Swiss Journal of Psychology 65 (2), 2006, 81–91

Original Communication

Aggression, Self-Understanding, and Social Competence in Swiss Elementary-School Children

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This study examined the relation between aggression, self-understanding, and social competence in a sample of 93 Swiss elementary-school children. Aggression was rated by the parents using the aggression subscale of the Child Behavior Checklist (CBCL/4-18). Self-understanding was assessed with a short version of Damon and Hart's (1988) self-understanding interview. The social competence of the children was observed in a quasi-experimental, cooperative play situation. The results revealed that aggression was related to domain-specific content aspects of self-understanding. Aggression was, however, negatively associated with social competence. Moreover, nonaggressive children with high levels of self-understanding showed more social competence than aggressive children with both high and low levels of self-understanding.

Keywords: aggression, self-understanding, social competence, elementary-school children

Aggression is one of the most stable problem behaviors in childhood (Loeber & Stouthamer-Loeber, 1998). Out of the many different explanations for the genesis and persistence of aggression, some theories focus on the role of self-understanding and social competence. According to identity theory, the quality of coping with natural crises of identity and the construction of a developmentally adequate self-view determine general psychosocial adjustment and the accomplishment of developmental tasks (Damon & Hart, 1992; Erikson, 1968; Kegan, 1982). Correspondingly, theorists assumed that aggression is related to a distorted self-view (Baumeister, Smart, & Boden, 1996; Edelstein, 2005). From the cognitive-developmental perspective, social interactions with peers foster the development of social-cognitive competences and social skills, and thereby influence the level of psychosocial adjustment (Piaget, 1932/1965; Youniss, 1994). From this viewpoint, aggression may relate to a lack of opportunities for reciprocal interaction and discourse with peers, opportunities that would normally support the development of differentiated self-understanding and decentration in thinking. This lack may augment peer relationship problems. Rejection by peers may also result in the reinforcement of aggression, and, in the worst case, establish vicious circles that impede further development of social competence. In accordance with these theoretical perspectives, previous studies have shown that aggression is related to specific problems in self-understanding and to behavioral deficiencies (e.g., Baumeister et al., 1996; Willner, 1991). However, there are both empirical inconsistencies and theoretically unresolved issues (Sutton, Smith, & Swettenham, 1999a, 1999b). Thus, the purpose of the present study was to examine further the question of *how* aggression and cognitive aspects of self-understanding interrelate and contribute to the social competence of elementary-school children.

Aggression and Self-Understanding

Self-understanding is synonymous with the term self-concept (Damon & Hart, 1988). It is conceptualized as a multidimensional construct that defines a child's view of his or her self or personal identity and comprises cognitive and affective aspects (Damon, 1989; Greve, 2000; Marsh, 1990). Investigations on the relations between aggression and self-understanding in childhood have so far focused primarily on the affective aspect of self-understanding, the global self-worth, which is considered to be central for psychosocial adjustment (Leary & Baumeister, 2000). However, the results of the corresponding studies are contradictory: While some studies found that a generally low self-esteem was related to aggression and/or low psychosocial adjustment in childhood (e.g., Barry, Frick, & Killian, 2003), other studies either found no consistent rela-

DOI 10.1024/1421-0185.65.2.81

tions (e.g., Bushman & Baumeister, 1998), or positive associations (e.g., Hughes, Cavell, & Grossman, 1997; Hymel, Bowker, & Woody, 1993). The present study focuses on the cognitive aspects of self-understanding, because of our interest in how the structural complexity of self descriptions (stages) and the conceptualization of the self (content themes) relate to aggression. In the following, we first outline the theoretical model of self-understanding (Damon & Hart, 1988), and then elaborate possible reasons for an association between aggression and cognitive aspects of self-understanding. According to Damon and Hart (1988), cognitive self-understanding can be subdivided into a structural and a content component. The structural component means that the ability to reflect on self as an object underlies structural developmental changes and develops over stages from more concrete attributes to increasingly abstract levels of self-description (Damon, 1989).

The content component of self-understanding implies that self-descriptions can be differentiated into specific content themes, which classify on the one hand the self-descriptions of the 'Me' ('self-as-object') into physical, active, social, and psychological self attributes, reflecting 'objective' knowledge of one's own characteristics (Damon & Hart, 1992; James, 1890; Mead, 1934). These content themes are assigned to different content domains of self-understanding (e.g., a child's evaluation of self). On the other hand, the self-descriptions of the 'I' ('self-as-subject') can be classified into the procedural categories of self-continuity, distinctness, and agency, reflecting the subjectively experienced sense of identity.

