children with hypothetical peer provocation and rebuff stories (see examples below) about each of their three previously identified targets. Two stories were presented per each relationship type. Whereas the behavior of the target peer had a negative consequence for the child, the intent of the peer was always displayed as ambiguous.

Peer Provocation

Pretend that there is a gingerbread exhibition at school. You have brought your own gingerbread house there as well. You have been building the house for days. Suddenly, you are just putting the gingerbread house on the table, when (classmate's name) bumps you, and your house falls down and breaks into pieces.

Peer Rebuff

Pretend that you are going to the playground where (classmate's name) and some other classmates are playing an exciting game. You would also like to take part in the game. You go over and ask, "Can I join the game as well?" (Classmate's name) says, "No! There cannot be any other participants in the game!" At the same time you see other kids laughing.

All stories and questions were read out loud by an interviewer. We assessed two types of cognitions: attributions of hostility and behavioral strategies. Both constructs were measured with open-ended questions (see Table 2). In the case of intent attributions, a second question (closed question) was asked if the interviewer was not sure how to code the response or the child did not give a response. Responses were coded as one of the two (in the case of hostile attributions) or six (in the case of behavioral strategies) pre-determined categories adapted from the Scoring Manual for the Child Interview (Brown & Lemerise, 1990). The six behavioral strategy categories were later collapsed into three (hostile, verbal/assertive, passive). Interrater agreement on 168 responses of 28 children was .98 and .99 for hostile attributions and behavioral strategies, respectively.

3.4.4 Behavioral and sociometric reputation

Children filled in the Multidimensional Peer Nomination Inventory (*MPNI*; Pulkkinen, Kaprio, & Rose, 1999) that covers a wide spectrum of adjustment indices. This measure

was administered in the Spring of 2003 (approximately a year before interviews were conducted). Participants were asked to nominate up to three girls and three boys who fit the description in an item (e.g., *Which of your classmates seem to be sad and depressed a lot of the time?*; *Which of your classmates tease other kids or attack them for no reason at all?*). For each child, we summed the nominations received for the particular item and divided it by the number of nominators. Scale scores (aggressive behaviors, internalizing problem behaviors, and adaptive behaviors) were computed by averaging across respective items. In addition, a rejection score was created by taking the proportion of peers who nominated the child on the following item: *Who are the classmates you least like to spend time with?*

Moreover, in order to eliminate the possibility that reputation of the child might change with time and thus influence our results, we also collected teacher ratings for the same behavioral and sociometric reputation constructs at the same time as social cognitions (February-March 2004). Teachers (one per each classroom) received a list with all the names of the students. Peer-nomination items with the highest loadings (three to four items depending on the scale) to their main factor were selected to be included in the teacher questionnaire. Teacher-ratings (utilizing a 1-3 response format) were averaged across the respective items. In addition to the three behavior scale scores, we also included an index of teacher-rated social reputation (i.e., *Most of the classmates do not want to be with him/her*). All scales (teacher- and peer-nomination) were internally reliable (Cronbach alpha ranged from .74 to .94). We then formed 2 (informant: teacher, peers) x 4 (adjustment index: aggressive behaviors, internalizing problem behaviors, rejection, adaptive behaviors) reputation variables for children and their three targets.

3.5. Studies II & IV

3.5.1 Participants

The original sample for Studies II and IV consisted of 266 students (fifth-graders in the Spring of 2005), however, 19 children (7%) did not receive parental permission and one child was absent from school when the (first) assessment took place. In addition, in Study II, we eliminated 24 children for whom we had identified the same peer as a disliked and neutral target, and 13 children who could not find anyone for the disliked and/or neutral peer category. The final sample included 209 children (see Table 1).

In Study IV, we excluded (from among 246 children) 10 children who had left the particular class by the second measurement point (Spring 2006), and 41 children for other reasons (i.e., the identified target did not have parental permission, the target had left the particular class by the second measurement point, the child did not nominate anyone for disliking, or problems with filling out the questionnaire forms during the

first or second measurement point). The final longitudinal sample included 195 subjects (79% of the sample taking part in the first measurement point). Whereas we analyzed the data on social cognitions and behavioral/social reputation from the first measurement point (Spring 2005), information about relationship-specific behavior was obtained from Spring 2005 and Spring 2006.

3.5.2 Identification of the target peers

In Studies II and IV, children participated in a sociometric nomination procedure where they were asked to nominate up to three same-sex peers who fit the description in an item (liked peer: *Who are the classmates you like the most?*; disliked peer: *Who are the classmates you like the least?*; neutral peer: *Who are the classmates you do not really like or dislike?*). In addition, participants ranked the nominated peers with 1 representing the peer who best fit the description. First, pairs of children who reciprocated each other's nominations were identified. If the child had several reciprocal relationships, the peer who received the highest ranking from the child was chosen to represent the respective target type. If none of the child's nominations was reciprocated, a unilaterally nominated peer served as a target. In Study II, 28 (13.4% out of 209) participants did not receive a single reciprocal nomination for liking. Moreover, one hundred and two (48.8%) and 121 (57.9%) children did not have a reciprocal relationship with their nominated disliked and neutral peer, respectively.

Whereas in Study II, three target types were examined, in Study IV, the focus was only on the context of dislike. Approximately 56% ($n = 109$) of the children had a target who reciprocated their dislike. In addition, we examined whether the disliked target (identified at Time 1) was nominated among three disliked peers a year later (Spring 2006). We found that 110 children (56.4%) still disliked their target after a one-year interval, whereas the remaining 85 subjects (43.6%) did not nominate their disliked target among their three disliked peers at the second measurement point.

