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### Relationships of Aggression Subtypes and Peer Status Among Aggressive Boys in General Education and Emotional/Behavioral Disorder (EBD) Classrooms

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# Relationships of Aggression Subtypes and Peer Status Among Aggressive Boys in General Education and Emotional/Behavioral Disorder (EBD) Classrooms

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This study examines the concurrent and longitudinal relationships between reactive and proactive aggression and children's peer status. Participants were 94 Dutch elementary school-aged boys in self-contained special education classrooms for students with emotional/behavioral disorders (EBD) and 47 boys with no disabilities in general education classrooms. Hierarchical and logistic regression analyses were conducted to test how aggression, context, and their interactions predicted participants' peer status, which encompassed social preference and social impact as indicated by classroom peers. Descriptive analyses show that both reactive and proactive aggression were more common in EBD classrooms. Classroom type moderated the concurrent and longitudinal relationships between subtypes of aggression and social preference. The results indicate that to understand the relationship between aggression and children's peer status, it is important to analyze the specific type of aggressive behavior and the context in which it occurs. These findings also suggest the importance of students and teachers' responses to aggression in reducing aggressive behavior.

Approximately 387,000 U.S. students, or 0.7% of all school-aged children, are identified with special education needs due to emotional/behavioral disorders (EBD; Data Accountability Center [DAC], 2011; U.S. Department of Education, 2011). School-based EBD identification

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appears to be restricted to those students with the most severe mental health needs (Forness et al., 2012). Research indicates that over the past 30 years, compared to students with other types of disabilities, students with EBD have made minimal gains in academic performance or long-term educational and social outcomes, but these outcomes can be positively influenced by specific educational programming (Bradley, Doolittle, & Bartolotta, 2008). Not surprisingly, U.S. and international literature generally recognize the importance of educational context, including the classroom setting, instructional practices, interventions, and other programmatic variables, for these students' academic development and general well-being (Mooij & Smeets, 2009). Accordingly, understanding how variations in context relate to social, emotional, and behavioral outcomes of students with EBD can support improved outcomes for this population.

Many researchers have focused on differences in the outcomes of students with disabilities in general and special education classrooms, although others contend that this focus on place is misdirected (for discussion, see McLeskey, Landers, Williamson, & Hoppey, 2012). Nonetheless, researchers have demonstrated that students with learning disabilities who are educated in general education settings tend to have higher grades, standardized test scores, and attendance, and fewer behavior infractions than their peers in pullout programs or self-contained special education classrooms (Rea, McLaughlin, & Walther-Thomas, 2002). Other researchers have shown that students with severe disabilities have better peer relationships in general education classrooms than special education classrooms (e.g., Fryxell, Kennedy, & Shikla, 1997), although other researchers have found that there are no differences in the educational outcomes of students with developmental disabilities (Katz & Mirenda, 2002). In general, findings on the relationships of placement to students' outcomes are mixed, and few studies have considered outcomes of students with EBD. Toward this end, the present study examined how aggression, classroom setting, and their interactions predicted peer status of elementary-aged boys with and without EBD.

### Experiences and Outcomes of Youth with EBD

Many scholars regard classroom setting, or educational placement, as particularly salient for this particular population because more than one in four students with EBD spend the majority of their school day in self-contained settings and an additional one in six students is educated in separate schools (McLeskey et al., 2012; U.S. Department of Education, 2011). Indeed, students with EBD are more likely than most of their peers with other disabilities to be educated in self-contained classrooms and schools (DAC, 2011) and worldwide, students with EBD are regarded as the most challenging to integrate into general education settings (European Agency for Development in Special Needs Education [EADSNE], 2003a; Wagner et al., 2006).

The social skill deficits, behavioral difficulties, and peer rejection frequently experienced by students with EBD may at least partially account for this trend (Poulin & Boivin, 2000). Students with EBD are more likely to be hostile, defiant, or physically aggressive (Brophy & McCaslin, 1992), and are often less involved in instructional activities than their peers (Bradley et al., 2008). Students with EBD often experience persistent social difficulties (Kauffman, 2005), including difficulty establishing peer relationships (Lewis, Chard, & Scott, 1994), low social competence (Lane, Carter, Pierson, & Glaser, 2006), and bullying others (Monchy, Pijl, & Zandberg, 2004; Van Cleave & Davis, 2006) that may influence decisions to educate these students in highly specialized settings. Aggressive boys in particular tend to be demanding

and combative in their fleeting friendships, which frequently end poorly (Poulin & Boivin, 2000). These negative behaviors may be related to the tendency for individuals with EBD to misinterpret others' social communication (Whitney, Smith, & Thompson, 1994), intentions, and behaviors (Sabornie, 1994). Unfortunately, as students with EBD get older, dysfunctional relationships at home and work are common, social interaction and community engagement are limited, and nearly 60% will be arrested (Bradley et al., 2008). Such outcomes underscore the need to better understand how educational contexts influence the social-emotional functioning of this group.