Based on the general theoretical assumption that the quality of social behavior is related to differentiation and extension of social-cognitive concepts (e.g., Youniss, 1980), it is possible that aggression may also relate to a less differentiated self-understanding and the use of specific content themes to describe the self. More specifically, aggressive children may use physical and/or active attributes rather than social or psychological attributes to describe themselves, because in their daily lives they have fewer opportunities for social interaction, which would help create a sense of social identity. There appear to be surprisingly few research studies on the relation between these cognitive aspects of self-understanding and aggression or social behavior in childhood. A study by Pior (1998) found an association between the self-concept of social integration and the continuity of solitary play or cooperative play in children. This result supports the assumption that aggression relates to fewer social attributes in self-descriptions. Research studies based on Damon and Hart's self-understanding-model have shown that self-understanding differs between children with developmental problems and normally developed children (e.g., Lee & Hobson, 1998).

Further, a study by Melcher (1986) revealed that adolescents diagnosed as having a conduct disorder showed a less differentiated level of self-understanding and mentioned different content themes when describing themselves compared to adolescents without this diagnosis. Taken together, these findings and case studies (e.g., Selman & Schultz, 1988) provide some evidence that children with aggressive behavior may have delayed self-understanding and use specific content themes to describe themselves. In sum, systematic research on the relation between the cognitive aspects of self-understanding corresponding to Damon & Harts' model and aggression in middle childhood is lacking. It seems to be rather unclear up to now how these cognitive aspects of self-understanding relate to aggression. Due to the fact that self-understanding explains the distinctiveness of a person, whereas most other social-cognitive concepts focus on interpersonal relatedness (e.g., role taking; Damon & Hart, 1988), the content themes of self-understanding may be especially interesting in relation to aggression. It is possible that aggressive children have difficulty in adequately distinguishing themselves from others, due to their history of negative experiences in social relations; thus, they cannot regulate the dimension distance-closeness suitably and tend to be too distinct, which may be reflected in *asocial* self-descriptions.

Aggression, Self-Understanding, and Social Competence

According to cognitive-developmental theory, children learn through social interactions with peers, co-constructing reality, and shaping their social-cognitive development and the quality of their social behavior (Piaget, 1932/1965; Youniss, 1994). The quality of social interactions promotes in particular decentration in thinking as well as differentiation and coordination of perspective-taking (Keller & Edelstein, 1991).

Correspondingly, uncooperative and aggressive behavior may lead to rejection by peers, which in turn corroborates the hostile attribution-biased cognitions of such children and thereby maintains or even reinforces their aggressive behavior, impeding socially competent reactions (Crick & Dodge, 1996; Orobio de Castro, Veerman, Koops, Bosch, & Monshouwer, 2002; Warman & Cohen, 2000).

Previous research has shown that children who were rated as aggressive showed less social competence in peer interactions (Dodge, Pettit, McClaskey, & Brown, 1986; Hughes, White, Sharpen, & Dunn, 2000; Stormshak & Webster-Stratton, 1999). Also, it has been confirmed in research that aggression is related to a lack of cooperation in social play. For example, in a behavioral observation study by Willner (1991), it was found that aggressive boys showed more solitary play, reacted more often in a hostile-aggressive way, displayed more egocentric and less prosocial behavior. Although there have been many studies on the relation between aggression and social competence (Dodge et. al., 1986, Hawley, Malti, & Keller, 1998; Keller & Malti, 1999), research results are not consistent. Contrary to the research results above, some studies found that aggression partially relates positively to social competence (e.g., Hawley, 2003), and to self-understanding (Edens, Cavell, &

Hughes, 1999). Correspondingly, the assumption that aggressive children are incompetent has been critized. Thus a few researchers have argued that some aggressive children may be quite competent and use their social skills to manipulate other children, in order to reach personal goals (e.g., Sutton et al., 1999a). To further investigate these diverging standpoints, it is necessary to differentiate the social-cognitive concepts used in previous studies and/or to employ new ones (Crick & Dodge, 1999). In the present study, we use cognitive self-understanding in order to determine whether or not aggression is necessarily related to lower social-cognitive capability.