3.5.3 Social cognition

Social cognitions were measured using hypothetical vignettes adapted from Hughes et al. (2004). The target peers were identified approximately 1-2 weeks before the social cognitive questionnaire was administered. Vignettes described a provocation toward the focal child by the target peer. The intent of the peer was always ambiguous. Whereas the vignettes and questions about social cognitions were typed on a paper, the names of the identified disliked, liked, and neutral targets were hand-written into the social-cognitive questionnaire. There were four stories presented per relationship type. An example of the story is:

Provocation

Imagine that you are walking home after school. It is a rainy day and there are mud puddles everywhere. Suddenly (classmate's name) runs by you and hits a puddle, and mud splashes all over you. All your clothes are now dirty and wet, and you are cold.

Each vignette was followed by questions measuring different social information processing steps (see Table 2). More specifically, we assessed hostile attributions and self-efficacy beliefs for aggression in both studies. In addition, whereas items tapping relational and instrumental outcome expectations were included in Study II, expectations of anger and sadness were assessed in Study IV. Scores were derived by averaging respective items across four vignettes. Whereas in Study II, social cognition scores were computed per each relationship type (i.e., liked, disliked, neutral), in Study IV, only the scores within the relationship marked by dislike were analyzed. Internal reliabilities ranged from .64 to .90 (Study II), and .82 to .90 (Study IV).

3.5.4 Behavioral and sociometric reputation

Participants also filled in a peer-nomination questionnaire. Although we assessed different adjustment constructs, items measuring reactive and proactive aggression (Studies II and IV), and victimization (Study II) were used to evaluate children's and their targets' behavioral reputation. Aggression items (e.g., *Who are the kids who get angry easily and who strike back when they are teased or threatened?*; *Who are the kids who threaten and bully others?*) were derived from the scale developed by Dodge and Coie (1987). The victimization scale consisted of items from the inventory developed by Perry et al. (Perry, Kusel, & Perry, 1988). In addition to the original items, we added an item measuring relational victimization (i.e., *Who are the kids who have had rumors spread about them?*). For each item, participants were allowed to nominate only up to three same-sex peers. For each child, nominations they had received from their same-sex classmates were summed for each item and divided by the number of possible nominations. Scale scores were created by averaging across the respective items. Internal reliabilities ranged from .80 to .90 (Study II) and .81 to .89 (Study IV). In Study II, we computed three reputation indices (i.e., reactive aggression, proactive aggression, victimization) for children as well as their targets. In Study IV, the same procedure was followed with regard to reactive and proactive aggression.

3.5.5 Target-specific behavior

A self-report questionnaire was developed to assess the behavior toward (and from) different peers. Children received a questionnaire form with the names of their same-sex peers. Each item was presented on the top of the separate sheet and the names of the peers were displayed in a column on the left. The number of pages

thus corresponded to the number of items. The participants' task was to evaluate on a 5-point scale ($0 = \textit{never}$, $1 = \textit{almost never}$, $2 = \textit{sometimes}$, $3 = \textit{almost all the time}$, $4 = \textit{all the time}$) how frequently they engaged in the described behavior toward each same-sex classmate and were victimized by each same-sex peer. Although the questionnaire taps a variety of behavioral constructs, only items measuring reactive and proactive aggression, and victimization were used to fulfill the purpose of the present study. The content of the items was identical to the peer-nomination items (e.g., *I threaten and bully ___ [classmate's name]*). An average across the respective items was created with regard to each identified target (Study II: liked, disliked, and neutral; Study IV: disliked target). Whereas in Study II, children's own perceptions about their behavior within different relationships were employed, in Study IV, the relationship partner (i.e., the disliked target) was used as a source of information. Namely, in order to investigate child A's (i.e., actor's) aggression toward child B, we examined whether child B perceived to be victimized by child A. This allowed us to eliminate a potential problem of shared method bias (i.e., cognitions and behaviors both measured from the actor's perspective). The average reliability for the target-specific measure was .70 (Study I: across three target types and behavioral constructs) and .86 (Study IV: across two time points).

3.6. Study III

3.6.1 Participants

In the Fall of 2005, children participating in the Turku longitudinal project were selected to take part in three experiments. Twenty-four children participated in Experiment 1 (see also Table 1). Thirty boys and girls who did not participate in the first experiment took part in Experiment 2. In addition, 30 children who had already taken part in the first or second experiment took part in a hypothetical vignette task (Experiment 3). All children had received permission to participate in the experiment. In addition, all selected participants had nominated at least two liked and two disliked peers in the peer-nomination procedure (the same task in which children in Studies II and IV participated) that occurred earlier during the same fall.