### Peer Relationships and Aggression

As suggested previously, the peer relationships of students with EBD are of particular importance. Although there are several dimensions to peer relationships, we focus here on peer status, which refers to one's social position among peers. Peer status encompasses social preference, the degree to which a child is liked by his peers, and social impact, the degree to which a child is perceived by peers as having prominence. Peers' perceptions of social preferences in particular predict whether a child experiences peer acceptance or rejection. Researchers have shown the cyclical nature of aggressive behavior and peer rejection in early elementary aged children (e.g., Coie, 2004; Dodge et al., 2003) and that rejection predicts delinquency in adolescence and adulthood (for a review, see Tremblay, Hartup, & Archer, 2005). Attempting to break the cycle, many interventions target the peer relationships of children with conduct problems. The research base for these interventions is incomplete, however, because most studies examining the relationships between aggression and peer status were conducted with samples of typically developing youth, rather than those for whom peer relationships may have the most salience in educational contexts, namely, students with severe behavioral issues (e.g., DeRosier, Kupersmidt, & Patterson, 1994; Parker & Asher, 1987). Addressing this gap in the literature, the present study investigated the relationship between aggression and peer relationships for aggressive youth with and without EBD.

Exploring these relationships requires acknowledging that aggression takes different forms and can serve different functions. Dodge (1991) proposed two subtypes of aggressive behavior—reactive and proactive—each with distinct etiologies and developmental mechanisms. Reactive aggression is impulsive, angry, volatile, behavior in response to frustration or a presumed threat, whereas proactive aggression is planned, goal-directed, initiating behavior driven by anticipated rewards. Proactive aggression commonly manifests as bullying (e.g., forcing another child to hand over a toy) and is regarded positively by the aggressor as an effective and efficient means to obtain a desired outcome (Poulin & Boivin, 2000). Conceptualization of reactive aggression is grounded in the frustration-aggression model (Berkowitz, 1989), which asserts that children will react with impulsive, hostile behavior when they fail to attain their goals or obtain appropriate reinforcement (e.g., throwing a chair when losing a game), thus eliciting rejection by peers. In addition, lack of peer acceptance may lead a child to react aggressively (Coie et al., 1991). Vitaro and Brendgen (2005) hypothesized that peer maltreatment (e.g., bullying, neglect) exacerbates reactive aggressive behavior and children's tendencies toward hostile attributions. Children who engage in reactive aggression tend to attribute hostile intent to the actions of others more often than do proactively aggressive or nonaggressive children (Crick & Dodge, 1996; Orobio de Castro et al., 2002).

Research suggests that these subtypes of aggression are associated with differences in peer status: reactive aggression predicts peer rejection while proactive aggression predicts peer acceptance (Price & Dodge, 1989). Further, proactive aggression may be reinforced by peers (Vitaro & Brendgen, 2005), and is often used by the perpetrator to foster social goals and strategic alliances (Poulin & Bovin, 2000). As represented by the person-group similarity model (Tversky, 1977), the outcomes of aggression subtypes may be influenced by acceptance of the behavior in specific contexts and is a function of the peer group. Wright, Giammarino, and Parad (1986) posited that negative behaviors, such as aggression, lead to low status when these behaviors are not normative in the peer group, but not when these behaviors were frequent or normative. These researchers found that in groups composed primarily of nonaggressive children, aggressive children were likely to be rejected, but in groups of mostly aggressive children, aggressive behavior was unrelated to peer acceptance. Similarly, Stormshak and colleagues (1999) found that the acceptability of aggressive behaviors varied across classrooms with aggressive behaviors resulting in greater peer rejection in low-aggression classrooms than in high-aggression classrooms.

Although these studies shed light on the dynamics of aggression and peer status, they do not explain the relationships between the subtypes of aggression and peer status across educational contexts common to students with EBD. With the exception of the study by Wright and colleagues (1986), which involved a sample drawn from a Massachusetts summer camp for children involved in social services, this research has been conducted primarily with typically developing students in general education classrooms. It is particularly important to study these associations in different contexts because children who exhibit severe aggressive behaviors are more likely to be placed in self-contained classrooms, and yet there is scant research examining the association between aggression and peer status in these settings (for example, see Efrati-Virtzer & Margalit, 2009).

### The Present Study

This study compared how aggression subtypes related to peer status for aggressive boys in general education relative to those with EBD who are educated in self-contained classrooms. We focused on boys because research indicates that manifestations of aggression vary as a function of gender (Crick & Zahn-Waxler, 2003) and because 80% of elementary-aged students with EBD are boys (Wagner et al., 2005). The purpose of this investigation was to elucidate the relationships between aggression subtype (i.e., reactive versus proactive) and the classroom setting (i.e., general education versus self-contained setting) and later behavior for aggressive boys with and without EBD. Four research questions guided this study:

1. *What are the associations between aggression subtypes and peer status (i.e., social preference and social impact) among school-aged boys with and without EBD?* It was hypothesized that (a) reactive aggression would be negatively related to social preference but not social impact, and (b) proactive aggression would be related to social impact, but not social preference.
2. *Are the relationships between aggression subtypes and peer status moderated by class type?* We expected these relations to depend on class type with both (a) proactive and reactive aggression relating negatively to peer status in general education schools, and

(b) in self-contained schools, reactive aggression relating negatively to peer status but proactive aggression being unrelated to peer status because aggression is more common in some self-contained settings.