Additionally, we wanted to investigate whether aggression is related to specific self-descriptions. We are, therefore, interested in *how* aggression and self-understanding determine a child's social competence, because the inconsistent results in previous research suggest that there may be subtypes of aggressive children: some with a high level of self-understanding who show social competence, but others with a low level of self-understanding who are socially not competent. In sum, we explored two research questions:

The first question addressed the issue of whether aggression is determined by a less differentiated view of self (structural level of self-description) and the use of specific content themes. Based on the assumption that fewer opportunities to interact and cooperate aggravate decentration in thinking, we assumed that aggression is related to a lower level of self-understanding. This view is supported by prior research in the moral domain (e.g., Gibbs, 1991). Further, we hypothesized that aggression is related to the use of physical and/or active attributes and to the absence or less frequent use of social attributes while describing the self, because this may reflect the daily experience of children with less social interactions. The use of physical and/or active attributes may also help to perpetuate a consistent self-view and/or reduce cognitive dissonance; aggressive children may recognize that they have had negative experiences with other children and that they are not able to build up a positive sense of identity through their social relations, but rather by physical or active attributes. The self-definitions of aggressive children may therefore rely on creating distance between themselves and others, reflected in *asocial* self-descriptions. Thus, an aggressive child may refer to his or her physical strength, while a nonaggressive child may mention positive relations with other children while describing the self.

However, it is possible that aggression is only in specific domains (e.g., self-definition) related to these specific content aspects, because the use of the content aspects varies between the domains of self-understanding (Damon & Hart, 1988). We therefore wanted to explore whether the relation between aggression and these content domains depends on the domain of self-understanding, or whether it is general.

Second, we wanted to investigate whether the negative relationship between social competence and aggression is dependent on the level of self-understanding or not. Based on previous research, which has shown that not all aggressive children lack social-cognitive and social skills (Sutton et al., 1999a, 1999b), we wanted to find out whether, in addition to the socially less competent children with aggressive behavior and low levels of self-understanding, there are socially competent children who employ aggressive behavior but have high levels of self-understanding.

Aggression and social competence belong to the same developmental facet (the behavior of the child) and are conceptually overlapping developmental dimensions (definitions of aggression contain partially the absence of social competence, e.g., cooperation), whereas the levels of self-understanding refer to complex internal processes. We therefore assumed that these developmental levels of self-understanding are less strongly related to social competence than aggression at this age. Thus, we expected nonaggressive children to show more social competence than aggressive children, independent of the level of self-understanding, but also that aggressive children with different levels of self-understanding possibly vary as to social competence. We hypothesized that high levels of aggression in combination with low levels of self-understanding predict the lowest social competence, followed by high levels of aggression and high levels of self-understanding, followed by nonaggressive children with low or high levels of self-understanding. In addition, age, gender and socioeconomic status effects were investigated.

Method

Participants

This study was part of a larger project on social-cognitive development and aggression in middle childhood (Malti, 2003). A total of twelve classes from three different elementary schools in two German-speaking cantons in Switzerland were chosen for participation. Requests for participation were sent to 198 parents, and 153 parents (77%) gave consent for their child's participation. School board permission was obtained as well. Of the participating children 56% belonged to the first and second grade, and 44% to the third and fourth grade. All 153 children took part in the self-understanding interview. Due to school absences, 140 children participated in the behavioral observation. Sixty-one percent of the parents returned the questionnaire, some after a reminder was sent by mail, and thus we derived parental aggression ratings for 94 children. From these remaining 94, one child was excluded from data analyses by virtue of being too old. Thus, the final sample included 93 children (6.9 – 11.1 years, $M = 8.4$, $SD = 1.3$; 45 boys, 48 girls) and their parents. The socioeconomic status of the sample was calculated by a revised version of the Hollingshead (1979) four-factor index (Dodge, Pettit, & Bates, 1994). The sample represented basically middle-class families ($M = 12.3$; $SD = 4.0$; range = 3-20). The socioeconomic distribution of the sample was comparable to the socioeco-

nomic distribution of Zurich's population as reported in the Statistical Yearbook 1999 (Malti, 2003), and we therefore assume that there was no systematical sample bias due to the relatively high drop-out rate of the parents.

Procedures

The study consisted of the following parts: In the first session, children were individually interviewed about their self-understanding in a separate, quiet room in their school.

The interviewers were trained undergraduate psychology students. The interviews were taped and later transcribed. In the second session, the children's social behavior during play was observed in a quasi-experimental, dyadic play situation in a separate, spacious room located within the school. The testers were other undergraduate psychology students, who received intensive training in the observation method. All sessions were videotaped for five minutes. Parallel to the child's sessions, parents received a questionnaire on the social development of their child by mail; they then completed it and returned it to the school.

Measures

Aggression

The extent of aggressive behavior of the children was rated by the parents using the German version of the aggression subscale from the Child Behavior Checklist (CBCL 4/18; Achenbach & Edelbrock, 1983; Döpfner et al., 1998). Cronbach's α for the scale was $\alpha = .90$. The extent of aggression was low-to-moderate in this sample ($M = 7.2$, $SD = 5.9$, range = 0-31).