3.6.2 Experimental stimuli and procedure

In all three experiments, black-and-white photographs of two same-sex peers whom each child had nominated for disliking and liking, and photographs of two unknown peers served as stimuli (primes). Thus, whereas in Studies I and II, a neutral target referred to someone whom children did not know so well (an acquaintance), in Study III, neutral primes were peers whom children did not know at all. Photos displayed the faces with a neutral expression. In Experiments 1 and 2, 28 black-and-white photographs of females and males with angry and happy facial expressions (Ekman

& Friesen, 1976) were used as probe stimuli. In Experiment 3, instead of the probe photos, hypothetical vignettes were presented (one at a time) on a computer screen (see Study 1 for sample stories). Vignettes described a provocation or rebuff toward the focal child by the hypothetical same-sex peer. Each vignette was followed by questions (one at a time) measuring attributions of hostility, anger experience, and willingness to retaliate. An example of the sequence of events in each experiment is displayed in Figure 1. All experiments were carried out on a portable computer. In Experiments 1 and 2, children were asked to ignore the prime, and categorize, as fast as possible, the probe pictures as happy or angry. In Experiment 3, participants were told that they would be presented with social situations and their own reactions to these situations. They were informed that they would see some pictures of the faces during the experiment totally irrelevant to the purpose of the actual experiment. Whereas in Experiment 1, the prime was displayed for 50 ms, followed by the presentation (50 ms) of a blank screen (high visibility) or a structural greyscale mask (low visibility), in Experiment 2, the display time of the prime was 150 ms which was always followed by a blank screen, displayed for 150 or 300 ms (thus, we manipulated the stimulus onset asynchrony, SOA). In Experiment 3, the prime was presented for 150 ms, followed by the display of a blank screen for 300 ms. All experiments started with trials to introduce the task to the participants.

As children's primes (targets) were chosen approximately one month before the experiments were conducted (which could possibly result in changes in affect felt toward the particular peer), children participated in a new sociometric nomination procedure followed right after children had taken part in the experiment. This allowed us to calculate the stability of liking and disliking felt toward the particular peer (the stability was, on average, over 70%). In addition, in order to exclude the possibility that priming effects would be due to liked peers being more attractive than disliked peers, attractiveness of the faces was assessed by an independent sample of same-sex (and same-age) peers. Attractiveness ratings did not differ across the three prime categories in any of the three experiments.

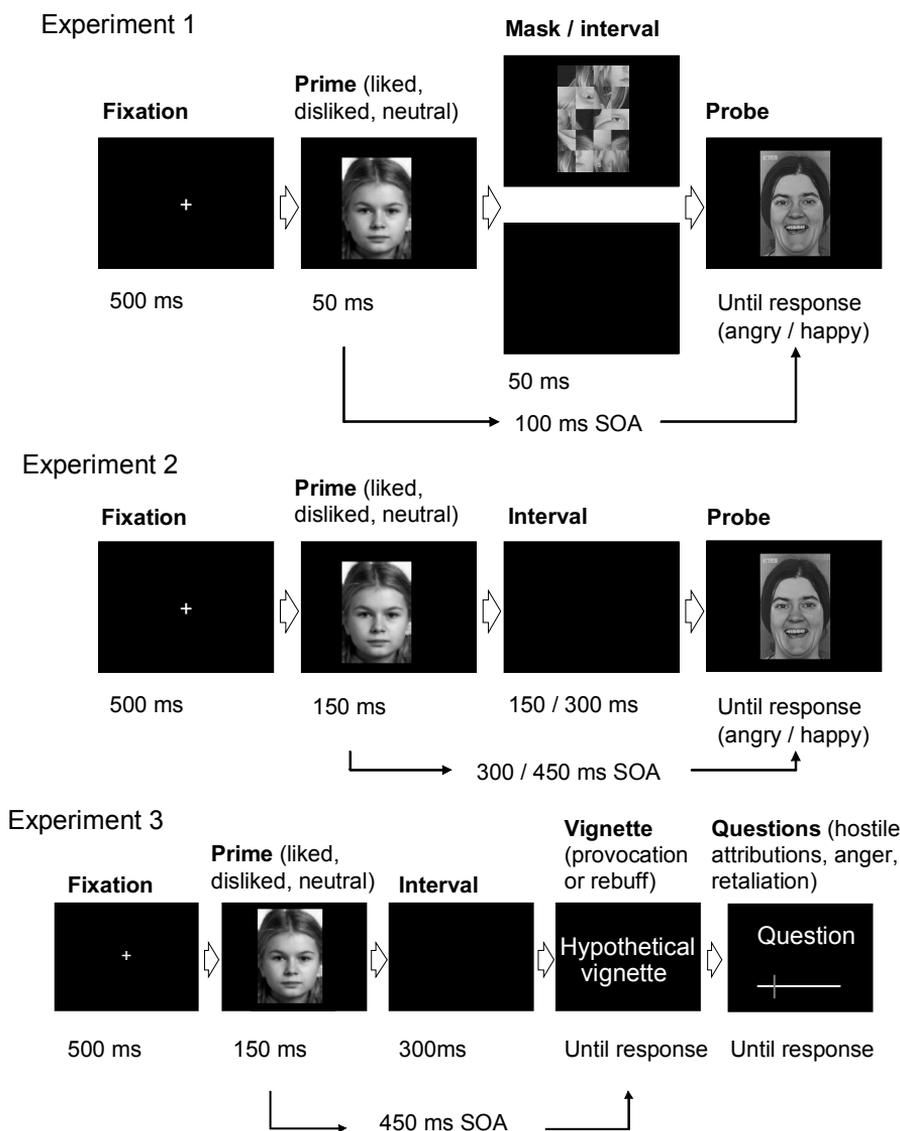


Figure 1. A sequence of events in each experiment

3.7. Statistical analyses

Statistical analyses (and software) varied according to the purpose of the particular study. As target or relationship types can be regarded as nested within individuals, a multilevel modeling approach (Studies I and II) was used to deal with the hierarchical organization of the data (Mplus 3.0; Muthén & Muthén, 1998-2004). By employing multilevel modeling we were able to extract the variance in the score into two sources (relationship- and individual-level variance), and model associations between study variables at the target/relationship and individual level. In addition, a software package SPSS was used to run descriptive statistics and other analyses such as repeated measures (mixed) analysis of variance and hierarchical regression analysis.