3. *Are the longitudinal relationships between aggression subtypes and later peer status moderated by classroom type?* As in the concurrent relationships, we expected setting to moderate the relationship between subtypes of aggression and peer status over time.
4. *Are the longitudinal relationships between peer status and later aggression subtypes moderated by classroom type?* No a priori hypotheses were generated because of the dearth of research examining these constructs in special populations.

## METHOD

### Participants

Participants were 141 boys aged 5 to 11 years ( $M = 7.3$ ,  $SD = 1.2$ ) from 47 classes in 25 schools in the Netherlands. Participating sites included 7 general education neighborhood schools and 18 publicly-funded special education EBD schools located in both metropolitan and rural communities of low to middle socioeconomic status. Within participating sites, classrooms were randomly selected to participate. Each general education classroom had approximately 25 students and 1 teacher. Special education classrooms each had fewer than 15 students and at least 2 teachers. In total, the sample included 94 boys with identified EBD who attended the special education schools and 47 nondisabled boys from the general public schools.

The present sample was drawn from a larger study of students' peer relationships and was limited to children with elevated levels of aggression (described next). As such, only a subset of students in each participating classroom was included here. Approximately three randomly selected students per classroom were included in the present sample. Classrooms did not differ in mean age or demographic composition (i.e., nationality or country of birth). Ethnic origins of the participating children were European Caucasian (76%), African (6%), Latin-American (6%), and Asian (6%). Educational records of the children in the special education sample ( $n = 94$ ) were screened to ensure that they did not have comorbid cognitive or physical impairments.

### Context

Special education has been regulated in the Netherlands since the 1920 Primary Education Act. Special schools predominated until 1996 because funding was provided to schools rather than being linked to specific students. Following advocacy for more integrated services, a funding model akin to that of the United States was adopted in which funding for special education is provided to the schools eligible students choose to attend (EADSNE, 2003b). Today, of the 2.4 million students in Netherlands public schools, 3.6% are identified as having special needs (i.e., EBD, cognitive disability, or sensory impairments) and, of those, approximately two-thirds are educated in segregated special schools (EADSNE, 2009). Identification of EBD in Dutch schools requires a DSM-IV diagnosis; evidence of problems across school, home,

and community contexts; and limited participation in educational settings (EADSNE, 2009). Research by Mooij and Smeets (2009) suggests that many of the systemic challenges in appropriately serving students with EBD are strikingly similar between the United States and the Netherlands.

## Measures

**Behavior Problems.** Teachers completed the Dutch versions of the Achenbach Child Behavior Checklist–Teacher Report Form (TRF; Achenbach, 1991; Verhulst, Van der Ende, & Koot, 1997), a widely used measure of childhood behavior problems. For each item in this instrument, teachers responded 0 if the problem statement was not true for the child, 1 if it was somewhat true, and 2 if it was very or often true. The questionnaire consisted of eight subscales representing different problems in children, an internalizing-externalizing distinction, and a total problem score. We used two of the syndrome subscales—namely attention/impulsivity problems and delinquent behaviors—as well as the total externalizing and internalizing scores. Age and sex appropriate Dutch norms were used to yield normative T-scores. Verhulst and colleagues (1997) reported good test-retest reliability, stability, cross-informant agreement and validity comparable to the psychometrics reported by Achenbach (1991) for the American version. To cover a range of aggressive behaviors while emphasizing severe aggressive behavior problems, we oversampled boys with severe aggressive behavior problems with broadband TRF T-scores for externalizing problems in the clinical or borderline range at the first measurement time. Initial TRF T-scores were elevated for broad externalizing problems ( $M = 63.4$ ,  $SD = 11.8$ ) and aggression ( $M = 65.8$ ,  $SD = 10.4$ ) and were normally distributed.

**Teacher Rating Scale Reactive and Proactive Aggression Questionnaire.** Reactive and proactive aggression were assessed using the Teacher Rating Scale Reactive and Proactive Aggression Questionnaire (TRPA; Dodge & Coie, 1987), which included six items that assessed reactive aggressive behavior (e.g., “When this child has been teased or threatened, he gets angry easily and strikes back”) and five items that assessed proactive aggressive behavior (e.g., “This child threatens or bullies others in order to get his way”). Classroom teachers rated child behavior with a three-point rating scale (0 = *never*, 1 = *sometimes*, 2 = *often*). A mean score was obtained for reactive and proactive aggression. The scales were internally reliable with coefficient alphas of 0.93 and 0.90, respectively, in both the first and second years. Confirmatory factor analyses showed that a two-factor model fit the data from a teacher-rated questionnaire better than a single-factor model (Kempes et al., 2005).

TRPA reactive aggression ( $M = 1.18$ ,  $SD = 0.58$ ) and TRPA proactive aggression ( $M = 0.70$ ,  $SD = 0.49$ ) spanned the entire range from the lowest possible scores to nearly the highest possible scores on these aggressive behavior variables (respective maxima of 93, 2.0, and 1.73). Scores for reactive aggression and proactive aggression were normally distributed with the distributions centered on severe levels of aggression at the first measurement time. Reactive and proactive aggression were strongly correlated at the first time of measurement ( $r = 0.55$ ,  $p < 0.01$ ) and at the second time of measurement ( $r = 0.47$ ,  $p < 0.01$ ). Class-wide proactive and reactive aggression were determined by estimating the average across all students in each participating classroom.