Self-Understanding

The self-understanding of the children was assessed by a short version of Damon and Hart's semi-structured interview of self-understanding (1988) for children and adolescents. It contained seven main questions regarding the 'self-as-object' (e.g., 'can you tell me what you are like?'). The 'self-as-subject' was not assessed, because we were mainly interested in the set of beliefs children use when defining themselves ('self-as-object'). The questions in the interview were assigned to four different content domains of the self-understanding: Self-definition, self-interest, self-evaluation, and self-in-relation.

Self-definition responses refer to the way a child describes the self (e.g., 'I am tall'), self-interest responses reflect a child's hopes, wishes, or desires (e.g., 'I wish to have a lot of money, because then I could buy me a big car'), self-evaluation responses refer to the child's evaluation of self (e.g., 'I am proud that I am so big, because then I can play football'), and self-in-relation responses reflect how the self is with other people (e.g., 'when I am with babies, I am gentle'). A complete description of the interview questions has been given elsewhere (Malti, 2003).

Coding of the Self-Understanding Interview

The coding scheme and scoring criteria from Damon & Hart (1988) were employed to classify the children's answers in (a) one of four developmental levels of self-understanding *(stage levels)* and (b) one of four content aspects of self-understanding *(content categories)*. The four developmental levels reflect the range in complexity of self-description. Lower levels contain self descriptions in concrete, observable terms, whereas higher levels comprise complex and deeper concepts of self-description. The four content aspects of self-understanding represent different content themes of the 'self-as-object': Physical aspects, activities, social aspects, and psychological aspects of self description (e.g., a physical self-description refers to physical characteristics or material possessions of the self). Variables were summarized and the following scores derived: (a) sixteen domain-specific sum scores for the content categories (physical, active, social and psychological) in the domains self-definition, self-interest, self-evaluation, and self-in-relation and b) a global sum score for the level and four global scores for the four content categories. Cronbach's α for the scores ranged from $\alpha = .48$ to $\alpha = .74$ with a mean of $\alpha = .58$. In order to determine the interrater-agreement, 15% of the interviews were coded by two independent raters. The interrater-agreement was calculated according to the procedure suggested by Damon & Hart (1988, p. 88).

The percentage agreement between the two raters was 93% for the levels, and 96% for the categories of self-understanding. Disagreements were discussed, and a consensus was found.

Social Behavior

The children were asked to play a game with a classmate of the same-age. The children were randomly assigned to either same-sex or opposite-sex dyads. Almost half of the dyads were same-sex, and the other half opposite-sex. Two different games were used in counterbalanced order ('Stapelmanniken' and 'CheeseWiz'). After entering the room, children were instructed by the tester how to play the game and how to reach the goal of the game (e.g., build high towers). The tester motivated the children to cooperate, but the decision to play the game either cooperatively or alone was left to the children (e.g., build one big tower together, or build two towers, i.e., one each). The tester remained seated in the observation room during the observation period and pretended to read. Play was recorded by a camera, located at the opposite end of the room.

Coding of Social Behavior

The five-minute play sequences were divided into 30 ten-second intervals. The total amount of solitary versus interactive play during the five minutes was protocolled. Play was coded as solitary if a child played with him- or herself or was passive. Play was coded as interactive if the child interacted with the playmate in a positive way (e.g., cooperatively) or in a destructive way (e.g., aggressively). A revised coding system was employed in order to code socially competent behaviors (Dodge et al., 1986; Malti, 2003). The categories for social competence were: social initiation (e.g., a child initiates a social interaction), helping/sharing (e.g., a child shares its play materials), praise/reinforcement (e.g., a child praises the other child), request (e.g., a child requests something), play suggestion (e.g., a child expresses a constructive play suggestion), agreeableness (e.g., a child agrees on a play suggestion), and setting up rules (e.g., a child sets up constructive play rules).

The occurrence/non-occurrence of the behavioral categories in each ten-second interval was coded, and dummy variables for each behavioral category were created (0 = non-occurrence, 1 = occurrence). Each category was summed up over the 30 intervals, and the proportional amount of occurrence was divided by the total number of intervals in order to derive standardized variables. An overall score for 'social competence' was built by aggregating the behavioral categories. Cronbach's α for the social competence score was $\alpha = .61$. The mean score of social competence in the sample was $M = 0.76$ ($SD = 0.87$). To determine the interobserver agreement, 20% of the dyads were coded by two independent observers. The interobserver agreement was calculated by the number of agreements divided by the number of disagreements plus the number of agreements. The average agreement for the behavioral categories was 94%, with a range from 88% to 100%. Non-agreements were discussed and a consensus was found.