4. OVERVIEW OF EMPIRICAL STUDIES

STUDY I

Peets, K., Hodges, E. V. E., Kikas, E., & Salmivalli, C. (2007). Hostile attributions and behavioral strategies in children: Does relationship type matter? *Developmental Psychology*, 43, 889-900.

The main purpose of this study was to examine whether children's social-cognitive evaluations would vary according to the relationship between two children. Specifically, we investigated children's intent attributions and behavioral strategies (i.e., hostile, verbal/assertive, passive) toward three target types (friends, enemies, and neutral peers). The sample consisted of 144 fourth-grade students from Estonia who were randomly selected from a larger sample pool ($N = 442$). In spring 2003, children completed a peer-nomination measure of social adjustment (e.g., aggressive behaviors, rejection, internalizing problem behaviors, adaptive behaviors). Approximately a year later (February-March 2004), children participated in individual interviews. First, three target peers (i.e., friend, enemy, and neutral acquaintance) were identified on the basis of the relationship descriptions. Children were then verbally presented with peer rebuff and provocation situations where the names of the target peers were used. Whereas the target peer's actions had a negative consequence for the child, the intent of the peer was always displayed as ambiguous. In addition to peer nominations that were collected almost a year prior to conducting interviews, we obtained teacher ratings for the same constructs at the same time when social cognitions were assessed. We used multilevel modeling where the variance in relationship-specific scores was divided into two components: 1) variance due to different target types (within or relationship level); and 2) variance due to individual differences (individual level). Results showed that the affective valence of the relationship had a significant effect on social-cognitive evaluations. All social cognitions varied across different relationships contexts. Surprisingly, for hostile attributions, as much as 87% of the variance was due to children cognitively differentiating between their target peers (see also Table 3). More specifically, children attributed the most hostility to their enemies, and the least to their friends. In addition, the more hostility was attributed to a peer, the higher the likelihood of choosing an aggressive behavioral response. Moreover, the relationship effects held even when the reputation of the target peers (measured via peer- or teacher-reports; e.g., aggressiveness) was controlled.

Table 3. *Percentage of relationship-specific variance in social cognitions and behaviors*

| Target-specific variable | Study I | Study II |
|-----------------------------------|---------|----------|
| Social cognition | | |
| Hostile attributions | 87% | 98% |
| Behavioral strategies | | |
| Hostile | 79% | - |
| Verbal/Assertive | 69% | - |
| Passive | 73% | - |
| Relational outcome expectations | - | 83% |
| Instrumental outcome expectations | - | 67% |
| Self-efficacy beliefs | - | 43% |
| Behavior | | |
| Reactive aggression | - | 78% |
| Proactive aggression | - | 65% |
| Victimization | - | 88% |

Note. – indicates that the particular social cognition or behavior was not measured in the study.

STUDY II

Peets, K., Hodges, E. V. E., & Salmivalli, C. (2008). Affect-congruent social-cognitive evaluations and behaviors. *Child Development*, 79, 170-185.

In this study we examined whether social-cognitive evaluations and behaviors varied as a function of the affect felt toward the peer, and whether cognitions about a specific peer were linked to aggression toward (and from) the peer. The sample consisted of 209 fifth-grade boys and girls (11-12 years old). For each child, three target peers (liked, disliked, and neutral) were identified by means of sociometric questions (i.e., *Who are the classmates you like the most?*; *Who are the classmates you like the least?*; *Who are the classmates you do not really like or dislike?*). First, pairs of children who reciprocated each other's nominations for a particular item were identified. However, children who had a unilateral relationship with the target were also included in the analyses. The names of the identified targets were then inserted into the social-cognitive questionnaire that consisted of hypothetical vignettes (where the target peer's actions had a negative consequence for the child) followed by questions measuring different social cognitions (i.e., hostile attributions, relational and instrumental outcome expectations for aggression, and self-efficacy beliefs for aggression). Thus, each child filled in the questionnaire with regard to each target. Children also provided information about the frequency of aggression (reactive and proactive) and victimization within each relationship type. Moreover, peer nominations were collected to assess children's and their targets' behavioral reputation. Data analyses were conducted using multilevel modeling. Results showed that whereas some social cognitions, such as hostile attributions, were highly relationship-specific, self-efficacy beliefs for aggression acted more as personality-like characteristics (see Table 3) and influenced aggression across different relationship

contexts (at least for boys). Moreover, children reported more aggression-encouraging cognitions and aggression toward (and from) the disliked target (even when controlling for the reputation of the targets). Importantly, relationship-specific social cognitions were linked to relationship-specific behavior. However, we did not find strong support for the unique cognitive correlates of reactive and proactive aggression. Our findings suggest that affect-congruent social-cognitive evaluations and behavior can contribute to maintaining the established negative or positive affect toward the peer.

STUDY III

Nummenmaa, L., Peets, K., & Salmivalli, C. (in press). Automatic activation of adolescents' peer-relational schemas: Evidence from priming with facial identity. *Child Development*.