*Peer Sociometric Status.* Peer nominations determined peer status. Classroom peers ( $n = 691$ ) of all participants nominated the classmates they liked most and the classmates they liked least. Children were allowed to nominate as many classmates as they wanted to avoid identification of the children participating in the study (Terry, 2000). Following Coie and colleagues' (1982) procedure, a child's status was determined by summing the number of positive nominations (like most) and negative nominations (like least) a child received. Social preference was computed by subtracting the number of "like least" nominations from the standardized number of "like most" nominations. Social impact, the degree to which children were noticed by their peers, was estimated by summing the number of positive and negative nominations. Each of these composites was then transformed to z-scores for the analyses described next.

## Procedure

Twenty-five schools received a letter explaining the purpose of the study; all of them agreed to participate. Boys' parents were informed about the general goals of the study by letter and phone. Each participant had parental and school consent to participate. Upon request, teachers completed questionnaires about children's behavior problems and aggressive behaviors. All of the participants' classmates assessed peer status with sociometric ratings at the beginning and end of the year via structured interviews conducted individually by the third author and three research assistants who were trained to deliver scripted instructions and record students' responses on a structured record form (see Terry, 2000 for full description of the process).

## Analyses

To test whether reactive and proactive aggression related to peer status regardless of classroom type, we first calculated bivariate and partial correlations between reactive and proactive aggression and peer status. The partial correlation for reactive aggression controlled for proactive aggression, and vice versa. To test whether relationships between aggression and peer status were concurrently moderated by classroom type, multiple hierarchical regressions were conducted with social preference and social impact as dependent variables. In each analysis, reactive or proactive aggression was first entered. Second, type of classroom was entered, dummy coded so that 0 indicated general education classrooms and 1 indicated self-contained EBD classrooms. Third, a multiplicative interaction term of the centered aggression variable and classroom type was added. To avoid collinearity between the main effects and the interaction terms in the model, we centered the reactive and proactive aggression variables by subtracting the overall mean from each participant's score before creating interaction terms (Jaccard, Turissi, & Wan, 1990). Binary logistic regressions were performed with reactive aggression, proactive aggression, and their interaction as predictors of rejection to test whether classroom type moderated the relationship between aggression subtype and rejection, and to predict the contributions of the aggression subtypes to peer rejection. We performed these analyses separately for low and high aggression classrooms. To test whether aggressive behaviors predicted changes in peer status variables over a one-year period, hierarchical multiple regression analyses were conducted with peer status variables at Time 2 as dependent variables. First, the relevant peer status variable

at Time 1 was entered in each analysis to account for baseline variance. Next, the reactive or proactive aggression variable at Time 1 was entered, followed by classroom type, and finally, the interaction term for aggression at Time 1 and classroom type was added.

**Dependence.** Child data were not completely independent because multiple children from the same classroom and the same school were included in the study. To estimate the effect of this dependence, we calculated the design effect (Muthén, 2000) with  $d = 1 + \rho(c - 1)$ , where  $\rho$  is the intraclass correlation and  $c$  is the common cluster size, a measure of the average number of units per cluster—in our case this is the average number of children per classroom or school. Generally, a design effect less than 2.0 is considered acceptable and small enough to be ignored based on simulation data (Muthén & Satorra, 1995). All but one of the design effects were within the range considered small enough to ignore; therefore we proceeded to use regular regression models for these variables. However, for reactive aggression at Time 2 the design effect was 2.06. To ensure that independence between data concerning reactive aggression did not affect the findings, we recalculated the analyses for this variable adjusting the standard errors for dependence using the procedure described by McCoach and Adelson (2010). When doing so, we found the same results reported next.

## RESULTS

### Descriptive Statistics

The average level of reactive aggression was higher among students from special education EBD classrooms ( $M = 1.35$ ,  $SD = 0.58$  at Time 1 and  $M = 1.11$ ,  $SD = 0.63$  at Time 2) than from general classrooms ( $M = 0.87$ ,  $SD = 0.62$  at Time 1 and  $M = 0.64$ ,  $SD = 0.64$  at Time 2). Proactive aggression was also higher, on average, among students in EBD classrooms ( $M = 0.67$ ,  $SD = 0.50$  at Time 1 and  $M = 0.62$ ,  $SD = 0.58$  at Time 2) than in general education classrooms ( $M = 0.52$ ,  $SD = 0.50$  at Time 1 and  $M = 0.26$ ,  $SD = 0.36$  at Time 2).