Categorization of Subgroups

The second research question made it necessary to categorize children into subgroups for data analyses. In the first step, median splits were made on the basis of the aggression sum score and of the global level of self-understanding score. Next, two dummy variables were created (0 = low aggression, 1 = high aggression; 0 = low level of self-understanding, 1 = high level of self-understanding). Children in the low aggression group had a mean aggression score of $M = 3.31$ ($SD = 1.90$), and in the high group, the mean aggression score was $M = 12.05$ ($SD = 5.64$). Children in the low level of self-understanding group had a mean of $M = 1.72$ ($SD = 0.25$) while for the high group the mean was $M = 2.30$ ($SD = 0.19$). Based on these two dummy variables, four subgroups were created as follows: Children with high aggression scores and low levels of self-understanding were categorized into the first group ($N = 22$). This group was labelled 'high aggression score and low level of self-understanding' (ALS). Children with high aggression scores and high levels of self-understanding were classified into the second group ($N = 20$) labelled 'high aggression score and high level of self-understanding' (AHS). Children with low aggression scores and low levels of self-understanding (NALS) were categorized into the third group ($N = 24$), and children with low aggression scores and high levels of self-understanding (NAHS) were categorized into the fourth group ($N = 27$).

Results

The results are presented in three parts. First, the interrelations between aggression, level and content categories of self-understanding and social competence are explored, as well as the associations with the sociodemographic variables. Next, the prediction of aggression by level and global content category of self-understanding and the interrelation between aggression and the domain-specific content categories of self-understanding are presented. Finally, the prediction of social competence by subgroup is reported.

Interrelations Between Aggression, Self-Understanding and Social Competence

Correlational analysis was employed in order to test the interrelations between aggression, the self-understanding variables and social competence. Table 1 presents the re-

Table 1
Correlations Between Aggression, Self-Understanding and Social Competence (N = 93)

	Aggression	Level and categories of self-understanding					Social competence
		Stage level	Physical	Active	Social	Psychological	
Aggression	1.0						
Level	–.09	1.0					
Physical	.02	–.66***	1.0				
Active	.16	.09	–.08	1.0			
Social	–.13	.62***	–.53***	–.18	1.0		
Psychological	–.01	.40***	–.41***	–.07	.08	1.0	
Social competence	–.20*	–.11	.13	–.15	.01	–.01	1.0

*$p \leq .05$. **$p \leq .01$. ***$p \leq .001$.

sults of the correlational analysis. Preliminary analyses revealed no gender differences in aggression, in level or categories of self-understanding, or in social competence.

The results showed that aggression was negatively associated with social competence.

Level of self-understanding was negatively related to the use of physical content attributes, and positively to the use of social and psychological content attributes. Furthermore, the use of physical content attributes was negatively correlated to the use of social and psychological content attributes. No other significant correlations between the variables were found.

To determine the relations between the sociodemographic variables and aggression, self-understanding and social competence, a further correlational analysis was run (see Table 2).

The results revealed that age was positively related to level of self-understanding, to the use of psychological self-attributes, and to social competence. The socioeconomic background of the family was negatively associated with aggression, and positively with level of self-understanding and use of social self-attributes. To compare the subgroups on the sociodemographic variables, univariate analyses of variance (for age and SES) or χ^2 tests (for gender) were performed. The subgroups differed slightly by socioeconomic background ($F(3, 93) = 2.38$, $p = .07$). Post-hoc comparisons revealed that nonaggressive children with high levels of self-understanding (NAHS) had higher SES scores than aggressive children with low levels of self-understanding (ALS; $p = .03$). No age and gender differences were found.

Aggression and Self-Understanding

The mean score for level of self-understanding in the sample was $M = 2.02$ ($SD = 1.1$), which reflects a typical stage for children of this age according to Damon and Hart's (1988) model of self-understanding. Overall, the children's answers in the interview were distributed as follows: 31% of the children used physical attributes, 15% activities, 34% social attributes, and 20% psychological attributes to describe themselves.

A hierarchical linear regression analysis was employed to test the first hypothesis that aggression is predicted by a lower level of self-understanding, a high use of physical and/or active content categories and a low use of social content categories. The following were specified as independent variables: age, gender, and socioeconomic status, together with global level and content categories of self-understanding (physical, active, social, psychological). In the first step, the sociodemographic variables were entered. Second, the level and global content categories were entered in order to determine the significant effects of the self-understanding variables when sociodemographic variables are controlled. The results showed that aggression was not significantly predicted by the independent variables. None of the variables in the regression model was significant.

In the next step we tested whether aggression is related to the content themes in single domains of self-understanding (self-definition, self-interest, self-evaluation, and self-in-relation). The results of the correlational analysis showed that aggression was negatively associated with social attributes in the domain self-definition ($r = -.24$, $p = .02$), and positively associated with active attributes in the domain self-in-relation ($r = .25$, $p = .01$). There were no further significant correlations.