Despite the fact that most of social information processing is assumed to be highly automatic, research examining social-cognitive patterns have usually relied on reflective measures such as hypothetical vignettes. In addition, children have different relationships characterized by a unique representation of self and interaction partner, and of an expected interaction pattern (i.e., relational schemas) that is likely to influence how the (new) information is processed. We conducted three experiments to examine 1) relationship-specificity, 2) automaticity, and 3) emotional components of information processing by using an affective priming paradigm. Participants were sixth-grade boys and girls. In all three experiments, photos of liked and disliked classmates (whom children had individually nominated), and unknown peers (from a different school) with neutral facial expressions served as primes. In Experiments 1 and 2, after displaying a prime, the participants' task was to categorize happy and angry probes (i.e., pictures of females and males with happy and angry facial expressions) as fast as possible. In Experiment 3, primes were followed by hypothetical vignettes where a hypothetical peer instigator rebuffed or provoked a focal child (see Figure 1). In addition, whereas in Experiment 1, primes were displayed for 50 ms, followed by the 50 ms exposure of a blank screen (high visibility) or a grayscale mask (low visibility), in Experiment 2, the display time of the prime was 150 ms which was followed by the presentation of a blank screen (150 ms vs. 300 ms). In Experiment 3, the exposure of the prime lasted for 150 ms, followed by the presentation of a blank screen (300 ms). All primes and probes were displayed on a computer screen. A priming effect was found in Experiment 2 where the reaction times for congruent prime-probe pairs (disliked peers-angry face, liked peers-happy face) were faster than for incongruent pairs (disliked peers-happy face, liked peers-angry face) but only when the stimulus-onset-synchrony (SOA) was longer (450 ms). In addition, in Experiment 3, participants attributed less hostility, felt less anger, and were less retaliative toward a hypothetical peer when the liked peer served as a prime (as compared to the disliked and neutral prime condition). Results indicate that facial primes

elicit relationship-congruent affect automatically but, due to the complex stimulus that has to be processed, it takes some time (in this study, 450 ms). Furthermore, Experiment 3 showed that, in addition to the affective component, cognitive elements of relationship-specific representations (relational schemas) are also activated automatically.

STUDY IV

Peets, K., Hodges, E. V. E., & Salmivalli, C. (2008). Actualization of target-specific cognitions into aggressive behavior. Manuscript under review in *Child Development*.

Although there is considerable evidence showing the role of social cognitions in aggressive behavior, majority of studies have been concurrent. Some longitudinal studies have been conducted but most have failed to control for initial levels of aggressive behavior. As cognitions can be outcomes or correlates of (earlier) adjustment problems, these designs do not allow for making conclusions about the direction of the effects. Moreover, as aggressive behavior primarily occurs in an interpersonal context, stronger effects might be gained if cognition and behavior were measured in relation to the particular interaction partner. In this study, we examined the cognition-behavior links in the context of negative affect (e.g., toward personally disliked targets). More specifically, we investigated whether the actualization of social cognitions (hostile attributions, expectations of anger and sadness, and self-efficacy beliefs for aggression) into aggression would be enhanced when the target was chronically disliked over time. Moreover, these links were expected to be further moderated by aggressiveness of the actor (i.e., child) and target. As initial levels of target-specific aggression were controlled for, we examined relative changes in aggression toward the target. The sample consisted of 195 children (11-12 years old at Time 1) who filled in the questionnaires twice over a one-year interval. First, for each child, a disliked target was identified via a sociometric nomination procedure. Chronicity of dislike was determined by examining the proportion of children who nominated the identified target among three disliked peers a year later ($n = 110$; 56%). Target-specific aggression was assessed using the target as a source of information (i.e., whether the target perceived to be victimized by the child). In addition, initial levels of peer-nominated reactive and proactive aggression of the actor and target were calculated. Significant cognition-aggression links were found only when the peer was disliked at both time points. None of the cognitions predicted changes in aggression when children no longer disliked their target. Moreover, cognitions translated into aggression the strongest when the child or the target had high base levels of aggression in their behavioral repertoire, providing support for the notion that cognitions promote aggression when there is support from the environment (Egan et al., 1998). More specifically, actor's reactive (in the case of hostile attributions) and proactive aggression (in the case of self-efficacy beliefs), and target's reactive aggression increased the probability of children acting on their aggressive thought patterns. Our findings suggest that target-specific measures can increase the predictive validity of social cognitions.

5. GENERAL DISCUSSION

Most research on social cognition and interpersonal behavior has focused on searching for relatively invariant cognitive dispositions that could explain certain behavioral tendencies. For instance, there is a well-established finding that hostile attributions characterize aggressive children. However, this personality-like approach concentrates on explaining individual differences and does not investigate the source of variability that exists within each individual. As most of us form different relationships throughout our lifetime, we are likely to develop thoughts and behavior unique to each relationship. In this thesis, four complementary studies were conducted to examine the role of relational context in social-cognitive evaluations and behavior. More specifically, I investigated how emotional ties between children influence their thinking and interpersonal behavior.

Results show that children are very sensitive to different relationship contexts, with most of the variance in relationship-specific variables stemming from the differences children make between the target types (Studies I and II). However, different constructs varied in their degree of relationship-specificity (see Table 3). For instance, attributions of hostile intent were highly context-specific. When the variance due to the relationship component was taken into account, individual differences in mean levels of hostile attributions became almost nonexistent (13% in Study I and 2% in Study II). Interestingly, although self-efficacy beliefs for aggression varied considerably between the target types, this construct is relatively more actor-driven (57% of the variance existed between individuals) than other social cognitions. These results might not be so surprising if we think of what these two constructs are meant to measure. Self-efficacy refers to the perception of the *capabilities of the self*, and although views of self are assumed to vary across relational contexts (Andersen & Chen, 2002), it is still reasonable to believe that the perception of self is relatively more invariant, whereas the view of others (e.g., whether another person is hostile or not) changes drastically depending on the relationship context. Salmivalli and Peets (2008) provided evidence for this assumption by finding that whereas views of self and other peers varied significantly across different relational contexts, the perception of self was somewhat more invariable than the perception of others.