### Associations Between Aggression and Peer Status

Bivariate correlations showed that reactive aggression was negatively associated with social preference ( $r = -0.23$ ,  $p < 0.01$ ) but was not correlated with social impact ( $r = 0.07$ ,  $p > 0.05$ ). After controlling for proactive aggression, however, this effect was no longer significant ( $r = -0.08$ ,  $p > 0.05$ ). Bivariate correlations showed that proactive aggression was negatively associated with social preference ( $r = -0.29$ ,  $p < 0.01$ ) and positively associated with social impact ( $r = 0.21$ ,  $p < 0.05$ ). After controlling for reactive aggression, proactive aggression was still negatively related with social preference ( $r = -0.21$ ,  $p < 0.05$ ) and positively related with social impact ( $r = 0.19$ ,  $p < 0.05$ ).

### Concurrent Relations of Aggression and Peer Status Moderated by Classroom Type

Results of the regression analyses are reported in Table 1. The significant interaction terms indicated that classroom type moderated the relations between aggression subtype and social

TABLE 1  
Hierarchical Multiple Regression of the Relationships Between Peer Status and Aggression Subtype

	<i>Social Preference</i>				<i>Social Impact</i>			
	<i>B</i>	<i>SE</i>	$\beta$	$\Delta R^2$	<i>B</i>	<i>SE</i>	$\beta$	$\Delta R^2$
<i>Concurrent Relationships of Peer Status and Aggression Moderated by Classroom</i>								
<i>Reactive Aggression</i>								
Step 1: Reactive Aggression	−0.40	0.15	−0.22*	0.05*	0.06	0.14	0.04	0.00
Step 2: Classroom Type	0.82	0.20	0.35**	0.11**	−0.72	0.19	−0.35**	0.10**
Step 3: Reactive Aggression × Classroom Type	0.92	0.31	0.38**	0.05**	−0.24	0.29	−0.11	0.01
<i>Proactive Aggression</i>								
Step 1: Proactive Aggression	−0.65	0.19	−0.28**	0.08**	0.36	0.18	0.18*	0.03*
Step 2: Classroom Type	0.63	0.19	0.27**	0.07**	−0.65	0.17	−0.31**	0.10**
Step 3: Proactive Aggression × Classroom Type	1.13	0.38	0.39**	0.06**	−0.31	0.35	−0.12	0.01
<i>Longitudinal Relationships of Peer Status at Time 2 and Aggression Subtype Moderated by Classroom</i>								
<i>Reactive Aggression</i>								
Step 1: Peer Status at Time 1	0.63	0.08	0.59**	0.35**	0.33	0.10	0.30**	0.09**
Step 2: Reactive Aggression	−0.17	0.15	−0.09	0.01	0.17	0.15	0.10	0.01
Step 3: Classroom Type	0.55	0.22	0.22*	0.04*	−0.37	0.23	−0.17	0.02
Step 4: Reactive Aggression × Classroom Type	0.37	0.32	0.15	0.01	−0.49	0.33	−0.23	0.02
<i>Proactive Aggression</i>								
Step 1: Peer Status at Time 1	0.64	0.08	0.60**	0.35**	0.35	0.10	0.32**	0.01**
Step 2: Proactive Aggression	−0.11	0.20	−0.05	0.00	0.14	0.20	0.06	0.00
Step 3: Classroom	0.41	0.21	0.16	0.02	−0.30	0.22	−0.13	0.02
Step 4: Proactive Aggression × Classroom Type	0.90	0.41	0.31*	0.03*	−0.12	0.43	−0.05	0.00

Note. \* $p < 0.05$ ; \*\* $p < 0.01$ .

preference. No moderation was found for social impact. Then the two types of aggression were regressed separately by classroom type on social preference. In general education classrooms, aggression accounted for 43% of the variance in social preference,  $F(2, 45) = 16.04$ ,  $p < 0.01$ ). High levels of proactive aggression ( $\beta = -0.38$ ,  $p < 0.05$ ) and high levels of reactive aggression ( $\beta = -0.34$ ,  $p < 0.05$ ) uniquely predicted low levels of social preference in general education classrooms. In contrast, in self-contained classrooms, aggression did not significantly predict social preference,  $F(2, 84) = 1.37$ ,  $p = 0.26$ . The unique effects of reactive aggression and proactive aggression were not significant with respective standardized coefficients of  $-0.11$  and  $-0.10$ , respectively.

#### Concurrent Relations of Aggression and Peer Rejection Moderated by Classroom Type

We examined whether classroom type moderated the concurrent relationship between aggression and the dichotomous peer rejection variable. The interactions between the two kinds

TABLE 2  
Binary Logistic Regressions of Rejected Status on Subtypes of Aggression by Classroom Type

	<i>B</i>	<i>SE</i>	$\beta$	Wald $\chi^2$	<i>df</i>	<i>Odds Ratio</i>
<i>Concurrent Relationships</i>						
<i>General Education Classrooms</i>						
Reactive Aggression	1.50	0.76	0.95*	3.93	1	4.48
Proactive Aggression	0.89	0.86	0.45	1.09	1	2.44
<i>EBD Classrooms</i>						
Reactive Aggression	0.55	0.56	0.35	0.98	1	1.73
Proactive Aggression	0.66	0.59	0.33	1.26	1	1.94
<i>Longitudinal Relationships</i>						
<i>General Education Classrooms</i>						
Reactive Aggression	1.24	0.80	0.78	2.38	1	3.45
Proactive Aggression	1.03	1.00	0.52	1.04	1	2.80
<i>EBD Classrooms</i>						
Reactive Aggression	0.95	0.78	0.60	1.48	1	2.58
Proactive Aggression	-0.95	0.87	-0.48	1.19	1	0.39