Aggression, Self-Understanding, and Social Competence

Overall, children played approximately 30% of the time interactively, and 70% of the time alone. Results revealed that the children's interaction frequency was related to their aggression and social competence: Solitary play was positively related to aggression ($r = .25$, $p = .02$) while it was negatively associated with social competence ($r = -.76$, $p = .000$).

In order to explore the second research question, a univariate analysis of variance was performed. The dependent variable was social competence, and the independent variable was the subgroup variable. The four subgroups differed in social competence ($F(3, 93) = 3.35$, $p = .02$). The mean social competence scores for the four subgroups are shown in Figure 1.

Post hoc comparisons using the Fisher LSD test revealed that the NAHS group differed significantly from the AHS group ($p = .008$), and the ALS group ($p = .01$). No further significant differences were found.

Table 2
*Correlations Between Sociodemographic Variables and Aggression, Self-Understanding and Social Competence (*N = *93)*

	Aggression	Level and categories of self-understanding					Social competence
		Level	Physical	Active	Social	Psychological	
Age	–.15	.17*	–.13	.05	.09	.24**	.21**
SES	–.17*	.23**	–.11	.06	.26**	–.05	.04
Gender	–.12	.05	.07	.02	.04	–.15	–.14

*$p \leq .10$. **$p \leq .05$. ***$p \leq .01$.

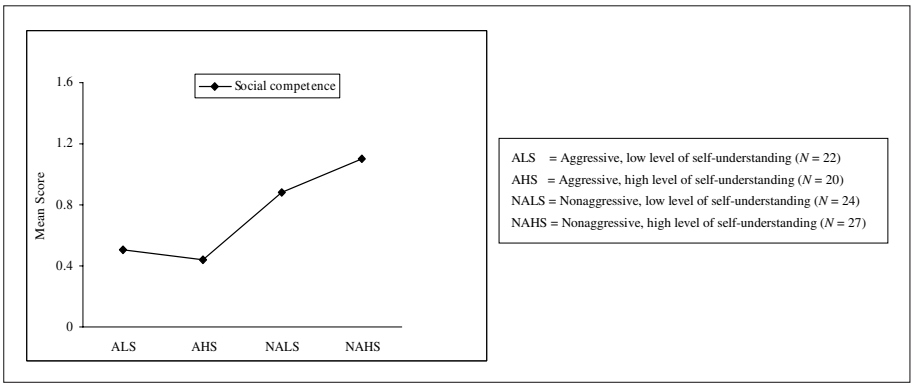

Figure 1. Mean social competence score by subgroup.

Discussion

The purpose of this study was to examine the relation between aggression, self-understanding, and social competence in elementary-school children. Concerning the first research question on the relation between aggression and self-understanding, the results revealed that aggression was not related to a lower level in self-understanding nor to overall use of active and/or physical self-attributes. However, aggression was negatively associated with the use of social attributes in the domain self-definition and positively associated with the use of active attributes in the domain self-in-relation. These results do not predominantly confirm our hypothesis or previous research results which have indicated general differences in self-understanding for children with aggressive problem behaviors (e.g., Christie-Mizell, 2003). The finding that level of self-understanding and aggression did not relate to each other may be explained by several factors. First, it may be due to the fact that the levels of self-understanding are not completely universal, but are comprised of partial structures because children do not consistently apply their structural knowledge to their self-descriptions (Damon & Hart, 1988, p. 172).

Given this premise, it is more reasonable to assume that the relation between level of self-understanding and aggression is a differentiated one, and not a general one (e.g., there is a relation between self-understanding in a specific content-domain and a specific type of aggression). Second, research in the moral domain, where there appears to be rather low correspondence between level of sociomoral reasoning and moral behavior in children this age (Blasi, 1983, 1993) may also explain this result because Damon & Hart (1988) suggested that self-understanding is partially related to development in other social-cognitive areas (such as sociomoral development). Thus, we can assume that the process of generating knowledge about the self has some similarity to the process of constructing moral knowledge and, therefore, the relation between the structural components of self-understanding and social behavior may be similar to the relation between moral development and social behavior. This may result in a rather low connection between level of self-understanding and social behavior at this age. Third, the results revealed that children's answers in the self-understanding interview were mostly adequate for their age (Damon & Hart, 1988). Thus, we can conclude that the level of self-understanding score adequately represents children's structural development of self-understanding. However, the finding of a low association between aggression and level and content aspects of self-understanding may also be attributed to the fact that only low-to-moderate degrees of aggression were reported, thus restricting the behavioral dimension to a specific section, and thereby limiting the range of relations to other developmental facets. Future studies should explore whether the relation between aggression and level of self-understanding depends on the domain of self-understanding and/or the extent and type of aggression.