More specifically, in Study I, children attributed more hostility and proposed more retaliative responses toward their enemies than toward other peers. In Study II, when the disliked peer served as a target, children inferred more hostility, expected fewer positive relational and instrumental outcome expectations for aggression, and held higher self-efficacy beliefs for aggression. Thus, the behavior of the peers who are liked vs. disliked is interpreted in light of an existing valence of the affect felt toward these peers. A negative behavior of liked peers, or friends, is attributed to benign or accidental reasons,

whereas a negative act by disliked peers, or antipathies, is first of all seen as intentional (see also Hymel, 1986). Interestingly, children held fewer positive outcome expectations but higher self-efficacy beliefs for aggression in the case of disliked peers. Although it is much easier for children to aggress toward the peers with whom they have established negative emotional ties, they might know from their experience that it is not very likely, for instance, that aggression would stop the peer from bumping them in the future. These affect-congruent social-cognitive evaluations are likely to contribute, at least partly, to maintaining the existing relationship with the peer. These results are in accordance with other recent studies showing that social information processing varies with the relational context (e.g., Burgess, Wojslawowicz, Rubin, Rose-Krasnor, & Booth-LaForce, 2006; Hubbard et al., 2001).

Importantly, in addition to children making a distinction between different interaction partners with regard to social-cognitive evaluations, children also differentially distributed their behavior (Study II). Whereas victimization, as well as reactive and proactive aggression varied significantly between liked, disliked, and neutral peers, victimization showed the highest degree of relationship-specificity (88% of the variance). Moreover, aggression (both types) and victimization were most common in the context of negative dislike. Similar results were found in a study by Card and Hodges (2007) who showed that although victimization occurs in friendships, negative affect serves as a context where victimization is most likely to occur and be associated with maladjustment.

Social cognitions and behavior toward neutral peers (acquaintances) were usually less hostile in nature than toward disliked peers (or enemies). Differences between neutrals and liked peers were less pronounced, and sometimes, at first glance, in an unexpected direction. For instance, girls tended to report less frequent reactive and proactive aggression toward their neutral than liked peers. However, there is indeed evidence that friendships are not conflict-free. What makes friendships different from other relationships is that children are more interested in solving the conflicts with the peers they like and with whom they want to keep a positive relationship. In contrast, in the case of acquaintances, children, and especially girls, might not really care about investing any effort into these relationships (see a meta-analysis by Newcomb and Bagwell, 1995). For instance, Hartup and colleagues (Hartup, Laursen, Stewart, & Eastenson, 1988) studied the conflict in friendships and neutral relationships among young children and found that the presence of aggressiveness did not differentiate between different relationship types. However, in the case of friends, conflicts were less intense and children were more likely to continue interacting with each other. In addition, Burgess et al. (2006) found that children proposed avoidant coping strategies less frequently in the case of friends than unfamiliar peers. Alternatively, our results reflect responses by girls whose friendships are more aggressive and conflictuous in nature.

As past research has shown that the reputation of the peers has an effect on the way children process information about these peers (Dodge, 1980; Dodge & Frame, 1982; Perry et al., 1986), it was tested whether the relationship effect could be just an artifact of the behavioral or social reputation of the targets. First, the results showed that different peer reputation indicators influenced social cognitions and behavior in the expected manner. Children tended to infer more hostility from reactively aggressive targets but held higher self-efficacy beliefs toward victimized targets (Study II). However, although disliked targets (enemies) were overall more aggressive and victimized, the relationship with the target always remained a significant predictor of relationship-specific social-cognitive evaluations (Studies I and II) as well as the behavior (Study II). Thus, in addition to objectively assessed reputation indicators, subjective affect toward another peer influences the way children think and behave. This is understandable if we think of the heterogeneity of children's peer interactions. Although our study also showed that the peers who were disliked by several children were overall more aggressive and victimized (see Study II), children tend to like peers who are similar and dislike dissimilar peers (Nangle et al., 1996). Accordingly, an aggressive child can have a positive affect toward another aggressive peer, and thus process information in a positive light.

More importantly, social-cognitive evaluations about the peer were associated with behavior toward (from) the same peer (Study II). For instance, the more hostility was attributed and fewer instrumental outcomes for aggression expected in a relationship, the more frequent victimization was reported from the target peer. In addition, reactive, and not proactive, aggression was linked to victimization experiences within the relationship. This is in accordance with the finding on dyadic exchanges (Hubbard et al., 2001). Inferring hostility from another peer increases the likelihood of angry retaliation, which in turn might trigger an aggressive response from the peer. Attributing hostility and reacting angrily may also result from being victimized, but most likely it is a bi-directional process evolved through the interaction history between two children. Moreover, submissiveness can contribute to being victimized by the particular peer. Despite the results of Study II failing to provide strong evidence for the unique cognitive correlates of reactive and proactive aggression (e.g., relationship-specific hostile attributions predicted reactive as well as proactive aggression for boys), the overall pattern of associations was in the expected direction.