Note. \* $p < 0.05$ .

of aggression were not significant; therefore, the interaction variables were removed from the model and analyses were conducted again with only reactive and proactive aggression variables as predictors. In general education classrooms, the overall model significantly predicted peer rejection,  $\chi^2(2) = 12.86$ ,  $p < 0.01$ . As expected, in these classrooms, high levels of reactive aggression significantly predicted rejected status (see Table 2). The odds ratio illustrates the magnitude of this effect: as reactive aggression increased by one standard deviation, the odds of being classified as rejected increased by 4.48. This odds ratio was almost twice as high for reactive as for proactive aggression. In contrast, in self-contained EBD classrooms, aggression did not predict rejected status,  $\chi^2(2) = 4.21$ ,  $p = 0.12$ .

### Longitudinal Relationships of Aggression and Later Peer Status Moderated by Classroom Type

The interaction term for classroom and aggression was significant and moderated the relationship between proactive aggression and social preference (see Table 1). It did not moderate any other relationships. The significant interaction between classroom type and proactive aggression was examined using separate regression analyses for general and special education classrooms and social preference at Time 2 as the dependent variable. For each analysis, social preference at Time 1 was entered in Step 1, followed by the two types of aggression to correct for possible relationships between both variables. In general education classrooms, after controlling for social preference at Time 1, reactive and proactive aggression made a marginally significant contribution to the prediction of social preference at Time 2 in general education classrooms,  $\Delta F(3,32) = 25.56$ ;  $\Delta R^2 = 0.06$ ,  $p = 0.06$ . The unique effect of reactive aggression was insignificant ( $\beta = -0.05$ ,  $p = 0.70$ ) and proactive aggression showed a negative trend, with

high levels of proactive aggression associated with low levels of social preference. ( $\beta = -0.27$ ,  $p = 0.06$ ). In self-contained EBD classrooms, after controlling for social preference at Time 1, reactive and proactive aggression did not significantly predict social preference at Time 2,  $\Delta F(3,73) = 6.01$ ;  $\Delta R^2 = 0.02$ ,  $p = 0.37$ .

Longitudinal Relationships of Aggression and Peer Rejection Moderated by Classroom Type

Binary logistic regressions showed that together reactive and proactive aggression significantly predicted rejection at Time 2 in general education classrooms,  $\chi^2(2) = 8.78$ ,  $p < 0.01$ , even though the unique effects of reactive aggression and proactive aggression were insignificant (see Table 2). The odds ratios show that as reactive aggression increased by one standard deviation, the odds of rejection increased by 3.45. As proactive aggression increased by one standard deviation, the odds of rejection increased by 2.80. In self-contained EBD classrooms, the overall model for the prediction of rejection at Time 2 was not significant,  $\chi^2(2) = 1.96$ ,  $p = 0.38$ .

Longitudinal Relationships of Peer Status and Later Aggression Moderated by Classroom Type

Hierarchical regression analyses were conducted to examine the effects of social preference on changes in reactive and proactive aggression over time for general education and self-contained classrooms. Reactive or proactive aggression at Time 2 served as the dependent variable; previous levels of aggression were controlled by first entering aggression at Time 1 and then entering the social preference variable. In both contexts, social preference did not significantly predict changes in reactive or proactive aggression (Table 3). The results for rejection were mixed. Rejection at Time 1 significantly predicted increases in proactive aggression in general

TABLE 3  
Longitudinal Associations Between Peer Status and Subtypes of Aggression at Time 2:  
Hierarchical Multiple Regression Results

	Reactive Aggression					Proactive Aggression				
	B	SE	$\beta$	$\Delta F$	$\Delta R^2$	B	SE	$\beta$	$\Delta F$	$\Delta R^2$
General Education Classrooms										
Step 1: Reactive Aggression			0.68**							
Proactive Aggression								0.26		
Step 2: Social Preference	0.08	0.08	0.16	15.93**	0.02	-0.09	0.06	-0.29	2.49	0.06
EBD Classrooms										
Step 1: Reactive Aggression										
Proactive Aggression			0.47**					0.50**		
Step 2: Social Preference	0.02	0.06	0.03	10.88**	0.00	-0.01	0.06	-0.01	12.71**	0.00

Note. \* $p < 0.05$ ; \*\* $p < 0.01$ . General Education Classrooms  $n = 37$ ; EBD Classrooms  $n = 77$ .

education classrooms,  $F(1, 38) = 5.61, p < 0.05$ , but not in self-contained EBD classrooms,  $F(1, 78) = 0.71, p = 0.40$ . Rejection at Time 1 did not significantly predict increases in reactive aggression in either context,  $F(1, 38) = 1.85, p = 1.83$  for general education classrooms and,  $F(1, 77) = 0.04, p = 0.84$  for self-contained EBD classrooms.