The results also revealed no association between aggression and the global content aspects of self-understanding. Interestingly, children in this sample did not mainly describe themselves with active attributes, as Damon and Hart (1988) reported for this age group. This finding indicates that children in elementary school may already have a broader content repertoire for describing themselves than previously assumed. The four content domains of self-understanding mostly correlated negatively with each other in the present study. This finding may be related to the fact that the knowledge of each scheme changes with development (Damon & Hart, 1988, p. 57) and, even though it is not assumed that a scheme disappears, Hart and Damon (1985) showed age-related trends and a developmental shift in describing the self, which corresponds to a more differentiated view of the self: i.e., self-understanding focuses first on physical qualities, next on active qualities, then on social qualities, and finally on psychological qualities. The corresponding result in the present study that physical attributes related negatively to level of self-understanding, whereas social and psychological attributes related positively, appears to be in line with the findings of Hart and Damon (1985). The result that there was no general relation between aggression and content themes of self-understanding may be explained by the fact that the content aspects vary among the content domains of self-understanding and are in general less stable than the structural components

of self-understanding. The present study therefore differentiated four content domains and explored the domain-specific relations between aggression and the content aspects of self-understanding. The finding that aggression was negatively related to social attributes in the domain self-definition and positively to active attributes in the domain self-in-relation is interesting and may be due to the fact that aggressive children already have peer problems. These may lead to the diminished use of social attributes when defining the self, and to the increased use of active attributes in the social domain (the self-in-relation); presumably aggressive children construct their knowledge about themselves on the basis of these rejection experiences and possibly try to perpetuate a consistent self-view by using less social and more active attributes when defining the self or the self in relation to others.

Concerning the second research question on the relation between aggression, self-understanding, and social competence, the results showed that social competence in dyadic play was negatively related to aggression. The findings thereby confirm previous research results (e.g., Willner, 1991) as well as the assumption of cognitive-developmental theory regarding the relations between constructive social interactions and psychosocial development (Piaget, 1932/1965, Yeates, Schultz, & Selman, 1991). Yet, the results contradict other research findings which partially showed a positive relation between social competence and aggression (Vaughn, Vollenweider, Bost, Azria-Evans, & Snider, 2003). In order to further examine the theoretical debate as to whether the relation between aggression and social competence depends on level of self-understanding as one component of social-cognitive development (cf. Sutton et al., 1999a), we divided the children into subgroups based on their scores for aggression and level of self-understanding, and compared the subgroups with regard to social competence. The results showed that social competence was predicted by subgroup. More specifically, groups of nonaggressive children with high levels of self-understanding showed more social competence than aggressive children with high or low levels of self-understanding. Thus, the results did not confirm that there are aggressive children with high levels of self-understanding who are socially competent; rather, it showed that aggressive behavior is related to less social competence somewhat independently of the developmental level of self-understanding. This finding may be due to the fact that the parent report on aggression partly contains behavioral descriptions which are similar to the real behavior observed in the dyadic play situation and thus aggression implies partly by definition less socially competent behavior. In other words, aggression and social competence are conceptually overlapping dimensions, and it is therefore probable that these two dimensions are more closely related to each other than to self-understanding. Nonetheless, it is interesting that the level of self-understanding did not influence aggressive children's social competence. It is possible that cognitive self-understanding is *per se* less indicative of the relation between aggression and social competence, because it is informative as to the child's knowledge of him- or herself, but not about the knowledge of others. However, it may be that only knowledge of others is important as a mediator in the relation between aggression and social competence, since previous results have suggested that there are aggressive children who manipulate others in order to reach their goals, and knowledge about the other's mind is needed in order to employ a successful manipulative strategy (Sutton et al., 1999a).

In addition to the results mentioned above, we found various effects of the sociodemographic variables on aggression: socioeconomic status related negatively to aggression and to level of self-understanding and positively to the use of social self-attributes, reinforcing the mediating role of socialization on aggression (Dodge et al., 1994). The results confirm sociological theories concerning the influence of socioeconomic conditions within the family on children's competence development (e.g., Edelstein, 1999). However, we did not include related family dynamics in the analyses. Consequently, the exploratory content of the findings is necessarily restricted due to the fact that there is no information about mediating aspects in the relation between socioeconomic background and development of self-understanding or aggression (e.g., Malti, 2005). A further assessment of such mediating factors would have been necessary in order to derive potential explanations for the genesis of children's aggression or, at least, to distinguish possible concrete antecedents of aggression related to unfavourable socioeconomic conditions.