Although a large proportion of the variance in relationship-specific scores was due to the differences in relationship context, most of the scores also varied between individuals, meaning that some children pursued certain cognitive and behavioral patterns more often across different relationship partners. However, in most instances (except for self-efficacy beliefs), individual differences were much smaller than the contextual variance. Still, some important associations were revealed at the individual level. For instance, boys who felt more efficacious across different interaction partners engaged in more

frequent use of proactive aggressive (measured through self- and peer-reports). Self-efficacy for aggression might act as a trait-like characteristic influencing behavior also outside of the particular relationship context. Thus, relationships of these boys might be especially troublesome and associated with long-term deviancy.

With regard to attributions of hostility, the findings of this thesis do not suggest that aggressive children would have a tendency to view others as hostile across relational contexts. It is possible that aggressive children view unknown peers as somewhat hostile, but that they adjust their perceptions as they get to know these peers. For instance, Burgess et al. (2006) found that aggressive children's social-cognitive evaluations in the context of friendship were less hostile and revengeful in nature than in the context of unfamiliarity. In addition, Rabiner et al. (Rabiner, Keane, & MacKinnon-Lewis, 1993) demonstrated that aggressive-rejected children did not have a generalized view of their school peers as hostile.

In three of the studies, reflective measures were used where children were aware of the targets and evaluations made about them. However, the priming study (Study III) showed that affective components of relationship-specific representations become activated automatically (e.g., unintentionally). It should be still noted that the activation took some time (450 ms) as children had to retrieve the identity of, as well as the related affect associated with, someone they liked or disliked. When children have an established relationship with their peers, new stimuli might be processed automatically in light of an established view of the peer, ignoring some of the situation-specific cues that are incongruent with the representation. In other words, certain affect-thought patterns that have developed through the interaction history with the particular peer become more accessible than others when facing the peer (see also Mischel & Shoda, 1995). In addition, one of the experiments in Study III (Experiment 3) demonstrated that the face of the peer activated not only affective but also more cognitive components of relational schemas. When the liked peer was displayed as a prime, children made less hostile evaluations of a hypothetical peer. Thus, the face of the liked person triggered more positive affect-thought patterns than the face of the disliked peer and influenced subsequent information processing. Interestingly, when the neutral (unknown) peer served as a prime, information processing was similar to the condition when the disliked prime was displayed. Hence, children in early adolescence in general might be inclined to view unknown peers as somewhat hostile.

Furthermore, although the basic premise of social information processing and social-cognitive learning theories is that cognitions guide behavior, cognitions-behavior links are usually rather modest. Moreover, the majority of studies have utilized cross-sectional data without allowing researchers to make any inferences about cause-effect relationships. As part of this thesis, a short-term longitudinal study was conducted to examine social cognitions and aggression in the context of negative affect (Study IV).

Although support was found for the basic tenet, translation of aggression-supporting cognitions into aggression was conditional. More specifically, only those children who continuously disliked their target (over a one-year interval) acted on their cognitions. In addition, aggressiveness of the actor and target further moderated the cognition-aggression links. Actualization of relevant aggression-encouraging cognitions was maximized under high base levels of actor's reactive (in the case of attributions of hostility) and proactive (in the case of self-efficacy beliefs for aggression) aggression. In addition, children were more likely to act on their expectations of anger and self-efficacy beliefs for aggression when targets had high initial levels of reactive aggression in their behavioral repertoire. Despite that there are few longitudinal studies finding support for the basic premise (Egan et al., 1998; Huesmann & Guerra, 1997), this study is the first one to demonstrate a longitudinal effect of hostile attributions on aggressive behavior. Moreover, although children who attributed more hostility to the disliked peer tended to have higher self-efficacy beliefs, these two social-cognitive processes drive different forms of aggression. For instance, proactively aggressive children's self-efficacy beliefs are likely to have become "crystallized" (Huesmann & Guerra, 1997) via a history of positive reinforcement for their aggressive acts (e.g., peer approval). Moreover, a sense of capability to aggress toward someone can be gained when aggressing against reactively aggressive targets whom no one really likes. Securing a position in a peer group (or among friends) is one of the outcomes that can motivate children to aggress (Perry, Williard, & Perry, 1990). In the case of hostile attributions, children who have had difficulties regulating their emotions (e.g., anger) in the past are more likely to act aggressively against the source of their perceived threat or frustration. Although there is a well-established finding that rejected children are often victimized by their peers, our study adds to the literature by providing some insight into the identities of children who are most likely to aggress toward the peers they dislike.

5.1. Conclusions

This thesis demonstrates that children are overall highly discriminative with regard to what they think of their different peers and how they behave in different relationships. However, whereas some of the cognitions, such as attributions of hostile intent, operate solely at the dyadic level, other cognitions, such as self-efficacy beliefs for aggression, are more person-driven influencing the behavior across different interaction partners. In addition, although children behave according to their relationship-specific cognitions, there are certain conditions that enhance the translation of thought into behavior. For instance, in the context of negative affect, cognition-aggression links are maximized when the negative affect felt toward the peer is chronic, and children and their targets already have aggressive patterns in their repertoire.

In summary, the current study offers an alternative avenue for studying social cognition and behavior. Making inferences on the basis of context-free measures, at least with regard to interpersonal cognition and behavior, can potentially result in underestimation of the intra-individual heterogeneity of thinking and behavior, and predictive role of social-cognitive processes in determining our behavior.