## DISCUSSION

This study investigated the role of the classroom context, particularly classroom type, in the relationship between aggressive behavior and peer status. Descriptive analyses showed that both reactive and proactive aggression were more common in EBD classrooms than in general education classrooms. Given the social deficits associated with EBD and the comorbidity of these aggression subtypes (Vitaro et al., 2006), these results were expected.

### Aggression and Social Preference

Results showed that in general education classrooms, reactive and proactive aggression were both concurrently and longitudinally related to low social preference (i.e., high peer rejection), whereas in EBD classrooms, neither of the two subtypes of aggression was related to social preference. These results are consistent with the person-group similarity model (Wright, Giammarino, & Parad, 1986). We found that proactive aggression was associated with low social preference in general education classrooms. These findings may reflect the overall high levels of aggression among the participants with EBD. It is possible that proactive aggression is accepted in general education classrooms to a certain degree but results in peer rejection when it exceeds normative levels.

Similarly, classroom context moderated the longitudinal associations between subtypes of aggression and social preference. In general education classrooms, proactive aggression was considerably more likely to lead to low preference over time than reactive aggression. Specifically, proactive aggression became as important as reactive aggression in the prediction of rejection over a one-year period. These findings may be explained by the cognitive development of children. As children mature, their cognitive abilities develop and their aggressive behavior becomes more planned and calculated (Kempes et al., 2005). Consequently, older children will be more capable of proactive aggression over time and peers may understand better the nature of these behaviors, which may lower peer preference.

One possible reason for the persistence of proactive aggression over time may be that this form of aggression has a natural reinforcer: obtaining the desired outcome. This benefit may offset the loss in social acceptance. In contrast, reactive aggression has social costs and no gains in social impact, which may discourage its use. Interestingly, in general education classrooms, reactive aggression predicted peer rejection, which, in turn, predicted higher levels of proactive aggression over time. These results seem to support the assumption that reactive aggression developmentally precedes proactive aggression (Lansford, Dodge, Petit, & Bates, 2002).

Conversely, in EBD classrooms, reactive and proactive aggression were not predictive of or predicted by social preference. In these settings, aggressive behavior was neither rejected nor associated with social preference. In self-contained EBD classrooms, aggression tends to be more frequent than in general education settings. As such, boys in these classrooms may

consider aggressive behavior socially acceptable. It is also possible that, as qualitative work by Dutch researchers suggests (Visser, Singer, van Geert, & Kunnen, 2009), among elementary students with EBD, aggression is more complex than the reactive-proactive dichotomy posited by Dodge and colleagues and supported by research with non-EBD samples. Although the present study did not consider this particular issue, it should be examined in future research given how common aggression is in EBD settings.

*Implications for Intervention.* Overall, these results suggest that the association between aggression and peer acceptance depends on the social context, which has important implications for interventions. First, many interventions based on previous research presumed that children will want to reduce aggression in order to improve their peer status. Our results, however, show that these assumed associations between social preference and aggression do not hold in EBD classrooms. Thus, participants may not directly gain acceptance or respect from their peers when they practice social behaviors learned in these interventions, and may, consequently, not be reinforced. This may explain the limited effectiveness of social interventions in such contexts (e.g., Quinn et al., 1999). Therefore, specific interventions based on research in similar group or classroom contexts are needed to address effectively the difficulties of children in such settings.

In addition, tolerance of aggression in certain classrooms may encourage some children to increase their aggressive behavior. Previous research has been concerned with the iatrogenic effects of grouping aggressive children together for interventions (Dishion, McCord, & Poulin, 1999). Further, it has been suggested that it is not exposure to other's aggressive behavior that leads to increased aggression, but rather the acceptance of observed aggression in a given context (Lavallee, Bierman, Nix, & the Conduct Problems Prevention Research Group, 2005). This process may be mediated by the characteristics of the children and the skills of the classroom teacher (Dishion & Dodge, 2005). Thus, it seems particularly important to understand which processes mediate the relationship between aggressive behaviors and peer status in special education classrooms, special schools, and other unique settings in order to prevent possible iatrogenic effects. For instance, in some classrooms, the role of the teacher as leader of the group may be especially crucial in preventing aggressive behaviors. Because most students with EBD spend at least part of their time in general education settings, it is also important that general educators receive adequate preparation to deal appropriately with both proactive and reactive aggression in order to prevent reinforcement of aggressive acting out and subsequent peer rejection.

### Aggression and Social Impact

As expected, proactive aggression related positively to social impact. This result supports previous research that correlated high levels of social impact with high levels of aggression (Newcomb, Bukowski, & Pattee, 1993). Moreover, the relationship between proactive aggression and social impact was not moderated concurrently or longitudinally by classroom context. These results indicated that proactive aggression impacts peer dynamics in both general education and EBD classrooms. Proactive aggression is often driven by social goals such as controlling and dominating peers, which is relevant in either context. In both types of classrooms, children might use proactive aggression to maintain their social position, even if it results in being disliked by some of their peers.