With regard to age, the results revealed that this was positively associated with level of self-understanding and with the use of psychological self-schemes. Further, age was positively related to social competence. The associations between age, level of self-understanding and psychological content themes confirm Damon and Hart's (1988) model of self-understanding as well as their empirical work, which provided evidence that the structural reorganization of self-knowledge and the use of psychological self-attributes are age-related. The association between age and social competence is reasonable, because children increasingly coordinate their play over development and thereby enhance their social skills. In sum, the findings confirm that self-understanding and social skills become more differentiated over development.

Interestingly, there were no effects of gender on aggression. This result is striking because most authors report gender differences. Yet it may be due to the fact that only low-to-moderate degrees of aggression and almost no physical aggression were reported by the parents, and physical aggression is known to be more frequent among boys (Werner, Bigbee, & Crick, 1999). There were also no gender differences in self-understanding or social competence. This finding makes sense as gender differences in these developmental facets are theoretically not necessarily to be expected.

To sum up, the results support our hypotheses only partially, and several limitations of the study should be men-

tioned that severely restrict the range for interpretation of the findings.

First, we did not differentiate between the various functions of aggression. However, some researchers have proposed that the differing relation between aggression and social competence is dependent on several factors such as, for example, the function of the aggressive behavior (Bukowski, 2003). It is possible that function has a moderating role in aggression and social competence. Future studies should therefore investigate the function of aggressive behavior (e.g., goal attainment, self defense, etc.).

Further, the extent of aggressive behavior was only rated by the parents. Additional ratings by the kindergarten teachers and the peers would have led to an extension of the validity of the findings.

The assessment of self-understanding was limited to the 'self-as-object' and, even though we were mainly interested in the child's knowledge of his or her own characteristics, the inclusion of the procedural aspects of self-understanding may offer interesting additional insights into the self-understanding of elementary-school children. Moreover, it is possible that the focus on cognitive aspects of self-understanding is less relevant in relation to aggression and social competence than the affective aspects of self-understanding. Children's self-esteem may directly influence their social behavior (e.g., low or exaggerated self-esteem may motivate a child to behave in a way which is too well-adjusted or too maladjusted), while the cognitive aspects of self-understanding may affect social behavior indirectly by influencing self-esteem. However, as Damon and Hart (1988) observe, low self-esteem gives no insight into which aspects of self a child finds undesirable (p. 143). With regard to cognitive interventions it is therefore crucial to identify the cognitive self-schemes underlying self-esteem. Thus, future studies should assess both cognitive self-understanding and self-esteem as well as determining the mediating role of self-esteem on the relation between cognitive self-understanding and social behavior.

Further, the observation of social behavior was only a 'snap-shot' of the real social behavior of the children, and validity would have been improved by adding other behavioral observations in different contexts. Last but not least, the statistical effects were in general rather weak and may point to the fact that many other causes and antecedents of aggression exist which were not measured in the present study.

Because of these limitations, it remains unclear at this point whether the relations between aggression, the cognitive aspects of self-understanding, and social behavior were fully captured, when taking into consideration some of the factors mentioned, e.g., the inclusion of various reports of aggression.

Despite its limitations, the findings of the present study suggest that aggression is negatively related to social competence in dyadic play, but not predominantly to cognitive aspects of self-understanding. Nonaggressive children with high levels of self-understanding showed more social competence than aggressive children with low or high levels of self-understanding. However, due to the fact that the present study was only cross-sectional, the findings do not allow us to draw conclusions about the causal direction of the relations between aggression, self-understanding, and social competence. Even though the influence of aggression on social competence as outlined in the introduction appears to be quite clear, influence running in the opposite direction is likewise reasonable, and in fact, it is very sensible to assume complex interrelations between aggression, social-cognitive development, and social competence, which depend on many other contextual and individual developmental aspects. Consequently, further research is needed to address the relation between aggression, self-understanding, and social behavior in more detail, and extend it by considering the function of aggression, cognitive self-understanding in various content domains, affective aspects of self-understanding (self-esteem), and different contexts of social behavior. Even though the present study did not find a direct relation between aggression and the cognitive aspects of self-understanding, it would be very interesting to explore those aspects in more detail from a cognitive-therapeutical viewpoint because they may relate to self-esteem and thereby indirectly influence the psychosocial adjustment of a child.

A differentiated developmental analysis of the self-concept could possibly help us to further develop prevention strategies for children employing aggressive behavior.

Author Note

This research was funded by the German Academic Exchange Service (DAAD). Parts of this article are taken from the doctoral thesis of the author. The author is grateful to all the schools, parents, and children who participated in the study, and would like to say thank you to Wolfgang Edelstein and Hans-Christoph Steinhausen for supporting the study. Thanks also to Veronika Homberger, Luzia Edelmann, Esther Luder, Eliane Ochsner, and Sonja Müller for data collection.

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