5.2. Strengths

Several strengths of the present thesis should be highlighted. First, different methodologies were used to study target-specific social-cognitive evaluations. Whereas in Study I, we used face-to-face interviews with open-ended questions and targets were identified through relationship descriptions, in Study II, we employed group-administered social-cognitive questionnaires and targets were selected via sociometric nominations. Moreover, in addition to traditional reflective measures, an affective priming technique was used in Study III. Second, not only social-cognitive evaluations but also the behavior was assessed at the relationship level (Studies II and IV). Whereas in Study II, cognitions as well as behaviors were self-reported, in Study IV, aggression was measured from the target's (victim's) perspective, making the strength of the cognition-aggression links even more noteworthy.

In addition, the relationship-specific behavior measure was validated against the peer-nomination measure. Correlations between the same constructs assessed via self- (mean levels of the behavior across relationship contexts) and peer-reports varied from .37 to .54. Similarly, in Study IV, aggression toward the disliked target (using the target as a source of information) was associated with peer-reported reactive and proactive aggression (bivariate correlations ranged from .38 to .59). The latter results suggest that aggression measured via peer-reports might reflect, to a great extent, the behavior manifested in the context of negative affect (i.e., by disliked peers; see also Card & Hodges, 2007). Thus, when using decontextualized measures, such as peer nominations, to assess behavior, relationship-specific behavior may be what is primarily tapped rather than typically presumed individual differences. Furthermore, decontextualized measures do not allow for an understanding of the interpersonal dynamics (i.e., how the behavior is distributed among different peers) occurring in the peer group.

5.3. Limitations

Some of the limitations need also to be addressed. First, at the relationship level, children only nominated and rated same-sex peers. Different results might be found when children are allowed to nominate/rate peers from the opposite sex. Second, some children had a unilateral, whereas other had a reciprocal relationship with their target. For instance, friends have been found to differ from unilaterally liked peers on some dimensions (e.g., positive engagement; Newcomb & Bagwell, 1995). Moreover,

there is evidence that victimization is more likely to occur in the context of mutual than unilateral dislike (Card & Hodges, 2007). However, some of the current findings show that nondiscrimination between reciprocal vs. unilateral relationships might not have strongly affected the results. For instance, most of the liked targets actually had a reciprocal relationship (i.e., mutual positive affect) with the child (Study II, $n = 181$; 87%). In addition, reciprocally vs. unilaterally disliked targets differed only on one target-specific variable (Study II), and reciprocally disliked targets were not more likely to be chronically disliked than unilaterally disliked peers (Study IV). Third, as extreme types of relationships were examined (friend vs. enemy, liked peer vs. disliked peer), we might have “pulled out” more relationship-specific variance than there actually exists. Nonetheless, there is some preliminary evidence that when social cognitions (e.g., social goals) are measured with regard to all same-sex peers, there is still significant variance attributable to the relationship type (Salmivalli & Peets, 2008). Similarly, Kiesner et al. (Kiesner, Nicotra, & Notari, 2005) who examined the friendship quality in friendships with different ranks (best friend, second best friend, third best friend) found that the variance due to different targets (friendships) was considerably larger than the variance due to individual differences, especially with regard to the negative aspects of the friendship. Thus, differences can exist across relationships even with the same affective valence (see also Mischel & Shoda, 1995). Finally, we used vignettes where something negative was done by the peer instigator and assessed aggression-supporting social-cognitive evaluations. However, how children process positive behaviors by different peers is known to a lesser extent. Although there is evidence that when a disliked peer performs a positive behavior, children tend to attribute it to an unstable cause (see Guerin, 1999; Hymel, 1986), we do not know, for example, whether children would also respond hostilely when the disliked peer did something prosocial. In addition, measuring cognitions about alternative behavioral responses, such as assertiveness, conciliation, and withdrawal (see for instance Burgess et al., 2006) along with relationship-specific behaviors would give us more insight into the variability of children’s social-cognitive processes and behavior.

5.4. Directions for future

Future research could examine whether the degree of sensitivity to distinct relationship contexts (i.e., discriminative facility; Mischel, 1973) is associated with differences in adjustment. Being able to adapt to the particular relationship context is likely to be necessary for optimal functioning. In contrast, children who do not discriminate between different interaction partners might end up having difficulties with relationships throughout their lifetime.

Second, certain situations, such as being rebuffed by a peer (e.g., a friend), might bear a strong personal meaning and consequently trigger an active hostile response in

some children. For others, a different situation (e.g., being approached by an enemy) can activate a similar response (see Mischel & Shoda, 1995). Thus, more information is needed about the factors that could potentially explain individual differences in children's situation-behavior profiles.

Third, in this study, social-cognitive patterns were studied in children for whom all targets were identifiable. However, not all children have, for instance, friends. However, as friends play an important role in children's adjustment, friendlessness is likely to influence the way children construct the world around them. For example, Ladd and Troop-Gordon (2003) demonstrated that early friendlessness predicted later internalizing problem behaviors, and this was partly mediated by children's negative perceptions of themselves.

Finally, it would be fruitful to investigate relationships with the same valence as was done in a study by Kiesner et al. (2005). A best friend is not the same as a second best friend, and an enemy is not someone who is just disliked. Although children are very often forced (by researchers) to place other peers into categories and rank them, I am rather confident by saying that we all have a tendency to like some people more and some less. Moreover, not only identifying different relationship types with the same or different affective valence but collecting information about the unique relationship history would help us to have a deeper understanding of the importance of different relationships in a human's life.

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