These results support previous research that found social impact to be associated with social dominance (Parkhurst & Hopemayer, 1998). In general education classrooms, proactive aggression was related negatively to social preference and positively to social impact. These results suggest that in general education classrooms, students disliked proactive aggression but it was one way to establish social dominance. In contrast, in EBD classrooms, proactive aggression was also positively related with social impact but was not rejected as it was in general education classrooms. It seems that in such classrooms, proactive aggressive behavior may often be accepted by students, particularly as a means of establishing social dominance. Moreover, these results may explain the inconsistent relationship reported in previous research between proactive aggression and peer status. Even if proactive aggression is hostile and disliked by peers as a result, other children may perceive such behavior as a means of establishing leadership or maintaining social positions.

*Implications for Intervention.* The results of this study suggest that it is important for interventions to reduce the rewards associated with the use of proactive aggression. For example, in both general education and special education classrooms, teachers can avoid appointing as classroom leaders children who use proactive aggression (Farmer, 2000). Salmivalli (2010) argued that interventions targeting proactive aggression should include a peer component in order to diminish the social rewards of these behaviors. For instance, making children aware of how their behavior can reinforce proactive aggression of their peers might help curtail the social reinforcement of such aggression.

### Strengths and Limitations of the Present Study

This study extends previous research by examining the specific relationships between functions of aggression and peer sociometric status in general education and EBD settings. By distinguishing peer status as preference or likeability from social impact or popularity in a group, it was possible to untangle these relationships and their variations across contexts. Furthermore, we conducted complementary dimensional and categorical data analyses that have mainly been used in isolation in previous research to clarify findings that might otherwise have been hard to interpret. Social preference was correlated to both reactive and proactive aggression. In contrast, analyses of peer rejection revealed a unique relationship between this variable and the subtypes of aggression.

Despite these strengths, this study has limitations. First, a number of factors may be important in determining the cross-setting generalization of the relationships between child aggression and peer status including parental disciplinary practices, parental support, and socialization experiences in the home and school where the use of aggression may be reinforced. Second, the small sample size did not allow us to explore age differences in the relationships between aggression and peer status. These relationships are likely to vary with age (Cillessen & Mayeux, 2004; Coie, Dodge, & Kupersmidt, 1991). Third, the findings are limited to elementary school-aged Dutch boys; we were not able to assess gender differences. Further research should explore the extension of these findings to girls. It has been suggested that different forms of aggression in girls differentially impact peer acceptance. Some studies found that relational aggression is accepted and even reinforced in girls. In contrast, physical aggression is more likely to be discouraged (Cillessen & Mayeux, 2004). Thus, it might be that girls reject reactive



aggression more than boys because those behaviors are more visible and less normative for girls. Conversely, girls who use proactive aggression might not be liked but are tolerated because of the social impact of those behaviors in general education. It might be, however, that these relationships do not hold in high aggression contexts.

Finally, a notable limitation of this study is that in considering the relationships of context to aggression, we were limited to analysis only of classroom type, rather than the specific interactions and dynamics that develop between students and between students and teachers. Here, classroom type served as a proxy for the overall level of aggression, but this could not capture fully the potential differences between these two contexts. Furthermore, several scholars have argued that emphasis on the place in which students with disabilities, particularly EBD, are served is inappropriate because it is the instruction and interactions that occur within the classroom that determine student outcomes (for example, see Kauffman & Landrum, 2009). In this vein, researchers highlight the importance of teacher–student relationships that are influenced by the interaction of multiple factors such as student and teacher characteristics and behaviors, classroom and school characteristics, family and community factors, and broader social influences (Murray & Pianta, 2007), and are reciprocal in nature (Sutherland & Morgan, 2003). Researchers have shown that positive student–teacher relationships are associated with lower levels of delinquency (Murray & Greenberg, 2001); the implications for peer relationships should be explored. Thus, there is a need to look beyond the mere place in which instruction is provided to consider the nature of the instruction and interactions and the ways in which a variety of intrapersonal, interpersonal, and contextual factors influence the behaviors of students and teachers, and by extension, the academic and social-emotional outcomes of students with EBD. Such nuanced analyses will likely more readily inform changes in practice that may foster improved outcomes for these students.

## Conclusion

The results of this study show that classroom context moderates the relationships between reactive and proactive aggression and social preference. The results of this study suggest a need to target intervention efforts for aggressive youth to reduce aggressive acting out, especially proactive aggression. The relationships between aggression and peer rejection suggest that teacher efforts to reduce bullying and other aggressive behaviors may be particularly relevant for aggressive children with EBD. Indeed, aggressive behavior may be a central component of these children's inability to establish and maintain friendships, particularly in general education settings where aggression is not normative and thus elicits stronger negative reactions from peers. In EBD settings, both subtypes of aggression were more common, particularly reactive aggression, but they were not predictive of social preference. This trend suggests that interventions that rely on some variant of natural peer reinforcement would be unsuccessful. Instead, because of the prominence of reactive aggression, intervention efforts might be bolstered by focusing on frustration tolerance. In addition, in special education classrooms students did not reject proactive aggression and associated it with popularity. This might imply that reducing proactive aggressive behaviors in EBD classrooms might require targeted efforts to curtail the social rewards of these behaviors. Future research is needed to understand better the social relationships of children with EBD in order to design specific interventions that can effectively address aggressive behaviors in such contexts.

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